



Power and Place in Etruria

The Spatial Dynamics of a
Mediterranean Civilization,
1200–500 BC

Simon Stoddart

POWER AND PLACE IN ETRURIA

This volume fills a gap in the study of an important, yet neglected, case of state formation, by taking a landscape perspective to Etruria. Simon Stoddart examines the infrastructure, hierarchy/heterarchy and spatial patterns of the Etruscans over time to investigate their political development from a new perspective. The analysis both crosses the divide from prehistory to history and applies a scaled analysis to the whole region between the Tyrrhenian Sea and the Arno and Tiber rivers, with special focus on the neglected region between Populonia on the coast and Perugia and the north Umbrian region adjoining the Apennines. Stoddart uncovers the powerful places that were in dynamic tension not only among themselves but also with the internal structure constituted by the descent groups that peopled them. He unravels the dynamically changing landscape of changing boundaries and buffer zones which contained robust urbanism, as well as less centralised, polyfocal nucleations.

Simon Stoddart is a reader in prehistory at Magdalene College, Cambridge. He has taught at the Universities of York, Bristol and Cambridge.



View of Orvieto from the West. Samuel Ainsley. 21 July 1842.

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SIMON STODDART

Magdalene College, Cambridge



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*The volume is dedicated to the memory of my aunt,
Dr. Rosemary Hughes,
who studied
the Renaissance politics of Northern Etruria
at the time of Machiavelli*

*'Landscape is the first character'
Tim Winton*

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CHAPTER ONE

INTRODUCTION: THE CHALLENGE OF ETRURIA

ETRURIA IS THE IGNORED CASE OF EARLY STATE FORMATION AND urbanism in comparative studies, only very rarely cited in synthetic work (Hansen 2000). Recent theorisation and synthesis of the global evidence pass over Etruria, even if such works mention Greece and Rome (e.g. Cowgill 2004; Smith 2012; Fisher & Creekmore 2014; Jennings 2016; Scott 2017; Brooke et al. 2018). Why should this be so? Some of the reasons are shared by other, less visible, cases of state formation. The Etruscan state is classified as secondary, as classical, and as lacking in precise texts. However, the main reason is methodological. In spite of the wealth of evidence, Etruria has never been presented in a manner that allows comparison with the recurrent classic cases of state formation in the ancient world. This volume seeks to address this difficulty.

The material culture of Etruria is as rich as the much-studied classical traditions of Greece and Rome and yet, whereas we have the written classical heritage of the Greeks and Latins, we lack the written evidence of the Etruscans. Etruria provides essentially a prehistoric case of state formation. Thus, some of the challenges of Etruria (pre-Roman west-central Italy) (Fig. 1.1) are implicit in the evidence, and some are self-inflicted by the methodologies applied to that evidence. This volume essentially plans to provide the landscape approach to state formation that has substantially been missing, which can be read alongside the rich studies of material culture.

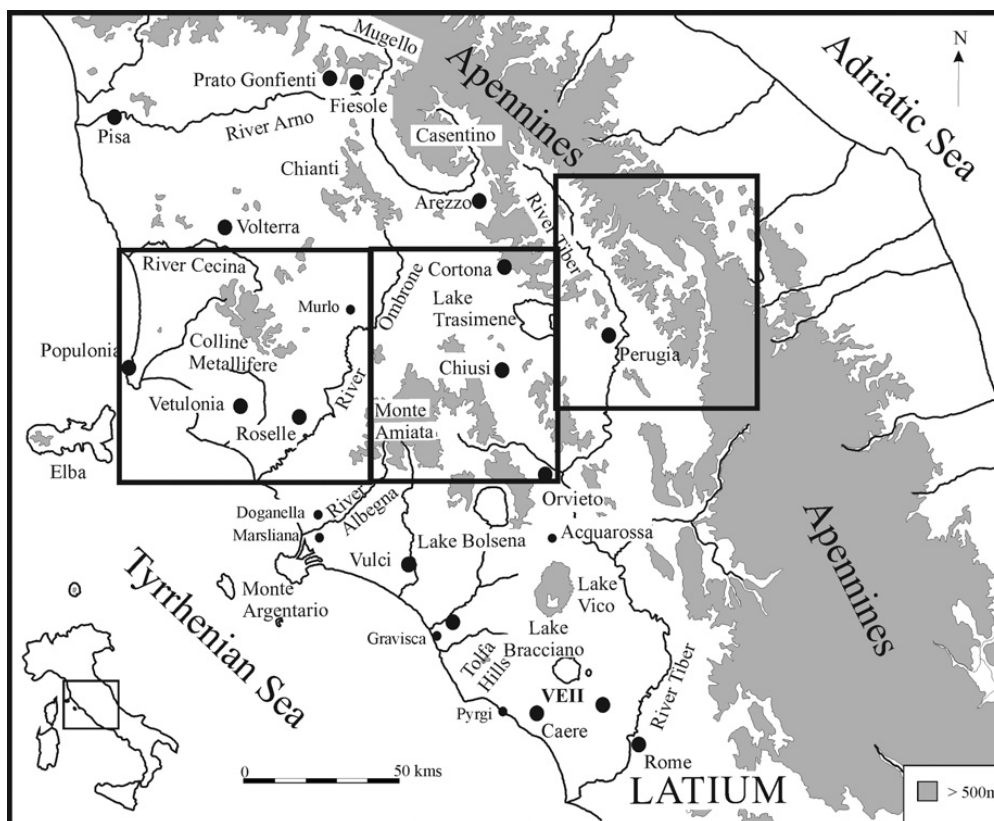


Figure 1.1 Etruria showing location of the transect with detailed analysis in Chapter 6.

The first challenge was addressed in an earlier volume (Spivey and Stoddart 1990) by giving primacy to the archaeological record. The counterweighing tendency of many Etruscan scholars has been to historicise prehistory (d'Agostino 1991a). The inclination of this volume will be to prehistorise and anthropologise, without impoverishing history. First millennium BC Etruria stands at the boundary between academic disciplines, carved inelegantly out of a continuum of process and development. The study should be of state formation, set in the period 1200–500 BC and encompassing the closing of the Bronze Age and the development of the Iron Age (as defined chronologically more broadly in Europe).

The second challenge is to redress a balance of evidence that has privileged the study of material culture, taken substantially from the context of ritual and principally from the funerary dimension of that ritual. The ambition of this volume is to bring Etruria into line with other studies of state formation, not just the Mediterranean neighbours (Whitley 2001) but also those from Mesopotamia (Pollock 1999) and the New World (Blanton et al. 1981; Smith 2003) which have achieved a balance for several decades. In the English-

speaking world, a first step has been undertaken by Izzet (2007), namely to reassess creatively the cultural evidence for the Etruscans, albeit principally for a short period of its history. A second step has been undertaken by Riva (2010), which has investigated the burial evidence for this period in an innovative fashion. These books are complementary to this volume. The third step undertaken here is to provide and explain the dynamic spatial organisation, the regionality of the Etruscans, and, more particularly, the settlement component and its associated infrastructure, an essential corollary to the rich evidence of material culture, a slant that was only partly undertaken by Rendeli (1993).¹ Fulminante's (2012) volume on the landscape of Rome has provided a parallel study seeking to achieve the same ends immediately south of the Tiber, and this volume addresses similar issues to the north of the Tiber.

ARCHAEOLOGIES OF ETRURIA

There is an enduring and strong division in method and philosophy between prehistorians and classical archaeologists (d'Agostino 1991a; Spivey & Stoddart 1990). Cutting across this division, at least three academic groups in Italy have claimed their own areas of specialisation: the full prehistorians, the protohistorians, a category with archaising connotations in English, lurking in liminal space, and the Etruscologists, lurking in their own liminal space on the fringes of the classical world. Even if these divisions are not as stark as they used to be, they continue to influence the coherence of research.

The Holocene prehistorians of Italy, by definition, have no written evidence to study. Traditionally, the members of this group have been devotees of culture history. Since the 1980s, this group has developed interdisciplinary links with the natural and biological sciences (Cipolloni Sampò 1977–82). Unfortunately, as stressed by d'Agostino (1984: 80), the rigid arts training of the vast majority of post-palaeolithic archaeologists has, until more recently (e.g. Cazzella 2001), militated against interdisciplinary advances. Geoarchaeologists (Coltorti & Dal Ri 1985; Cremaschi 1990), generally geologists with palaeolithic interests, have long formed a major exception and come from a radically different background.

The protohistorians, principally gathered around the person of the late Renato Peroni in Rome and his successors and with a secondary focus in the University of Milan centred on Nuccia Negroni Catacchio, provide another major approach. Their primary focus of study is the latest Bronze Age and the earliest Iron Age, a moment of important social development around the turn of the first millennium BC. In 1969, Peroni detected a series of changes

¹ A friend and colleague who read and acknowledged Stoddart (1987) during a visiting scholarship at Magdalene College, Cambridge.

prominent in the Late Bronze Age, simultaneously stimulating the agenda for protohistoric research (Peroni 1969). The first of these changes was demographic expansion. At the time of his article, this change could only be demonstrated on the basis of indirect evidence: an increased quantity of material culture, measured in the form of more graves, richer goods and better typological information. His pupils developed that suggestion by investigating settlement activity (Cardarelli et al. 1980; di Gennaro 1986; Pacciarelli 2000; Vanzetti 2004). The second change that Peroni noted was an increase in agricultural production. This was again entirely based on indirect evidence, in this case artistic representations and agricultural implements. Excavation work on settlements with appropriate sampling then began to substantiate that suggestion by interdisciplinary investigation (Cassano & Manfredini 1978; Negroni Catacchio 1995; Chapter 3, this volume). Peroni gave a more direct interpretation when he suggested, thirdly, and in common with the rest of Europe, that metallurgical production increased markedly. The typological work that had been, up until then, the focus of his interest, linked accurately and directly with this conclusion. An impressive array of metal types was steadily refined in the work by him and his colleagues (Bianco Peroni 1970, 1979; Carancini 1975, 1984). Under his stimulating influence, this group of scholars has adopted many of the most innovative approaches to the period, emerging out of a strong knowledge of material culture, including mortuary (Angle & Gianni 1985; Bietti Sestieri 1992a, 1992b; Guidi 1993; Iaia 1999) and settlement analysis (Balista et al. 1982; De Guio 1985; di Gennaro 1982; Guidi 1985; Pacciarelli 2000).

Thirdly and finally, the Etruscologists (*Etruscologi*), originally gathered around the person of the late Massimo Pallottino in Rome, are those who have chosen to deal with the complicated exegesis of textual and rich artistic material concentrated on the Orientalising, Archaic and Hellenistic periods, and have, until recently, rarely ventured beyond. Unfortunately, this classical approach, adopted from the models of Greece and Rome, retains certain assumptions about society and its attributes, for instance writing and art, that cannot simultaneously hold for central Italian society of this period. The topics of research are also narrowly focused and until recently have lacked any interdisciplinary contact. There has been a fascinating rivalry between the protohistorians and the Etruscologists, as each group begins to step on the ground of the other (Rendeli 1993) and the boundaries begin to break down in the twenty-first century. This breakdown of boundaries has been hastened by the death of the two senior figures, Massimo Pallottino and Renato Peroni.

Four slices of time provide particular insights into the development of Etruscology: the early 1600s, the 1920s, the 1980s and the current state of play in the early twenty first century. The early 1600s founded the Tuscan ideological focus of the Etruscans. The definition of the discipline in the 1920s

showed signs of great potential. The 1980s provided a reflection of on how much that promise had been fulfilled. The early years of this century show a new energy of development and great excitement with younger scholars, albeit small in number, developing new areas of research.

The political situation in the early 1600s was that ancient centralised Etruria (Cerveteri, Veii, etc.) of modern northern Lazio was located within the papal states, whereas the emerging Duchy of Tuscany was centred on ancient decentralised Etruria (Chapter 6, this volume) in modern Tuscany. The ideological aims of the papacy extended beyond local legitimisation. Thus, it was the Duchy of Tuscany that responded to the offer of local legitimisation even if the evidence was less materialised in Northern Etruria. Under the earlier Medici, Machiavelli did not choose to give Florence a deep history in the pre-Roman period (Lee 2020), working directly from the available facts. However, by the late 1500s and the early 1600s, two itinerant scholars, the first Guillaume Postel (1510–1581) from France and the second Thomas Dempster (1579–1625) from Scotland (Leighton and Castellino 1990), developed elaborate deep-seated Etruscan histories which culminated in the glory of the Dukes of Tuscany. For the first time (if we discount Anniius of Viterbo (1432–1502)), the Etruscans were given a strong focus within the political and academic agenda of the times. This political agenda gave primacy to Florence rather than any more southern city in the construction of the Etruscans. The situation was reinforced and institutionalised by Cesare Correnti, Minister of Education in 1871, when, in ‘explicit opposition to Rome’, carrying with it a powerful message of regional identity, he created a Museo Etrusco Centrale and a Deputazione per la conservazione e l’ordinamento dei musei e delle antichità etrusche in Florence (Tarantini 2009: 79). This focus on Florence was given further emphasis in the 1920s.

The 1920s were the time of the Primo Convegno Nazionale Etrusco, which was held in Florence in 1926 and whose papers were published in the first issue of *Studi Etruschi*, the house journal of Etruscan studies, of 1927. The volume contained much promise, particularly at a programmatic level, for the balanced diversity of Etruscan study. No particular sector, except perhaps linguistics, dominated the *Atti* of the conference. Topography was given major emphasis under the authorship of Bianchi Bandinelli (1927c), Del Vita (1927), Mengarelli (1927) and Lazzeri (1927). Major statements of the physical and environmental reconstruction of Etruria were made (Marinelli 1927; Negri 1927). There was work on physical anthropology (Cipriani 1927; Puccioni 1927) and metallurgy (D’Achiardi 1927; Stella 1927). This was a time of immense promise, but one which unfortunately was not developed in later years, since many innovative individuals do not appear to have had direct successors.

The same focus on Florence as the centre of Etruscan studies (albeit balanced by Pallottino's chair in the University of Rome) was reawakened in the 1980s. The *Anno degli Etruschi* of 1985, more popularly known as *Buongiorno Etruschi*, was heavily supported by the Regione Toscana, as well as Fiat. Exhibitions and the Secondo Congresso Internazionale Etrusco were concentrated in Florence and other decentralised Etruscan centres in north-eastern Tuscany (Siena, Arezzo, Cortona). Unfortunately, the Berensonesci, accustomed to the more appropriately seated achievement of Florence – the Renaissance – were unimpressed: 'the pretentious display did not compensate for the shortage of items worth looking at' (Vertova 1986: 172). Over the course of the 1980s and the 1990s, the three key political regions of Italy overlapping with the core region of ancient Etruria responded differently to the opportunity for cultural politics offered by the Etruscans. In Tuscany, there was a twofold approach of regional-level sponsorship of the exhibitions and congress of 1985, and communal-level sponsorship of many new museums and a number of archaeological parks in the following decade (e.g. Cimino 1986; Mangani 1983; Minetti 1997; Paolucci 1997). In Umbria, a region containing the frontier city of Perugia, but also many centres declaring an Umbrian origin, the focus was on searching out international connections for Umbrian material in the museums of the world (Corbucci & Pettine 1989, 1990, 1991; Neri & Pettine 1988), apart from one exhibition on Etruscan writing in Etruscan Perugia as part of the *Anno Etrusco* (Roncalli 1985). By contrast, in Lazio, where cultural loyalty was divided between *Latium vetus* and Etruria meridionale, the main cultural focus was on the local identity of the many small Etruscan centres, often centred on museums (e.g. Barbieri 1991; Cataldi 1993; De Lucia Brolli et al. 1991; Gazzetti et al. 1992; Marconi Cosentino 1995; Sgubini Moretti 1991; Timperi et al. 1994).

The 1980s were a decade when the state of knowledge can be readily measured through the products of the *Anno degli Etruschi* (1985): a series of catalogues of thematic exhibitions and the proceedings of the Secondo Congresso Internazionale Etrusco against the background activity of *Studi Etruschi* over the same decade. Statistically, the contents of the two international conferences on the Etruscans and *Studi Etruschi* provide evidence of the foci of study. Culture history dominated many of the later volumes of *Studi Etruschi*, and rare theoretical research was often concealed under the heading *Naturalistica*. The categories employed by Dyson (1985), in his study of North American journals, show that *Studi Etruschi* had a strikingly similar profile to the *American Journal of Archaeology*, contrasting with *American Antiquity* which (before the foundation of *Latin American Antiquity*) covered New World State formation. Thus, the study of material culture and epigraphy dominates the pages of *Studi Etruschi*. There is some scientific analysis, but this tends to provide new dimensions for material culture. Explicit theoretical topics are

especially rare. More particularly for the present volume, all types of landscape study were only rarely represented. Until the end of the 1980s, Etruscan research was concentrated on the study of material culture with little sense of the landscape in which the objects are found. The published record of the *Anno Etrusco* is a set of lavishly produced exhibition catalogues and the proceedings of the Secondo Congresso Internazionale Etrusco of 1985 (Maetzke et al. 1985), which appeared in 1989 (Maetzke et al. 1989).

The reviews of these volumes by scholars closely related to Etruscan studies are revealing. Mario Torelli (1985), the Italian classical archaeologist closely involved with Etruscan studies, in his introduction to the catalogue entitled *Case e Palazzi*, recalled the paucity of the evidence and the dependence on Swedish and American work for the information that was available. The tradition of landscape archaeology was outside consideration (Potter & Stoddart 2001). Carandini (1985b: 21), the Italian Roman archaeologist was even more forceful: 'Monographs on Etruscan cities and their territories are missing . . . tradition has led the privileged collection of intact and beautiful objects (hence the cemeteries) . . . preferred to the modest traces of life in the countryside.' Carandini is echoing his teacher, Bianchi Bandinelli (1959), who put the situation very well: it is easy and useful to excavate necropolises that can be programmatically opened and closed, with rich and predictable profit in the form of visually pleasing artefacts. Following his teacher's thread, it is Carandini who urges change most powerfully, developing the seminal work of Bianchi Bandinelli (1925) on deep time topography. Oswyn Murray, the Oxford ancient historian, noted that 'Every exhibition confronts the visitor with the basic fact that our knowledge of the Etruscans is almost wholly derived from a funerary context' (1985), echoing the frustration of Finley (1975: 94) on the funerary source of the only literary evidence. Nigel Spivey (1986), the Cambridge classical archaeologist recalled 'The distaste with which classically trained Etruscologists are liable to regard such matters as bones and subsistence was manifested by the way in which a single paper at the Etruscan conference became something of a comic interlude.' These varied but convergent views provide an assessment against which to consider current research.

A strong impression of Etruscan studies at this stage is of a small group of powerful and engaging personalities, leading their own personal schools of engagement with the subject, magnifying the differences of approach within a broad range of similar activity. Clearly these rivalries are best seen through the body language of conferences, but occasionally they reveal themselves in print. A good example of these internal cross-currents is the analysis by Mario Torelli (1992) of the partnership between Marina Martelli and his senior rival, Mauro Cristofani. She is preoccupied with philological detail: the up-to-date bibliography, the accurate comparandum. Her aim is exclusively the reconstruction of the personality of an artisan or the placing of an unpublished epigraphic

fragment. She tolerates no deviation from detail by others but publishes no monographs which would allow review of her own thoughts. Anything more global is classified as sociological deviancy. Mauro Cristofani, in the words of Torelli, is more complex. After a misspent youth in the global realm of sociological deviancy, he has moved towards clean, dignifying, archaeology, closely connected to connoisseurship. One British scholar is an eloquent and rhetorical, albeit slightly tongue-in-cheek, commentator on the Anglo-Saxon world, seeking to maintain perceived standards through comments in introductions and reviews. One example relevant to this volume will be sufficient: 'Iron Age archaeology in Italy has traditionally been funerary archaeology . . . our Italian colleagues cannot reasonably be expected simply to abandon the actual fruit of more than a century's laborious investigation' (Ridgway & Ridgway 1979a: 415). Such an opinion brings an excitement to academic discussion, but there is also the accompanying risk that the more timid will be reluctant to step out of line if their career depends on it. The generations have now passed on, as obituaries are written, and the study of the Etruscans has become more connected with other cases of state formation where art and material culture are placed in their spatial context.

ETRUSCOLOGY IN THE TWENTY-FIRST CENTURY AD

The last two decades have witnessed considerable changes in Etruscan archaeology. A number of the powerful personalities such as Pallottino, Cristofani, Peroni and Ridgway have died, and many of those who remain are engaged in wider fields than the purely Etruscan, most notably Torelli. Only Colonna continues to work energetically in the same spirit of the old, managing to provide a polymathic approach to the Etruscans, across fieldwork, material culture, landscape and linguistics. Interpretative value has been added to knowledge of material culture, in fields such as trade and exchange (Rendeli 1989) and enhanced contexts such as sanctuaries (Colonna 1988–9; Donatella Gentili 1990) and even underwater archaeology (Bound 1991a, 1991b, 1991c; Long et al. 2006). New catalogues of material with greater spatial detail give new opportunities for interpretation, and some of these implications will be explored in Chapter 7, building on work already presented (Spivey & Stoddart 1990). Scholars of Etruria have also participated in the plethora of handbooks that are currently under production on many topics, and these give a sense of the current state of play. Some derive more from the Anglo-Saxon world (albeit Italians in exile) (Bell & Carpino 2016; Maiuro in press; with more in preparation) and some from a more Italian background (Torelli 2000), with at least one a significant redeployment of Pallottino's 1942 title *Etruscologia* now in English by a German publisher (Naso 2017). These handbooks are beginning to address the issue of landscape, at least at a generalised level sometimes still under

the guise of topography, although not always allowing the comparative framework with other cases of state formation, and the main coverage is still drawn from material culture. Handbooks of the European Iron Age tend to be focused on other regions and, when covered, prioritise a Greek perspective (Wells et al. 2018). The relatively new journal *Archeologia e Calcolatori* has also picked up on a number of more quantitative approaches, especially in the field of urban landscape (Camporeale 2017; Baglione et al. 2017; Cinque et al. 2017; Lulof & Sepers 2017; Bagnasco et al. 2017). Approaches have clearly begun to change as the distinct, even silo-encased nature of Etruscan studies have begun to be broken down. Two areas will, however, be given further emphasis here because they relate to the spatial dynamics of this volume: literacy and settlement.

ETRUSCAN LITERACY

In the study of Etruscan writing, an impasse has been reached in the traditional forms of study. On the one hand, the writing can be easily read, since it is related strongly to Greek script. On the other hand, the seemingly non-Indo-European status of the language prevents an equal understanding of content. A narrow range of lexical recognition has been achieved, understandably related to funerary and ritual contexts. However, a full understanding of syntax and grammar is far from being reached and will probably not be achieved even through comprehensive computerised catalogues (Rix 1991), although these do provide a ready source of information on the distribution of the products of literacy. The reconstruction of the Etruscan language remains a painfully slow process because of the language's structural uniqueness and inadequate data. This is in spite of the claims for a watershed in the study of the Etruscan language, dated as early as 1969, by Cristofani (1979: 373). A more informative reading of the available Etruscan texts is only to be found through a more interdisciplinary approach: a reading of text and context.

The Etruscan type of writing that is being considered here is very different from the types of writing that are normally studied: the development of early writing systems or the effects of printing and widespread literacy in the modern world. It is, therefore, not possible to make transfers from the Mesopotamian world (Schmandt-Besserat 1980, 1992) or from our modern conceptions of writing. Equally, our conceptions of writing taken from the Greek and Roman world are inapplicable. Etruscologists have incorrectly assumed that the primary function of writing was commercial and administrative (Hus 1980; Strong 1968). The writing under consideration here is exotic and restricted. Inscriptions are artefacts of social power, especially in the form that they are preserved in Etruria, albeit often concealed from much of the population. The

distribution of surviving inscriptions therefore has an interest for landscape archaeology (Chapter 7, this volume).

The definition of 'restricted', in relation to literacy employed here, is that of Goody (1977; Goody & Watt 1968), ironically conflicting with his prediction of the technological power of the alphabet to democratise. Nevertheless, the restriction of written language took, as he predicted, three forms: the list, the table and the formula. In Etruria, all these forms are present, but the formula is the dominant mode that has survived. In spite of this clear case of Goody's rule of reduced form, content and context, classical scholars and Etruscologists, in particular, have tended to ignore the fact that writing represents only a very restricted and particular aspect of linguistic performance. Unwarranted ethnocentric assumptions have been made. It has been assumed, for instance, that the personal names recorded in writing are a 1:1 representation of those employed by members of society in everyday life (Cristofani 1979: 403), even though the contexts of all the inscriptions are funerary and therefore, in sociolinguistic terms, exceptional. At worst, it has even been stated that the identification of people by name began when the decision was made to write names down. In fact, the nature and presence of a name recorded (usually) in stone or clay is very much dependent on the sociolinguistic context, and writing itself considerably transforms that context (Stoddart & Whitley 1988b; Street 1984).

Archaeology has at its disposal the means of providing extensive information on time, space and context which represent, in sum, the sociolinguistic framework for analysis. In the words of Jakobsen (1960: 353), the verbal structure of a message depends primarily on the predominant function. In Jakobsen's terminology, the referential and the phatic functions are common among the messages in Etruscan writing. In other words, most of the messages offer a ritualised repetition with respect to a particular referent. An understanding of the formulaic mode of expression is critical to a study of Etruscan writing. Formulae are ready tools for manipulation and legitimisation of social authority. The formula imparts information at two levels. It communicates with those able to read and substantiates positions between those who share higher status. Simultaneously, it impresses upon those unable to trace its exact meaning, the illiterate, the separation of the élite from the non-élite. In time, the numbers of individuals cognisant of the actual meaning of the formulae are increased, and formulae are elaborated to adjust for the influx of larger numbers of participants in the élite structure. A fusion is required between the different levels of context: the named individuals and power of the descent group and community of which they are part.

Etruscologists have made innovatory steps in the more sociological study of Etruscan inscriptions, and some of these have been in the direction of the study of context. The seminal work has been that of Cristofani (1981b) who noted various spatial and diachronic trends of the personal name which are quite

clearly linked to state formation; the single name designation is found in early and peripheral contexts; the double (and triple) name designation is found in later contexts, responding to new scales of political complexity. Another area of innovatory research has linked the names with gift giving (Cristofani 1975a), showing how the connectivity of the ancient world could be tied into the agency of particular individuals. A further very interesting anthropological dimension engages with the definition of the descent group through time. The study of personal names has dominated research, principally because of their prominence. Work has identified names concentrated in individual primary centres, and for the later period it has been possible to construct genealogical descent and social structure (Rix 1963, 1977) from the numerous Hellenistic inscriptions of the inland centres of Chiusi and Perugia in particular. This work has made remarkable strides by the systematic collection of corpora of descent group names for individual centres (Marchesini 1997; Morandi Tarabella 2004). An extension of this work is to measure the mobility of descent groups as they wax and wane, through biological and political success/failure (Stoddart 2014). The latter can include the incorporation of affines and fictive kin, processes that are to a greater or lesser extent measurable through the analysis of personal inscriptions. More complex is the reconstruction of mobility on the basis of implied ethnic affiliation of particular personal names (Marchesini 2007), relying on particular assumptions in ethnic formation.

SETTLEMENT STUDY

The study of the Etruscans has a second great unexplored strength, namely the richness of settlement data which, once collected, has mainly been examined through Roman eyes (e.g. Patterson 1987; Sewell & Witcher 2015). Six implications of the introduction of the landscape dimension into Etruscan research are immediately apparent (Stoddart 2007): access to non-textual history; the comparative value; the construction of a sense of place as part of identity; regional variability; the construction of micro-histories; and the insertion of material culture into nested scales of landscape context. It is essentially the purpose of this volume to present some of these results, but first it is useful to review the historical context of both settlement excavation and settlement survey.

SETTLEMENT EXCAVATION

Progress towards the study of the internal organisation of settlements was slightly more noticeable at an earlier stage for the Latest Bronze Age period than for the Iron Age or Etruscan periods. Sites have been excavated from the latest Bronze Age in the Val di Fiora (Negroni Catacchio 1981, 1995), Narce

(Potter 1976), Torrionaccio (Cassano & Manfredini 1978), San Giovenale (Pohl 1977), Civitavecchia (Maffei 1981; Prayon & Gran-Aymerich 1999), Monte Rovello (Maffei 1973), Gubbio (Malone & Stoddart 1994) and the Marche (Lollini 1979). The Iron Age outside *Latium vetus* was slow to be investigated; limited work at Tarquinia was a rare exception (Linington 1982). Etruscan phase sites had until recently only been substantially investigated in a few long-term excavations of nucleated sites such as at Acquarossa (Wikander & Roos 1986; Östenberg 1975), Roselle (Bartoloni & Bocci Pacini 2002; Bocci Pacini et al. 1975; Donati 1994) and Marzabotto (Mansuelli 1979; Sassatelli & Gori 2005), the unusual site of Murlo (De Puma & Small 1994; Phillips 1993; Phillips & Talocchini 1980; Tuck 2000) now proven to be a nucleation, as well as two major sanctuary settlements, Gravisca (Torelli et al. 1971) and Pyrgi (Colonna 1970b, 1988–9) and a probable third at Regisvilla (Morselli & Tortorici 1982), as well as some more minor investigations such as at Veii (Stefani 1944; Ward-Perkins 1959). More recently, work has been systematically commenced at some of the deeper levels of the major primate centres such as Populonia (Aprosio & Mascione 2006; Cambi & Manacorda 2002; Cristofani & Cristofani Martelli 1979, 1985; Mascione & Patera 2003), Cerveteri (Cristofani 1992, 1993; Cristofani et al. 1986; Izzet 2000; Maggiani & Rizzo 2005), Tarquinia (Bonghi Jovino 1999, 2005; Bonghi Jovino & Chiaramonte Treré 1997; Chiaramonte 1999), Veii (Bartoloni 2003a; Bartoloni et al. 2005; Piro 2005) and finally some smaller settlements (Berti et al. 1985; Caccioli & Whitehead 1994; Camporeale 1997; Donati & Ceccarelli 2002; Stoddart et al. 2012; Whitehead 1994) and farmsteads (Grant et al. 1993; Perkins & Attolini 1992). As a result of this relative rush of data, it is a good moment to look at the implications, and this is the intention of the present volume.

THE ETRUSCOLOGISTS' VIEW OF LANDSCAPE AT THE TIME OF THE *ANNO ETRUSCO*

Etruscologists have been appreciative of landscape from a reasonable distance, much as a painter is of a panorama. *Città e Campagna in Etruria Settentrionale* (Cristofani 1976a), with its promising title, contains some elements of interest and originality, including some distribution maps, but its appeal was substantially popular, as is a slightly later volume on the coastal part of the same region (Cristofani 1981a). Colonna has also attempted to piece together the information that is available for settlement. His 1973 article (Colonna 1973) was the first to point out the spatial position of Murlo (Chapter 6, this volume) midway between the cities of Arezzo, Chiusi, Roselle and Vetulonia, but his interpretation remained dependent on the literary sources. Another article by Colonna made general, but fundamental, statements about the development

of inland South Etruria (1974). Other work of this time still made no more than short statements about the temporal occupation of individual centres and repeatedly reworked the little that is known about the internal organisation of such centres as Marzabotto and Cerveteri (Mansuelli 1985). There was still a class of work that typically made little analysis at all, and merely listed old data (De Marinis 1977). One of the catalogues of the promising exhibition on *Palazzi e Case* that accompanied the *Anno Etrusco* increased the distortion by stressing the artistic content rather than the landscape context. The site of Murlo rightly dominates the catalogue of this exhibition, but it is a domination that would have been put in perspective if a field survey had been carried out of its region by its excavators, a project that has only now been completed by archaeologists working back from the Medieval period (Campana 2001).

This picture contrasted with the increasing contribution that survey was making to the understanding of many wider socio-economic processes. Many surveys have been directed towards problems outside the scope of state formation, particularly towards earlier prehistory (Potter and Stoddart 2001), or the Roman empire (Attolini et al. 1983; Carandini 1985a); only the multi-period scope of these surveys makes them relevant here, and only now is their collective meaning beginning to be appreciated (Palmisano et al. 2017; Stoddart et al. 2019). Other surveys of the time tackled state-organised societies, but in the form of colonial Greek city-state development (e.g. Metapontum (Carter 1998; Carter et al. 1985), or Carolingian state-organised society (Hodges et al. 1985). These, too, are not strictly relevant to the study of Central Italian state formation.

TRADITIONS OF SURVEY AND TOPOGRAPHICAL RESEARCH AT THE TIME OF THE *ANNO ETRUSCO*

The earliest most comprehensive publication on Mediterranean survey (Keller & Rupp 1983) gave a notably non-Italian view of survey in Italy. The emphasis is on Anglocentric regional work run by foreign (mainly North American) universities and schools of archaeology abroad; only one study (Hemphill 1983) fell directly within the theme of state formation of Central Italy. For the study of state formation, the Italian contribution is fundamental in that it is virtually unique in focusing directly on formative periods of development. Four different sources of research were important in this contribution: state archaeology in the form of the Istituto Centrale per il Catalogo e la Documentazione (ICCD) and the Superintendencies (d'Agostino 1984: 78–80), university archaeology, local amateur groups and individuals acting independently of any particular institution. The Istituto Centrale comprised the central archive at a national level. The regional Superintendencies have typically been involved principally

in rescue archaeology, excavating and conserving largely Etruscan and Roman monumental remains. A structured approach of rescue/research excavation integrated with survey was becoming much more apparent based on individual initiatives (Bietti Sestieri 1984c, 1986; Bonomi Ponzi 1985). Italian universities, when engaged in field archaeology, had tended to enter long research excavations of major sites. Recently, the importance of the role of survey was emerging in a few selected universities such as Siena (Botarelli 2004; Cambi 1996; Cambi & De Tommaso 1988; Campana 2001; Cenni 2007; Cucini 1985, 1986; Felici 2004; Nardini 2001; Paolucci & Francovich 2007; Valenti 1995, 1999), Pisa (Mazzanti & Pasquinucci 1983), Rome (Bergonzi 1973; Bergonzi, Buffa et al. 1982; Bergonzi, Cardarelli et al. 1982; Guaitoli 1981, 1982) and Milan (Negroni Catacchio 1981). As early as the 1970s, local groups of varying standards and political persuasion had played an increasingly important, if controversial, role in field survey (e.g. Gruppo Archeological Romano/GAR or the Gruppo Archeological Casentinese (Stoddart 1981)). The training of some more recent holders of state and university posts was, in some cases, first provided by these groups, contributing a knowledge of low-quality artefacts and fieldwork not offered by the then current tradition of academic teaching. In the best cases, an agreement was made between local amateur groups who know the local terrain well and the state authorities with a detailed knowledge of the local culture histories (e.g. Albertoni et al. 1985). Finally, there were individuals, sometimes without a particular academic or administrative affiliation, who, by publishing the material discovered, have made a permanent contribution to the archive of survey data (Tracchi 1978). This prominence of outstanding individuals has great historical importance, particularly since it lies at the foundations of the longest-lasting tradition of central Italian work: the topographic archive.

A. The Topographic Archive Tradition

This tradition has perhaps formed the mainstream of research with the longest development and greatest elaboration. From the nineteenth century, a small but dedicated group of individuals, frequently well known to each other, collected and published information. The work of these individuals often coincided with phases of destruction of the archaeological landscape, creating a record, if at times imperfect, of an otherwise lost past. Early records are almost incidental; cartographers (e.g. della Volpaia 1547) and architects (Borsi 1985) had recorded standing antique monuments. Gradually, however, system was introduced, particularly, but not uniquely, in Etruria and the Roman Campagna (*Campagna Romana*). Gell (1834–6) and Nibby (1837) provided early accounts of the topography of the area around Rome. However, it was Dennis who set a new standard of accurate and detailed reporting in his *Cities*

and *Cemeteries of Etruria* of 1848. Dennis (1848: vi) envisaged his book as no more than a guidebook, but the thoroughness of his work made a detailed and readable record of the state of knowledge at the moment when many new discoveries were being made.

Greater advances were subsequently made with the systematisation of methodology and publication. Major series of records of excavations were started in the 1880s: *Notizie degli Scavi* (1881) and *Monumenti Antichi* (1889). From 1881 to 1887, there was a short-lived initiative to centralise the survey of Italian monuments, culminating in the appointment of Gamurrini as director of the project by Royal decree. Some work was carried out by Francesco Gamurrini, Adolfo Cozza and Angiolo Pasqui, but not published until 1972 (Gamurrini et al. 1972). Activity reverted to a succession of individuals who in turn influenced and encouraged each other; for the Roman Campagna, Lanciani, Ashby and Lugli form a sequence of skilled scholars studying the classical past. Ashby, for instance, left a detailed written and photographic record of the topography of the Roman Campagna (Ashby 1927; Mari et al. 1986). His aims were to determine the course of Roman roads, from literary and material sources, and to describe the ancient remains near such roads (Ashby 1902). The work of Ashby set new standards of publication, plotting his discoveries in accurate detail. An eminent modern topographer has described the three principles of *topografia antica*, characteristic of Ashby among others, as a sound philological base, an acute structural and formal analysis of the monument (including a feeling for the reading of the terrain), and a most erudite documentation of the writings and drawings of the preceding centuries (Mari et al. 1986: 15). Lugli followed on these principles, and it was he who revived the concept of a record of the archaeology of Italy, by publishing the first *Forma Italiae* volume on Terracina in 1922 (Lugli 1922). At about the same time, a similar, but distinct, attempt was made to record the archaeology of Italy. Bianchi Bandinelli, after publishing a monograph in *Monumenti Antichi* on Chiusi (Bianchi Bandinelli 1925), first presented at the Primo Congresso Etrusco of 1926, then published (Bianchi Bandinelli 1927a) a map with notes for the Chiusi area. It is interesting that Carandini (1979) frequently states his debt to Bianchi Bandinelli, one of the few older classical archaeologists who combined an art historical and topographical approach to the Etruscans. However, whereas Carandini is interested in studying the Roman aftermath, the main scope of the present research is to study the preceding processes, much as Bianchi Bandinelli attempted in his seminal study of Clusium. One of the few other comparable studies is that of Pallottino (1937) who succeeded in making a study with similar territorial dimensions of Tarquinia, over ten years later. The pattern is of a great master collating the information of the centuries.

Two archival traditions were prominent in the 1980s from these beginnings. The first, the *Carta Archeologica*, has followed on from Bianchi Bandinelli's

initiative. Sixty-three sheets of 1:100,000 maps of Italy were published with notes (Cozza 1972: 458). The result was a purely archival record which cannot be designated survey in any modern sense. The second, the *Forma Italiae* (Fig. 1.2A), is a monograph collection studying areas of Italy on the basis of adjacent 1:25,000 maps, with detailed documentation of sites and original investigation of the terrain. In this work, a survey methodology related to the aim of understanding processes such as urbanism is more apparent. However, the primary aim remained a record interpreted in the light of the literary sources explicitly following the methodology established by Gamurrini, Pasqui and Cozza (Castagnoli 1978: 3). Prehistory, since it lacks the impressive monuments of the classical periods, tends to be under-represented. The artificial boundaries of the Italian map grid system employed in this archival system have cut natural physiographic units and former political territories into, at times, incomprehensible fragments. Model building and problem orientation are not universally integrated, since the map unit under study may not suggest a major direction of research. In the words of authors of the work on Crustumerium, 'the work is essentially based on the direct scouting of the terrain and the analysis of the recognisable traces, closely compared with the ancient sources and every other documentation that helps to reconstruct the story of the territory' (Quilici & Quilici Gigli 1980: 9). The work then proceeds to a presentation of the data on the ancient sources, the story of studies in the area, the geographical and geological background, the topography and a listing of the recent research. Where the artificial survey unit coincides with a major centre, the records provide information on the layout of cemeteries with respect to the centre and the distribution of smaller settlements, allowing detailed interpretation of the ideology and stratified society of the Etruscan and Latin city-states. In such studies, there is often a substantial analytical introduction to the listing of sites. However, such a study, because of the artificial survey limits close to the major centre, necessarily gives an incomplete picture of the formation of the centre with respect to its territory.

Much of the 1980s work, principally by the Istituto di Topografia di Roma, had a sophisticated methodology that had been applied principally to the study of the internal organisation of major centres (Guaitoli 1982). A programme was started to record in detail the large urban centres of South Etruria and Lazio (Guaitoli 1985). Steps were taken to make an even more detailed record employing photo-restitution techniques to plot the density of finds recovered under varying field conditions. The aim was to reconstruct a set of 'diachronic maps' to show the development of each centre. The accuracy of this reconstruction was facilitated by the already greater knowledge of the chronological variation of material culture from the principal centres. However, these sophisticated techniques remained within the archival tradition, since there is an implicit feeling that better data have precedence over the questions under

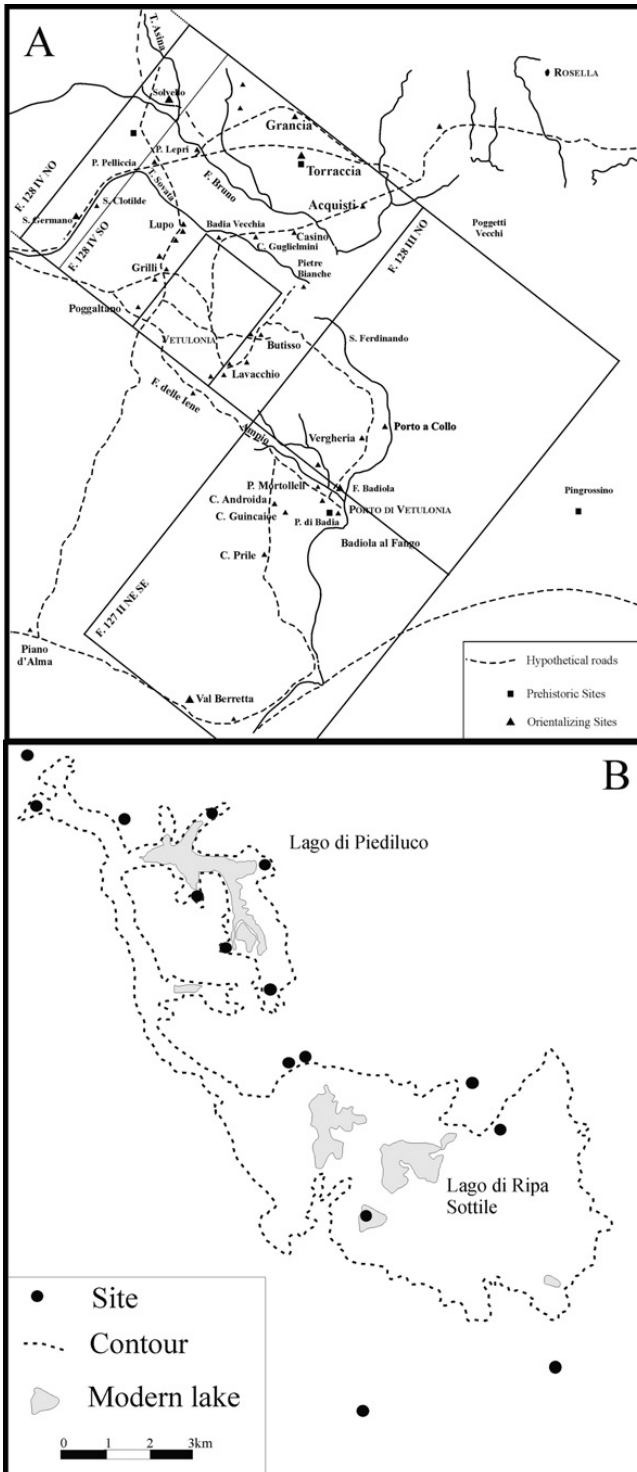


Figure 1.2 A. The *Forma Italiae* tradition. Vetulonia (based on Curri 1978). B. The predictive tradition. Piediluco (based on Carancini et al. 1986).

examination (Guañoli 1985: 58) and that data on the centre itself best serve the understanding of its development (to the detriment of the knowledge of the territory serving the centre)

B. Predictive Work

As a contrast to data accumulation, prediction has been an important theme in much research. The first predictive models were those of the classical authors, contributing to an important tradition of topography. An important early work of Ashby was 'Sul vero sito del lago Regillo' (1898) which, as the title suggests, searched for the linkage of text and topography. A second long-lasting model of prediction is the following of roads, detected from literary/cartographic sources or more recently from aerial photographs (Rajala et al. 1999). Ashby collected information on the principal communication networks of consular Rome. This type of research has a potentially dangerous distorting effect when studying the formation of states whose early development precedes the consular Roman network (even if some Roman roads have an ancient origin) and where transport by water, where available, was probably more crucial and local supply (and therefore site setting) a greater determining factor. The Etruscan primate centres tend to be set back from the major communication routes and not centrally placed in the manner of later Roman roads. Road networking is very often an important early development in the topographic research that has developed in Italy, and the work of the British school at Rome is no exception to this rule (Ward-Perkins 1955). Environmental prediction is a more recent development. A very effective strategy has been developed for locating Late Bronze Age settlement in South Etruria on tuff outcrops (see di Gennaro 1986 for results), and in the Apennines along the edge of former lakes (Carancini et al. 1986; Irti 1981) (Fig. 1.2B). A small number of classical scholars, often from a similar GAR tradition, have followed a similar approach (e.g. Cifani 2003). However, in all these cases, it is difficult to be certain that the full settlement system is being reconstructed. The common factor, regardless of their historical origin, is that preconceived interpretations have had a dangerous degree of influence on the method of discovery. With such a strategy the original interpretation is successively reinforced. These approaches have been much criticised for being unsystematic (Bietti Sestieri 1992a: 30) (in reality they are over-systematic), too dependent on small quantities of recovered material (Bietti, pers. comm.) or too incautious in interpreting whole natural plateaux as occupied (Rendeli 1993: 101–6), with a corresponding overestimation of population numbers (Rendeli 1993: 165). In spite of these criticisms, the effect on our knowledge of Final Bronze Age and some later periods of settlement has been dramatic and allows new insights. This volume generally accepts their data here, even if aware of the potential pitfalls.

C. Regional Research

In contrast to the artificial or over-directed patterns of survey investigation outlined above, some projects have chosen a natural region as the focus of study. This approach, whether consciously or unconsciously following (in some cases preceding) the late Lewis Binford's strategy for the study of cultural systems (Binford 1964), has attempted to avoid, if imperfectly, the difficulties of studying the changing political boundaries of early states.

In the second phase of the British School at Rome survey, where the work of Ashby was perfected, blanket coverage was begun on the arable landscape north of Rome, around the prominent higher-order centres such as Sutri (Duncan 1958), Veii (Kahane et al. 1968) and Narce (Potter 1976, 1979), and bounded by the consular roads already studied. A methodology, based on Second World War field training, was developed for the accurate record of sites discovered and was accompanied by remote sensing, employing RAF aerial photographs and environmental studies of sediment and vegetation. The first publications of blanket coverage date to 1958 (Duncan 1958) and perhaps reached a peak of exactitude in 1968 for the area around Veii (Kahane et al. 1968). Unfortunately, some of the later surveys did not reach the same standard and remained unpublished until the recent computerisation of the material (Harrison et al. 2004; Kay & Witcher 2005). Information that might be gathered today on site size and certain aspects of functional variability is missing, but locally there was no preceding methodology to guide this. Furthermore, the topography and land use of the area led to a concentration of research on the cultivated open areas, and investigation was more intense around the first order centres such as Veii and Narce. Recovery by classically orientated researchers was good for the study of the formed city-states, but less complete for the formative periods of development (di Gennaro & Stoddart 1982). However, this work was important, since it integrated excavation, field survey and environmental analysis on a scale that was unique for the central Mediterranean at the time. Moreover, it is only recently that the unique archive has been analysed to the extent that has occurred with similar archives of state-formation settlement distribution from Greece, Mexico and Mesopotamia (Patterson et al. 2004). A similar type of research has been carried out by the Swedish school for the area around Acquarossa (Wetter 1969), San Giovenale (Berggren 1967) and Luni sul Mignone, but is not published in detail.

In more recent years, the regional focus of survey work has been strengthened in the form of 'research designed' regional survey. Work has been dominated by methodological considerations, perhaps encouraged by non-archaeological constraints, such as the timing of university terms. The result is that much work is concentrated into short, not necessarily optimum, seasons, usually September. This is the tradition of survey for which many of the

generalisations from the Keller and Rupp (1983) volume can be substantiated: a geographical regional focus, palaeoenvironmental reconstruction, multi-period recovery of material and frequently inter-linked excavation. Unfortunately, in contrast to Mesoamerica or Mesopotamia, few of these surveys have been directed specifically towards the problem of state formation. The important regional survey of the Ager Cosanus is principally directed towards the study of the Roman period (Carandini 1985a; Carandini & Cambi 2002), and the Montarrenti study (Fig. 1.3A) is based around the study of a medieval site (Barker 1983; Barker & Symonds 1984). Where relevant data have been collected, problems of geomorphology and land usage have often prevented the large-scale reconstructions of population growth and hierarchy formation that feature so strongly in studies of Oaxaca and Susiana. The majority of these formalised surveys has also been concentrated in the more peripheral areas, away from the earliest centres of state formation. The studies of the Molise (Barker 1995), Valle dell'Idice (Vitali 1983); Colfiorito (Bonomi Ponzi 1985) and Gubbio (Malone & Stoddart 1986, 1994) exemplify this, since the prominent centres in each case developed late.

In the last decade a number of surveys directed empirically towards the solutions of the problems of Etruscan state formation have been developed. The Tuscania survey (Fig. 1.3B) is the prominent example from the tradition of the British School at Rome (Barker 1993; Barker & Rasmussen 1988), and Phil Perkins has drawn on the Albegna survey to provide an analysis of this buffer region (Perkins 1999a), now taken further by Zifferero (Camilli et al. 2008; Zifferero et al. 2009) (Fig. 1.4). The Nepi region has been studied using

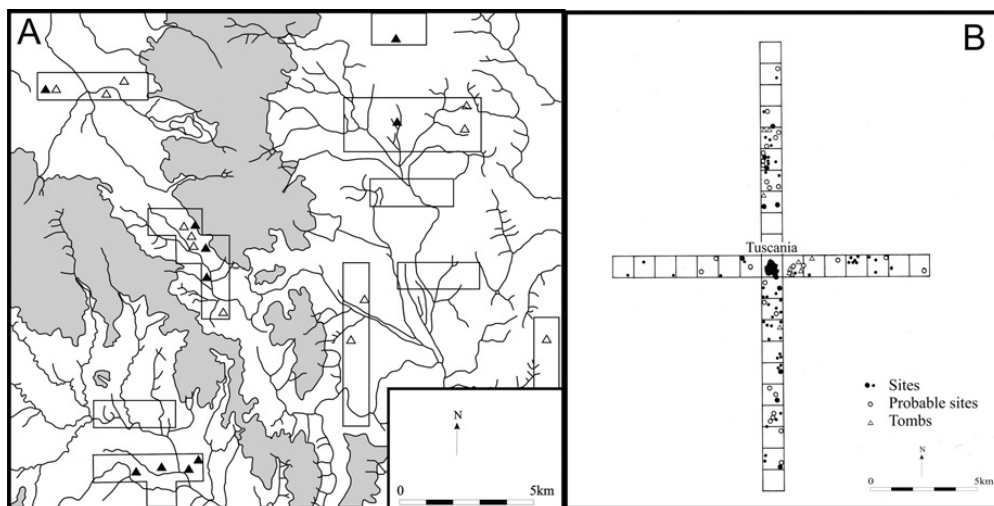


Figure 1.3 A. Transect tradition 1. Montarrenti (based on Barker et al. 1986). B. Transect tradition 2. Tuscania survey transects showing 7th- to 5th-century settlement (based on Barker & Rasmussen 1988: 29–32, Figs. 2–5).

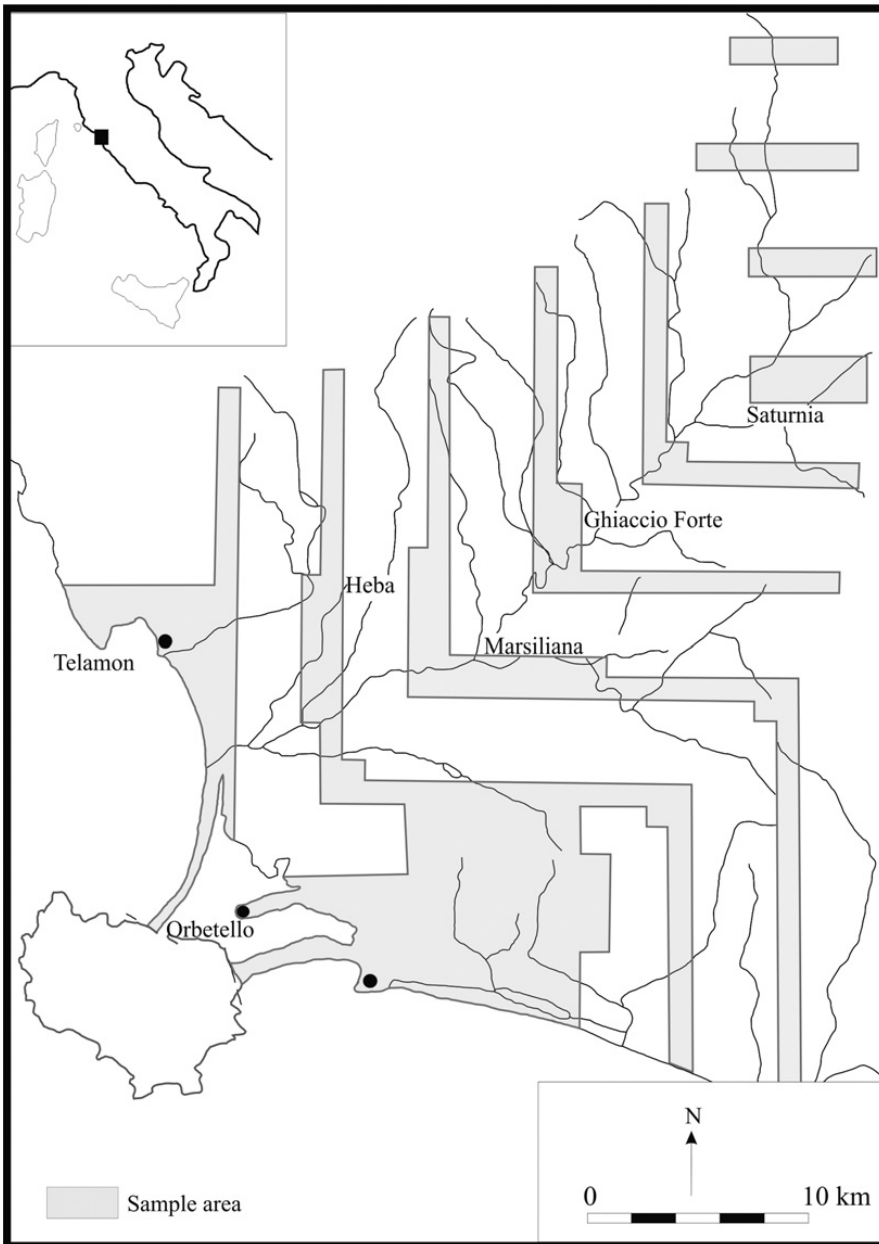


Figure 1.4 Transect tradition 3 (Ager Cosanus).

a number of different approaches (Camilli et al. 1995; Cifani & Munzi 1995; di Gennaro et al. 2002; di Gennaro et al. 2008; Rajala 2013, 2016). Italian scholars are organising other work around Cerveteri (Cristofani 1988; Enei 1987, 1993, 2001; Nardi 1989; Zifferero 1990) and Volterra (Terrenato 1992, 1996), and the work of the British School at Rome around Veii has been reinterpreted and

reworked employing computerised techniques (Patterson et al. 2000; Patterson et al. 2004; Patterson & Rendeli 2012). A number of these regional surveys were accompanied by detailed surveys of the interiors of cities including Doganella (Perkins & Walker 1990), Cerveteri (Merlino & Mirenda 1990), Veii (Guaitoli 1981) and Vulci (Pacciarelli 1991), and some of these have been drawn together for the early periods into a comprehensive study of the southern part of Etruria.

The positive result is the building up of a set of case studies that are examining a landscape without excessive focus on the major human centre in that landscape. The approaches adopted inevitably have many variations. The Molise and Ager Cosanus surveys have adopted a set of transects cross-cutting the local environmental diversity (Fig. 1.4). The studies of Monterenzio (Vitali 1983), Colfiorito (Bonomi Ponzi 1985) and Selva del Lamone (Rendeli 1985a, 1985b) have explored the territories of a particular centre in detail. The Montarrenti work has adopted randomly placed quadrats for the general coverage, with more detailed environmental analysis and plotting of selected sites. The work at Gubbio has combined a range of techniques (including transects, environmental stratification, an initial major focus on the primary centre and random coverage of certain parts of the terrain) (Malone & Stoddart 1986). The Tuscania survey has adopted a combination of radiating transects, random and judgmental sampling areas (Barker & Rasmussen 1988). Among international projects, a general trend is towards adopting a multi-stage sampling design, but not one pressed home in the programmatic way of some work in the Southwest of the United States (Judge et al. 1975). Within the Italian tradition, the deployment of increasingly sophisticated methodologies has been led by Romanists (Cambi & Terrenato 1994) and Medievalists (Campana & Francovich 2006).

THE FIRST SYNTHESIS

The combination of this work has enabled a series of attempts to classify the human environments within which people lived (Potter 1979; Stoddart 1987; Rendeli 1993; Becker 2008; Acconcia 2012: 12–15; Palmisano et al. 2017; Stoddart et al. 2019; Stoddart et al. in press). This has taken place in spite of the resistance of the Etruscology school, until relatively recently (Rendeli 1993), to the appreciation of regional survey and has led to a relatively restricted contribution of survey to the study of state formation. More recently the early period has been covered for South Etruria (Pacciarelli 2000) and the boundary area of the Tiber valley also investigated (Cifani 2003), but the regional variation within the whole of Etruria over the full range of state formation has yet to be covered. This is the aspiration of the current volume.

CONCLUSION

The complexity of the divergent patterns of state formation in Central Italy is now being demonstrated by increasingly abundant data from field survey. Etruscan and Latin state formation is now beginning to be studied with an array of ethnohistoric, art historical and regional data of increasing detail. The aim of this volume is to integrate these diverse sources of information within a spatial framework. Field survey itself, while retaining a regional focus, must develop more sophisticated and intensive techniques to recover the lower orders in the settlement hierarchy and evidence for off-site activity (Palmisano et al. 2018; Stoddart et al. 2019; Stoddart et al. in press). The study of settlement related to state formation in Central Italy has a long history. The continued integration of the work of the past with the more modern techniques will allow Etruria and *Latium vetus*, as well as more peripheral areas, to be compared with cases of state formation from completely different cultural contexts.

A serious problem for the study of Central Italy in this period is an ambiguous status with respect to the Mediterranean world. Cultural development is both entangled with, and independent from, the Mediterranean world. Generally speaking, prehistorians tend to favour an indigenous development (Bietti Sestieri 1992a) and classical archaeologists a pre-eminently external influence (d'Agostino 1977). There is inevitably a defensive reaction against the long tradition of work on Greek material whose leading practitioners have a patronising view of related cultures in the Mediterranean world (Boardman 1980) that is perpetuated by historians of later periods who venture into the prelude of prehistory (Abulafia 2011: 100). Etruscan scholars are greatly dependent on comparative studies of Greek material for interpretation and yet anxious to maintain a rival study of intellectual merit. Etruscan art is defended against the artistic standards established, rightly or wrongly, for Greek material, and the effort of this work has meant that other interesting questions are often abandoned. A key question is that of the originality of artistic, cultural and ideological expression of Central Italian development. The challenge, not fully met, is to transcend value-laden terms such as originality in a more sophisticated interpretation of levels of culture contact, connectivity and transformation that take into account more post-colonial approaches.

CHAPTER TWO

ANALYSIS OF THE SPATIAL DYNAMICS OF STATE-ORGANISED SOCIETIES

THE SPATIAL ANALYSIS OF STATE-ORGANISED SOCIETIES IS potentially a successful meeting point of anthropology, human geography and archaeology (Batty 2013; Renfrew 1983; Smith 2003; Wagstaff 1987). Each discipline has much to contribute which cannot be achieved by one of them alone. Anthropology resists the impact of written sources, while contributing the internalised symbolic dimension. Human geography has extensive experience of the spatial organisation of relatively modern societies and the abstract models developed to interpret them. Archaeology adds the dimension beyond written records and census returns, which often coincides with the transition from unhierarchical to centralised and hierarchical settlement systems, inaccessible to human geography, without archaeological investigation. The archaeological interest in this transition has required an adjustment of the techniques of human geography. Straightforward borrowing of anthropological and geographical techniques is rarely appropriate. Old techniques have been adapted or new techniques developed to deal with the different hierarchical and spatial formations investigated by prehistoric and anthropological archaeology (Johnson 1980; Renfrew and Level 1979).

This volume is conceived in the same spirit. It is an exploration of spatial techniques close to those developed in geography, but adapted, modified and mediated through anthropology, for the analysis of that transition frequently defined as state formation by anthropological archaeologists (Wright 1977). Many of these techniques, which had great vogue in the nomothetic 1960s,

were rejected in the humanistic 1980s but have seen some resurgence in the 1990s with the implementation of Geographical Information Systems (GIS) (Allen et al. 1990; Gaffney et al. 1995) and now witness a new synthesis in the current millennium. GIS, at one level, allows some of these techniques to be tested more rapidly and efficiently, and in this volume this has been implemented through XTENT. At another level, it allows the combination of information in a manner which is beginning to be implemented in micro-studies of individual regions (Kay and Witcher 2005) and synthesis (Stoddart et al. in press).

The volume emphasises the ‘power of place’ (Chapter 8) once established. The distinctive trajectories of the Etruscan landscape of power are predicated on the degree to which nucleation of population took place at a crucial phase of political development at the turn of the second and first millennia BC. At the same time, the power of place was countered by the power of the descent group, which did not universally show loyalty to their powerful place and had a great capacity for mobility when it suited their ambitions (cf. Terrenato 2019).

THE STATE AS A UNIT OF ANALYSIS

Many terms have been employed to encapsulate the complex political entities which are analysed in this volume (Stoddart 1999): centres of civilisation, cities, *polis/poleis*, city-states, (complex) polities. The term *state* has finally been retained because of its more general usage and cross-cultural applicability. Its use avoids direct confusion with the Hellenic concept of *polis* which has affected terminology even at some distance from the Mediterranean. The ideology, scale and spatial configuration of the Greek *polis* are atypical. Avoidance of *polis*-based definitions of the state does not mean alternative, less culturally specific, definitions are automatically appropriate. Some of the hierarchical emphasis given by American neo-evolutionary definitions of the state is not as widely applicable as the cross-cultural generalisations would suggest. Not all states have the complex levels of settlement structure which can be detected in Mesopotamia and Mesoamerica, and Etruria provides a variation on this theme.

A major constituent of definitions of the state is the control of territory (Tainter 1988). A state generally consists – as a minimum – of a centre and its dependent territory. A group of such states may share the same cultural characteristics of civilisation (cf. Renfrew 1986) at an inter-regional level. The degree of development of a hierarchy of settlement within constituent territories of states is much more variable. Furthermore, these characteristics vary over time. The study of these changing characteristics of the state across space and time is the pre-eminent investigation of the present volume.

These investigations require a methodology. Evidence for the pre-eminence of centres over territories is required. This entails the proof of political independence, whose measure is difficult to assess in prehistoric contexts but can be established by the pre-eminence of political centres over their local landscape and by the evident *peer polity* balance of these centres with their sufficiently (but not absolutely) equal neighbours. This settlement hierarchy can be examined quantitatively, in terms of size relationships, and qualitatively, in terms of the internal organisation of individual states bridging historical bodies of theory that are both processual and post-processual (Orton 2004). In the quantitative dimension, rank size analysis, building on the work of Guidi (1985), can be applied to the southern part of the region where reasonable data exist and where a clearly emerging hierarchy can be noted and explored (see Chapter 4, this volume). A further key framework is the definition of the political boundaries of the state, and these will be measured and the zones of influence elucidated around these hierarchical hotspots (Chapter 5). In this case, established techniques such as XTENT exist which can be adopted with suitable modifications and applied to the whole region. Once this is achieved, the varied hierarchical patterns of individual city-states can be compared and contrasted by subdividing the rank-size analyses between the separate political territories. For Etruria as a whole and North Etruria in particular, a more detailed analysis will be employed to draw out further the hierarchical contrasts (Chapter 6) suggesting that simple typologies are inappropriate. Finally, non-settlement data, most notably sanctuaries and material culture, will be employed to provide an integrated spatial picture (Chapter 7), drawing on the traditional richness of Etruscan research.

ASSESSING STATE INDEPENDENCE

For prehistoric societies, the proof of the independence of an individual state can be highly problematic. Scale can provide one very good guide. In the famous case of Teotihuacan in the valley of Mexico, one centre disproportionately dominated a well-defined ecological area (Kowalewski 1983). In spite of the lack of written evidence, the independence of Teotihuacan is almost incontrovertible, even though there is no written textual evidence from the urban elite to confirm independence. The case for Teotihuacan is strengthened by the distinctive characteristics of the craft production and its distribution. Very few prehistoric examples equal Teotihuacan in their clarity. However, a strong case can be made for the independence of political centres if they dominate their local environs and do not appear to be part of a much larger interregional political system (such as an empire). An allied case is the existence of related and contemporary peer polities. Although explicit self-declaration of independence may be absent (cf. Cherry 1986), the presence of equally ranked,

but disproportionately large and artistically distinctive, urban centres should provide fairly conclusive evidence for independent political authority. In many cases, independence is recorded in literary sources for the later phases of political development, but this should only be applied to earlier phases with great caution. The Etruscan cities, assessed comparatively, look to be independent equals (Stoddart et al. in press), even without resort to the later literary evidence, an understanding that is difficult for some scholars to understand who study the classical world in isolation (Rasmussen 1992). A central aim of this current volume is to permit a high degree of comparative analysis to be possible for the Etruscans, to a degree that has only partly been achieved before (Torelli 2000)

HIERARCHICAL CONTROL

An important measure of the independence of an individual state is the measure of hierarchical control and centralisation (Batty 2013: 151–87). The simplest expression of hierarchy in settlement is the frequency of classes of settlement size. Settlement-size distributions in complex societies tend to be members of a class of distributions that are strongly skewed (there are few large centres and many smaller centres). This skewed distribution can be abstracted in the form of the mathematical expressions to provide a measure of the hierarchical state of settlement and of the degree of centralisation. The reduction of hierarchical information to data on rank and size, however, excludes information on spatial configuration. This filtering of information has to be recognised in any interpretations that are made from the technique. The rank-size rule is a special case of a general formula applicable to a family of distributions of skewed form; in this specific usage, settlement rank is determined by the size of the settlement within a set of settlements. The membership of the set of settlements is normally determined spatially, but remains an intrinsic problem which has to be settled first by defining political and interregional boundaries. It should be remembered that the rank-size rule is only one such case, if arguably the most successful, of curve fitting to the whole class of rank size distributions. The general relationship can be described as follows:

$$R \cdot (P_R)^a = b$$

where R = rank of the centre, P = population of the centre and a, b = constants.

In the case of the rank-size rule, $a = 1$ and b = population of the largest centre (P_1). This results in the specific relationship of:

$$P_R = P_1/R$$

In practical terms, this means that when the rank and size of the centres of a particular settlement system are plotted on double logarithmic graphs, exact

correspondence to the rule will result in the plotting of a straight line (gradient -1) (Johnson 1981). The rank-size index has been devised by Johnson to measure deviation from the rule. Johnson (1981) defines this as follows: 'Here, the sum of deviations of an observed distribution from its associated, "expected", lognormal distribution is divided by the sum of deviations of that lognormal distribution from its associated "maximum convex" distribution.' In other words, the index tends to 0 with lognormality, to positive values with convex distributions and to negative values with primate distributions. Drennan and Peterson (2004) have devised another coefficient (A) which, in their opinion, better assesses the domination of the rank-size rule by the largest settlements (Drennan & Peterson 2004: 535). The two indices and a visual inspection of the rank-size curves combined with the statistical significance offered by Drennan and Peterson's program (www.pitt.edu/~drennan/ranksize.html) provide a comprehensive comparative picture of periods and regions in the analysis that follows here. The statistical significance is important, since in Etruria we are analysing a relatively small number of settlements of 1 ha or larger.

The empirical observation of a version of the rank-size rule was first made by Auerbach (1913), although the rule is more usually associated with Zipf (1949) because of his extensive use of the rule in the treatment of United States data. The theories that Zipf attached to the initial empirical observation were much more weakly based than the observation itself; this tendency has unfortunately been continued in later research. Initial work on the rank size rule examined the distribution in isolation, but later work has examined more closely the relationship to other models of urban development and consequently examined the socio-economic context of the phenomenon (see Dziewoński 1972 for more detailed discussion). A recent development has been the employment of variations of the technique (with different coefficients) in non-modern contexts. These include historical contexts with good records (e.g. Paynter 1981) and archaeological contexts (Adams & Adams 2003; Crumley & Marquardt 1988; Falconer 1994; Falconer & Savage 1995; Garraty 2006; Guidi 1985; Hodder 1979; Hodder & Orton 1976; Johnson 1981; Kowalewski 1983; Kowalewski et al. 1983; Liu 1996; McIntosh & McIntosh 1993; Mudar 1999; Pounds 1969; Vansteenhuyse 2002). Drennan and Peterson (2004) point out the useful comparisons that can be made from systematically assessing rank size across time and space.

THE INTERPRETATION OF ABSTRACT HIERARCHY

The rank-size technique raises theoretical and methodological problems; these are frequently interlinked, most clearly in the case of the definition of the spatial unit from which the class of settlements is drawn. The discussion will be

divided into two parts: a general theoretical discussion and a more specific discussion of the method of implementation of the technique in an archaeological context.

The problem in the interpretation of the rank-size rule (as already remarked) is that it was originally observed from the study of rank-size distributions and not established as an integral part of a wider theory. The initial observation of a relatively close correspondence to the rank-size rule in a set of cases in the modern world has led all other observations to be related to it, even though the regularity of the tendency has not been assessed. At a basic level, the presentation of settlement sizes in the simple form dictated by the rank-size rule allows the comparative study of settlement distributions from very different contexts. However, the presentation of data in this form may lead to erroneous conclusions if the mechanisms of formation are not understood. The most important single factor affecting the mechanisms of formation is the definition of the boundary of the context from which the set of settlements is taken; this will be reserved until the methodological discussion below. First, problems of more general theory will be considered; it is the integration of the empirical observation to a body of interpretative theory that is necessary to take the rank-size rule beyond the status of a comparative technique.

The most widely accepted theoretical position is that the rank-size rule is the product of the normal equilibrium of a long-established settlement system following stochastic principles (Dziewoński 1972; Richardson 1973) in conjunction with the impact of multiple causes (Berry 1964), where deviation becomes an interesting area of interpretation. These deviations can take two extreme forms (Johnson 1981): a concave curve (primacy) or a convex curve. Many intermediate forms clearly also exist; for instance, Clark (1967) defined as oligarchic a settlement system where more than one centre dominated. Geographical and economic research has centred on primate systems, since these have some prominence in modern world systems. Convex systems have been relatively unexamined, except as gentle trends linked to some forms of multiple primacy in complex systems (Parr 1976), since in their simple form they are only detectable with any regularity in archaeological contexts. Furthermore, when they occur, it has been suggested that several independent settlement systems have been combined or that the area is peripheral (Paynter 1981). The independent status of a system is again raised as an important issue. Early interpretations of primate systems were value laden. Jefferson (1939) wrote of the crystallisation of nationalism in the capital of a country. Only later studies explored the qualitative break between the primacy of the major settlement and the rest of the settlement system (as opposed to the upper levels). Linsky (1965) has tried to define the conditions under which primacy takes place: political and economic units ('countries') that are small and densely populated, have a low

per capita income, are dependent on exports/agriculture, have high population rates or have a colonial history. However, Berry (1971) has shown that other contexts including 'inward-looking' countries can be added to this list. Therefore, explanations that consider primacy to be present purely in colonial contexts (Smith 1976c) or in systems in contact with external areas (Blanton 1976; Johnson 1977) are simplifying the picture.

The most satisfactory approach, and the one taken here and advised by Drennan and Peterson (2004), is to consider the position of the settlement system in the local trajectory of development where primate systems are more structured and constrained by non-random forces (Hodder 1979). Many modern economic studies are of settlement systems with long periods of evolution at a hierarchical level of development. Berry (1971) suggests that a whole set of factors is at work to produce a tendency towards the rank-size rule, and that primacy is perhaps (following Israeli work) an intermediate stage of development. Richardson (1973) emphasises the timing and sequence of development: 'the relative growth rate of cities – and ultimately the distribution of city sizes – depends upon the stage of development at which new cities appear, the sequence in which they appear and how they cluster in time'. It is clear that the historical starting point is important. In immature, archaeologically observed, contexts, this assumes an even greater degree of relevance. Savage (1997) usefully summarises a wider range of the explanations of the deviations from the rank-size rule defined above. For instance, primate distributions (that is concentration in higher-order centres) may reflect high localised labour availability, shallow time depth, colonial context, sampling error, the place in the system (core or periphery) or higher-order centralisation.

LONG-TERM PROCESSES IN SETTLEMENT SYSTEMS

An archaeologically interesting development in the study of modern settlement systems has been the increased concentration on long term processes in pre- and post-industrial societies (Guérin-Pace 1993, 1995; Pumain 1982). Firstly, these studies show that, as an overarching, general rule (of proportional effect), there are cycles of political and economic development in which the development of major cities is constant with respect to each other from a historically determined starting point. Early advantage leads to later advantage, until the cycle is broken by internal or external economic or political change or by other increasing disadvantages of agglomeration. Secondly, episodically larger cities within the hierarchy have increased rates of growth compared with smaller cities. Thirdly, there are some occasions of selective growth which generally do not affect the general law (of proportional effect). A major unanswered question is whether rural settlement follows the same pattern.

ARCHAEOLOGICAL APPLICATION OF THE RANK-SIZE RULE

Most accounts of historical geographers lack an appreciation of the detail now available for pre-industrial societies (Pounds 1990: 36) outside documented periods, and this volume aims to provide one such case study where a number of patterns can be explored. Furthermore, many of the applications of the rank-size rule are firmly embedded in modern economic systems, as discussed above. This not only severely restricts the potential variability of the contexts where the study has been implemented but has greatly restricted the suggestion of causative mechanisms to those compatible with complex market-orientated economies. The greater the specificity to the economic geography of modern settlement systems, the greater the danger of directly transferring such explanations of the rule to early state systems. This explains why archaeologists have generally accepted the more generalising explanations of the rank-size rule.

Some of the problems of archaeological use can be inferred directly from use elsewhere. Firstly, the settlement unit must be very carefully defined; settlements at the extremes of the size range may not be easy to categorise. Fortunately, early cities, supported by less sophisticated transport and communication technologies, do not exhibit the full range of suburban development that makes the differentiation of the status of some modern settlements difficult. The lower end of the settlement-size scale is usually determined by the availability of the archaeological data. Even highly surveyed areas do not have the complete coverage of lower levels of the settlement hierarchy. However, in many archaeological case studies, a relatively complete coverage can generally be maintained for all settlements above 10 hectares. An even more complete sample can be maintained for settlements that might be categorised as urban (within the local cultural context), and in some cases can be explored down to a threshold of size that has been empirically suggested to be suitable for rank-size analysis (1 ha). The work of this volume has recently been taken further in this respect for Etruria and will be separately published (Stoddart et al. in press). Secondly, boundary definition, namely the spatial definition of the system under study, is a very serious problem. This is difficult to resolve without circular reasoning although archaeological approaches have been developed to deal with it (Alden 1979; Renfrew & Level 1979). A means has to be established for defining a regional interdependence between centres for a specific area, or establishing the dominance of a principal centre over a specific area (see below).

Other problems are peculiar to archaeological research. Firstly, great care has to be taken about the representativity of the data. In modern contexts, the relevant statistics are readily available. In contrast, statistics taken from historical records, or from archaeological research, are likely to be incomplete. Archaeological preservation cannot be considered consistent. A potential problem is that archaeological bias may simulate the random processes that have

been suggested to culminate in a lognormal distribution (Hodder 1979). At the very least, a preliminary detection of the potential biases needs to be carried out. This still leaves considerable room for the purist to maintain, with varying conviction, that any analysis based on the available data is premature until the distribution of the entire range of settlement is clear. However, as already mentioned above, the rank-size technique is usually applied to the upper size range of settlement systems, which are more thoroughly understood even in an incomplete archaeological sample. Secondly, a closely related problem is contemporaneity. It is rare for the dating resolution of archaeological data to be as refined as that carried out in analyses of historical settlement systems. Fortunately, archaeological dating is generally clearer for the segments of the settlement most under focus in rank-size analysis. The problem more often lies in linking such dating to data on size of settlement. Thirdly, in archaeological usage, size of population cannot be assessed directly without documentary records. Therefore, an approximation, usually, as here, in the form of the size of settlement has to be selected. The calculation of settlement size itself is difficult, even in a minutely excavated site. The phases of expansion and contraction of a site are liable to obscure earlier evidence. When much evidence is derived from survey, the problem is intensified. Therefore, the calculation of settlement size is difficult to disentangle from preconceived models of the development of settlement. In an archaeological study, it is necessary to disentangle 'the composite result of a complex balance between original forces and survival and recovery processes' (Crumley 1976; Hodder 1979).

Beyond this, a major problem occurs at the interpretative stage. Many systems explanations of the rank-size rule require settlement-system conditions that are rarely satisfied by the rapidly changing settlement systems studied by archaeology. Maturity in a settlement system will only be reached when the settlement system has reached stability, has existed for a long time and is intensively using its territory. This was rarely the case in an ancient settlement system, which typically was undergoing radical changes in socio-economic organisation and had a relatively short (often cyclic) lifespan, and although intensifying production was by no means fully exploiting its territory (even within the range of the society's technological potential). A further distortion might be that certain segments of the settlement system will be differentially involved in cyclic processes that typically interrupted the long-term development of early settlement systems.

The position taken here is that rank-size analysis is a useful technique, provided that the debate over its significance is taken into account. It allows a longitudinal analysis of the hierarchy and centralisation of settlement systems, and its assumptions do not too greatly abuse the potential of archaeological data. The rank-size index will be taken primarily as a measure of the

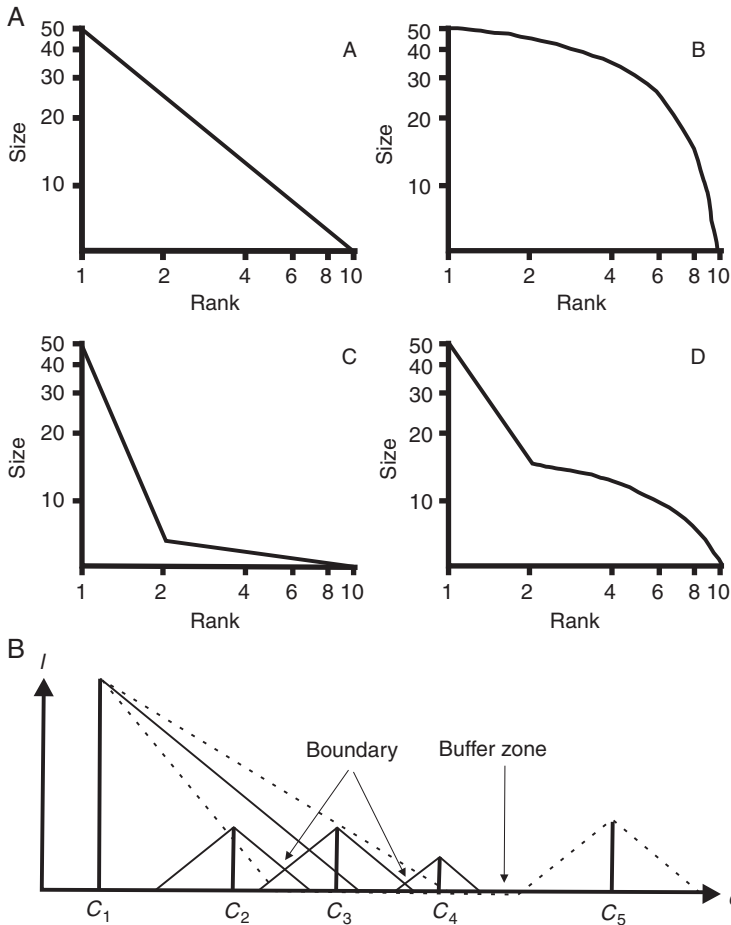


Figure 2.1 A. Rank size diagram curves. A. Lognormal. B. Convex C. Primate. D. Primo-convex. B. XTENT diagrams (based on Renfrew & Level 1979).

centralisation of settlement and only secondarily as a measure of the state of that settlement system (*sensu* Johnson 1981) (Fig 2.1A). In this analysis, independent political units will, as a first analysis, be grouped together (Chapter 4), and only secondarily separated out once the potential boundaries have been established (Chapter 5). The boundary problem is recognised, but since the rank-size rule is employed as a measure of centralisation for a given geographical area, the graver problems associated with the state of the system analysed by Johnson (1981) are, to a certain extent, avoided. The theory that all settlement systems with maturity tend to the lognormal is attractive. However, this long-term maturity is not necessarily reached in the unstable and formative settlement systems studied by archaeologists, particularly if truncated by another emerging empire as is the case in Etruria. The study of formative settlement systems can only aid the understanding of this process, and it is here that a proper contextual

analysis of the settlement system is critical. Other qualitative measures of centralisation and the state of the settlement system can be incorporated and compared with the quantitative measures (Chapter 7).

THE LOCATION OF THE BOUNDARIES OF STATES

Analysis of the territories of states (and the ranked settlements within state territories) assumes knowledge of political boundaries, even if such boundaries may be more nuanced and fuzzy than in modern political contexts (Stoddart 2010; Stoddart et al. 2012). In the absence of historical sources relating to information on the independence of political status or the territorial limits of political power, other solutions must be found. The simplest technique is that of the Thiessen polygon. This technique requires the simple bisection of shortest distance between two centres to define the allocation of territory (Hodder & Orton 1976). However, this technique does not take account of hierarchical relationships (i.e. dominance) or the relative influence of the respective centres. The technique is best suited for equally ranked settlements of the highest level of any existing hierarchy. The historically well-known uses in the archaeological literature are for hillforts (Cunliffe 1971) and Roman towns (Hodder 1972). The basic technique can be modified to take account of local conditions. One modification is to incorporate variation in terrain, particularly natural boundaries such as rivers, to establish more probable boundaries between centres (Cunliffe 1971). A further possibility is to weight the size of the territory according to the size of the centre; this has been executed successfully for Iron Age hillforts (Hogg 1971). The disadvantage of the Thiessen polygon technique is that all space is allocated, and each centre, regardless of its political influence, is considered to be politically autonomous to the extent of controlling its own territory. This is not particularly suitable for transitional contexts such as state formation and in mature systems also represents a major simplification.

The XTENT technique (Renfrew & Bahn 1991; Renfrew & Level 1979) overcomes some of these problems and thus holds considerable advantages over the Thiessen polygon technique. The principles of the technique are very simple. A centre will dominate an area x (including another centre), if its influence is (a) present (b) greater than any other centre (Renfrew & Level 1979). Conversely, some territory may be under no political influence. XTENT takes into account the differential size of the centres and permits variations in the size of territory (Fig. 2.1B). Furthermore, the technique permits the development of buffer zones of unallocated political space that can be detected cross-culturally in developing political landscapes (Marcus & Feinman 1998). In the present analysis (Redhouse & Stoddart 2011), the calculation of the territorial extent is measured against the ‘friction’ of the

physiography of the landscape by introducing a Digital Elevation Model (DEM) into the equation. In this way, the formula of XTENT is sensitised to the specific physical environment. The technique has been infrequently employed in archaeology, but a new energy has been given by the development, in parallel to the present study of a GIS application applied to the Maya (Ducke & Kroefges 2008). XTENT has recently been applied to Minoan sites on the back of this momentum (Bevan 2010).

In the particular case of Etruria, the methodology deployed was as follows. Within the boundaries of the Apennines, the Tyrrhenian sea and the River Tiber (an important cultural boundary), political boundaries were calculated in all directions from each major primate centre using the following mathematical reasoning:

$$I = f(C) - k \cdot d \quad (I \geq 0)$$

Where I is a measure of influence at a given location, C is a measure of size of the centre, d is a measure of distance from the centre and k is a constant. A centre

C_1 will dominate a centre C_2 if $I_1 > I_2$ at C_2 , that is if:

$$f(C_1) - f(C_2) > k \cdot d_{1,2}$$

The constant k , representing the fall-off of influence was, following Renfrew and Level (1979), investigated empirically, using their suggestions and previous experience with the technique. In the original analyses by Harrison and Stoddart at the University of Bristol, the Distance d was measured as a simple linear distance. In the revised present analysis (Redhouse & Stoddart 2011), the distance was transformed to register travel time by taking into account varieties of terrain.

The first equation can in that case be written as:

$$I = f(C) - k \cdot d \cdot w \quad (I \geq 0)$$

Where w represented a transformation to take account of varieties of terrain.

Implementing this model required the following:

1. A tool that will determine the cost of travelling from a site to any point within the area of interest, in other words a routine for calculating $d \times w$
2. A tool that will calculate the value of I , based on the value of $d \times w$
3. A tool that will determine based upon the above, for a group of sites, which has the greatest I at a given point.

The ArcInfo GRID function `pathdistance()` (Environmental Systems Research Institute 2001) calculates a least-accumulated cost model accounting for surveyor's distance and horizontal and vertical cost factors. This provides us

with, for a given location within the area of interest, the value of $d \times w$ with respect to a particular site. Simple map algebra within GRID permits the calculation of I at all locations within the area of interest, for a given site. The ArcInfo GRID function `upos()` (Environmental Systems Research Institute 2001) generates from a set of input grids an output indicating which grid has the highest value at a given location. The procedure requires as inputs a list of archaeological sites with co-ordinates, site names, site sizes (C) and a digital elevation model. A least-accumulated cost model, in the form of a grid extending to the limits of the area of interest, is generated for each archaeological site. The influence I for each site is calculated using the least-accumulated cost models. A grid covering the area of interest with all cells = 0 is also generated. The grids containing I for each site and the grid consisting entirely of zeroes are used as inputs to the `upos()` function.

The resulting output records the site with the greatest value of I at each location, or zero if all of the sites have a negative I at a particular location. The least-accumulated cost model does not presently incorporate any consideration of rivers, lakes and the coast. The least-accumulated cost model only considers the cost of travelling away from an archaeological site. It should also be recognised that the resolution of the DEM was only 80 metres. Further development of the model could take these factors into account. The total run time for the analysis was 72 hours of processor time using ESRI ArcInfo 8 on a Sun UltraSPARC 10.

SIMULATING POLITICAL DEVELOPMENT

Many social theorists have pointed out that control over territory increases with the development of political power (Friedman & Rowlands 1977). The XTENT technique allows this interpretation to be modelled. The variation of either a or k holding the other constant can mimic the development of the political organisation of settlement (or the passage of time (Renfrew & Level 1979)) from an agreed starting point, represented by an agreed set of sizes for the settlements. Two trials of XTENT were made by Renfrew and Level using data from prehistoric Malta and modern Europe. In the case of prehistoric Malta, sizes of the prehistoric temples were employed as the starting point and subsequent political development ‘predicted’. Recent research in the Maltese islands appears to substantiate some of the conclusions drawn about the spatial configuration of territories (Malone et al. 2009). For instance, the island of Gozo appears to have been under one political control with one major temple cluster and one major burial complex, after a phase of control from multiple temples (Barratt et al. 2018). The technique thus allows the verification of territorial patterns against independent archaeological data. In the case of modern Europe, the sizes of cities in AD 1960 were employed as the starting

point and predictions for prior political organisation compared with the actual historical trajectory. In these trials the most satisfactory results were obtained by holding a constant at 0.5 and varying k between 0.05 and 0.01, and 0.006 and 0.02 respectively. Regularly spaced values within these ranges can be explored as stages in political development in other known cases of complex polity formation. Work by Grant (1986) on southern British hillforts established that when holding 'a' constant at 0.5, k values between 0.05 and 0.01 gave the most probable territorial patterns, even if the theoretical basis for the dominance of hillforts has now been questioned (Hill 1995). However, if the assumptions of the model are accepted, the hillfort results showed possible buffer zones in the earlier stages of development and probably dominant hillforts in the later stages of development. However, not too much attention should be paid to the values of the exponent (a) and the slope (k), since there is insufficient consistency or ability to control units which measure distance and values which represent the power of the centres (raw area, population or size of buildings). The primary interest lies in the comparison of the spatial configuration of the territories around centres at different stages.

The XTENT technique is itself not without problems, even if only measured against its internal assumptions. Like rank size, the technique also requires an accurate measurement of the size of each centre. Establishing this may be difficult without extensive surface survey or deep stratigraphic excavation. In reality, size may vary during development, but relative size is assumed to remain constant following the principles of Guérin-Pace (1993) within a particular political cycle. The selection of an agreed starting point is, therefore, important since the initial conditions have a major influence on subsequent development. The largest centres will increasingly come to dominate the political landscape as it reaches its climax. However, the predictions of the technique can usefully be tested against reality, and distortions of the known trajectory of development can be identified and interpreted. In this way the underlying assumptions of the technique can be questioned for the particular test case and the results employed heuristically or tactically (Orton 2004) to understand the differing settlement organisations. The technique should not be employed as a definitive model of reality, but as one of a suite of techniques for exploring and clarifying prehistoric state formation.

DEFINING POLITICAL BOUNDARIES FOR FURTHER ANALYSIS

The technique of XTENT can suggest the allocation of territory to a particular centre at any one moment in time, allowing other analyses to be carried out on the territory thus determined. This is a useful response to the problems in determining political boundaries that many authors have repeatedly emphasised. Here the variation of k , holding a constant, will

change the political map and allow the incorporation of more/less centres subject to the primary centre. This technique, therefore, has something in common with the variations on the central place theory, where the size of the centre is taken into account (beyond determining levels of hierarchy). Two modifications of this sort are the solar marketing system and the modifications made by Hodder (1972).

STATIC SPATIAL ANALYSIS WITHIN ESTABLISHED TERRITORIAL BOUNDARIES

Originally, the assumptions of most static or synchronic models of the spatial arrangement of large and subordinate centres were related in some way to the argument that – all other things being equal – costs of distance will be reduced in complex societies (cf. Hodges 1987). The first type of model was the land use model devised by Von Thünen (1826) which envisaged zones of land use around a major centre whose characteristics are linked to the necessary investment of time in each category of land use. The most famous application of these general principles is that of central place theory originally devised by Christaller (1933), popularised in the English-speaking world by Chorley and Haggett (1967) and given a more anthropologically embedded character by Smith (1976a, 1976b, 1976c) and championed archaeologically by Hodges (1988). Central place models are best known as various arrangements of nested hexagons, each of which represent the territory of a population centre. Different configurations of these hexagons have become ideal types for marketing, transport and administrative landscapes. The problem lies with the assumptions that underlie the model, many of which cannot hold in the real world (Smith 1976c): an isotropic landscape, perfect competition among suppliers in a market system and single purposed trips, among others. Such models can, nevertheless, be employed to compare theoretical landscapes with historical reality in a manner which is as illuminating for divergence as for convergence. In some cases relatively good archaeological fits have been discovered. For instance, Johnson (1972, 1975) discovered a modified rhomboid transport landscape, with five hierarchical levels, in ancient Iraq, and variations of central place have continued to be applied to archaeological cases (Smith 1979).

In practice, many economic geographers have worked out modifications to the classic theories (Smith 1976b, 1976c). These modifications are of particular interest to archaeologists, since they concern less mature economic systems. Smith (1976b, 1976c) describes various such systems which include network, solar dendritic and central place, in general order of increasing complexity. The key element is the control of exchange. However, as noted by Hodges (1987), too much emphasis is placed by Smith on the inequality of exchange with the implied domination of one territorial group by another. Archaeological

evidence can readily increase the range of human experience beyond the limits of historical documents and economic geography.

For the economic and political systems analysed in this volume, three of the settlement categories of Smith are relevant and can be interpreted in terms of the flow of information and material considered in Chapter 8. Firstly, the solar marketing system, as the name suggests, is organized around a primate centre with economic and political functions. The result is a simple two-level hierarchy. In contrast to classic central place theory, each such unit lacks towns of intermediate size and is relatively autonomous. The closest resemblance is to an administrative model; this is suggestive of the power of centralised administrative forces controlling trade. Full commercial forces are not developed. The units tend to be widely spaced, since urbanism is determined by political forces. An interesting possibility to explore is whether solar systems may be a special case of the developed Early State Module described by Renfrew (1975). Secondly, the dendritic system (as the name suggests) is made up of a tree-like flow system, with branches (and centres) of diminishing size, spreading out from the primate centre. The explanations that Smith offers of this type of system are open-ended. The contribution that Hirth (1978) (following Burghardt 1971) provides is consequently very useful. He suggests that primate gateway communities develop at the passage ways into/out of cultural/natural regions and link to their hinterlands in systems that structurally resemble the dendritic network described above. The gateway community is set to one side of its hinterland, at the head of an elongated fan of settlements. The economic conditions are those of a monopolistic market on the fringes of a large economic system which is generally exploitative. There is an increase in craft production and manipulation of the social system through gifts and commodities. Finally, the central place system suggests a full development of the market economy and tributary organisation of the territory.

Archaeologically there has been justified critique of the assumptions behind these models (Smith 2003), balancing the efficiency principles of the models with more ideological concerns. The final chapter of this volume attempts to address these concerns by seeking a middle ground between models that are too mechanistic and those that are too specific to particularly cultural agency.

INTERLINKAGE OF THE HIERARCHICAL AND THE SPATIAL

Certain rank-size distributions could, potentially, be linked to certain spatial distributions. One possibility that must be investigated is that the classical model of developed settlement, 'central place', can be equated with the supposedly mature rank-size distribution, the lognormal. At first appearance there is a contradiction between the regular distribution of size predicted by the rank-size rule and the stepped distribution of size classes suggested by the

variants of central place theory. This may be the difference between the theoretical model of central place and the empirical observation of the rank-size rule. The random processes implicit in some interpretations of the rank-size rule would, in the real world, have a similar effect on the stepped distributions seemingly implicit in central place theory (Berry 1971).

The relationship of abstract measures of hierarchy to spatial configurations of settlement can also be explored over different parts of the settlement system. One intriguing possibility has been suggested by Paynter (1981). He has placed great emphasis on the importance of employing spatial analysis to interpret the context of individual rank-size analyses. Working on the basis of simulation of sectors of central places structures, he claims that peripheral areas will have convex deviations, core areas will have concave deviations and independent systems will tend to the rank-size rule. These results need to be viewed with some caution, since it is extremely difficult to establish the boundaries of core/periphery areas, or to define an independent system. However, the analysis that Paynter has carried out of early North America does give a very good illustration of how different levels of economic development in contiguous areas produce strikingly different levels of centralisation, hierarchy and spatial organisation of settlement. The particular configurations of Etruria will be explored as much as the current data allow.

BRINGING ETRURIA INTO THE PICTURE

The application of these analyses requires particular attention to the state and conditions of the data in Etruria.

Chronology

The immediate impression of the period 1200–500 BC is the considerable accuracy of dating. However, this is based on a chronology established for the first-order centres and is heavily dependent on funerary data and rich typological material, generally derived from the same source. These sequences, and associated coarse wares, have been extended to date less secure contexts, where the cross-checking of imported material is not possible. Until recently, radio-carbon dating had not been effectively applied (Nijboer et al. 1999/2000) even to those periods which lie outside the Hallstatt plateau (Reimer et al. 2004), and the available dates are largely inadequate to provide an independent dating methodology. Generally there has been a mistrust of the usefulness of alternative dating methods, although the employment of dendrochronology did lead in the 1990s (Bettelli 1994; Peroni 1994: 210–16) to some changes in the overall dating structure. Even these changes have been moderated in more recent chronological schemes (Nijboer 2005; Pacciarelli 2000). In the context

of settlement archaeology, the impact of new dating schemes is not sufficiently great to affect traditional schemes profoundly, as is shown in the comparison between the latest absolute chronology and the traditional chronology (Table 2.1)

For the purposes of this study, the traditional chronology originally set up by Pallottino (1962), and as shown in Table 2.1, slightly modified by absolute dating techniques, will be employed. The implementation of more precise chronology is not without problems. The dating of metalwork, the major object of typological research, can differ by centuries, although always placed by individual scholars with considerable accuracy. The dating of the common material from settlement survey, pottery, raises even more fundamental problems. Much can only be dated from a few diagnostic fragments which may not be representative of the whole group of material or given too much chronological emphasis when found in isolation. Over-precise dating is a very real temptation. Many sites should only be dated within a broad range of years, and this is the approach that will be employed here, using the scheme entitled settlement date in Table 2.1.

This simplified chronological framework will doubtless require further revision that will affect our understanding of the spatial distribution of settlement. A good example of a phase which will require more detailed study is the late fourteenth – early twelfth century BC, which is currently associated with the Recent Bronze Age based on Subapennine forms, in particular, handles. These handles form a low percentage of the diagnostic elements in a pottery assemblage, and thus identification of this phase from surface evidence of a settlement is dependent on a rare diagnostic form. Nevertheless, although admitting the potential problems, scholars working on spatial problems have tended to accept their chronological significance (di Gennaro 1986: 194). The Final Bronze Age is much better defined chronologically, but itself has been reduced by about 50 years to about 200 years by the impact of new dating schemes (Nijboer 2005; Pacciarelli 2000). In addition, certain areas do lack well-defined ceramic typologies for the period. Sites found in the Populonia/Vetulonia area have sometimes been placed in the Final Bronze Age on the basis of a few tenuously diagnostic elements that may even run counter to available radiocarbon dating (Bartoloni & Rossetti 1984; Fedeli 1983).

The late tenth century to mid-eighth century BC situation has been more clearly resolved, and it is particularly important to note this since the divergences occur prominently in the historical anglophone literature. Potter dated a set of pottery – red impasto – from South Etruria to the ninth–eighth century (1979: 17). Potentially, this suggests a hierarchical ordering of settlement around the Villanovan centres, such as Veii (Potter 1979: 59), that contrasts with the striking ninth-century shift in settlement pattern put forward by di Gennaro (1982) and other Italian scholars. The re-dating of the South Etruria

TABLE 2.1 *Chronological schemes*

Phase	Traditional date	Dendro date	Radiocarbon date	Compromise date	Settlement date	Length (Change)
Grotta Nuova (Middle Bronze Age 1)	1600–1400	1700–1500		1600(/1550)–1400	17th–16th centuries BC	c. 200(=)
Apennine (Middle Bronze Age 2–3)	1400–1300	1500–1365/ 1350		1400–(1325/1300	early 15th century BC–early 14th century BC	c. 100(=)
Subappennine (Recent Bronze Age)	1300–1150	1365/1350– 1200	1350–1200	1325(/1300–(1175/ 1150	late 14th–early 12th century BC	c. 150(=)
Protovillanovan (Final Bronze Age 1)	1150–1100	1200–1150		(1175/ 1150–950(/925)	late 12th century BC–early 10th century BC	c. 200(–50)
Protovillanovan (Final Bronze Age 2)	1100–1000	1150–1085				
Protovillanovan (Final Bronze Age 3)	1000–900	1085–1020				
Villanovan 1 (Early Iron Age 1A)	900–830	1020–950	1020–c. 900	950(/925)–900	late 10th century–early 9th century BC	c. 100(–30)
Villanovan (Early Iron Age 1B)	830–770	950–880	c. 900–850/ 825	900–850(/825)		
Villanovan 2 (Early/Late Iron Age 2)	770–750	880–810		850(/825)–750	mid 9th–mid 8th century BC	c. 100(+60)
Villanovan 2 (Final Iron Age 2)	750–730(/720)	810–750	–780			
Early Orientalising	730(/720)– 670/660		780–	750–630/620	mid 8th–late 7th century BC	c. 170(+20)
Middle Orientalising	670/660–640/ 630					
Late Orientalising	640/630–580			630–580		
Archaic	580–509				6th century BC	c. 70(=)

survey (Patterson et al. 2000) has employed Italian dating and resolved this issue in favour of the dating by Italian scholars (Bellardelli et al. 2007). Another controversy raised by Swedish scholars has been resolved in favour of the dating by Italian scholars. Swedish scholars (Berggren 1984; Östenberg 1967) had originally a particularly long and late chronology for the Protovillanovan 'style' based on differences from the Italians in the interpretation of radiocarbon dates, pottery styles and stratigraphy. The Swedish results suggested that some Protovillanovan sites were contemporary with the large Villanovan centres, whereas the Italians dated the same sites to 1150–900 BC (Peroni 1967), that is to a distinctly different chronological horizon.

The Swedes, working on the basis of the detailed studies of the pottery and stratigraphy from two sites slightly peripheral to main developments and employing an different archaeological concept of culture (Bietti Sestieri 1984b: 101), emphasised continuous occupation and that the Protovillanovan was gradually transformed under Orientalising influences (Olinder and Pohl 1981: 77–81; 91–6; Pohl 1984: 91–6). The Italians employed a less site specific approach (Colonna 1984; di Gennaro 1984) which noted a gap in occupation at these sites rather than the contemporary presence of Protovillanovan and Villanovan cultural groups. If the Swedish model had been true, then it would have radically changed altered our understanding of settlement distributions at the crucial time of state formation. The more recent impact of absolute dating accepted by Italian scholars and part of a general consensus (including recent Swedish scholars) is that the two phases of the Villanovan period within this chronological period have been differentially affected by recent modifications of dating. Villanovan 1 appears to have been shorted by some thirty years to a length of one hundred years. Villanovan 2 has been lengthened by some sixty years to length equal to Villanovan 1 of one hundred years. The implications of these changes for social process will be analysed later, but it is sufficient here to suggest that there is more room to develop integrated strategies of excavation and survey to explore the chronology of settlement development.

The mid-eighth to sixth centuries BC (occupied by the Orientalising and Archaic phases) have remained remarkably robust in the face of the impact of absolute dating or other influences. More detailed material culture appropriate for settlement study (e.g. Rasmussen 1979) and increased density of historical dates have provided a framework that has been shifted a little earlier and extended in length only by a generation.

Post-Depositional Distortion: Land Use, Urbanism and Geomorphology

Scholars employing large-scale surveys to investigate state formation in Mexico (Blanton 1978; Sanders et al. 1979) and Mesopotamia (Adams 1981) have suggested relatively few evident problems of post-depositional distortion

relevant to the periods they are investigating. In the case of Mesoamerica, this may relate to the foreshortened timescale. In the case of Mesopotamia, this may relate to the fact that tell formation has lifted major sites above the flood plain. By contrast, in Central Italy, the problems are very apparent. Some surveys have attempted to assess the nature of these distortions before the interpretative phase (Barker & Symonds 1984; Cenni 2007: 41–9; Fentress 2002b; Malone & Stoddart 1986; Nardini 2001: 7–16). The work of the Rome Superintendency in the face of the threat of an expanding metropolis emphasises this. By the 1980s, only 20 per cent of the area could be investigated under good conditions, and as much as 34 per cent of the area was inaccessible (Bietti Sestieri 1986). Settlement continuity is a problem not only encountered in the large modern centres or restricted to recent industrial and urban development. The geological structure of South Etruria has created a topography (Alvarez 1972) which has encouraged reoccupation from the Late Bronze Age to the Middle Ages, to an extent that survey directed towards certain periods becomes difficult (see below). Geomorphological changes have been noticeable since the first millennium, particularly on the coastline (Stoddart 2006), and reworking of valley bottom zones should not be under-estimated (Brown & Ellis 1995), and this where visibility for survey is best. The accumulation of valley bottom sediments also suggests a corresponding erosion of upland areas, and where erosion has not taken place, these areas can be covered by extensive terracing or adverse cultivation (woodland and pasture) where site detection is difficult. Indeed, a number of Anglo-centric surveys have been criticised (although not in print) for concentrating on the ploughlands without integrating some investigation of the uplands. It is also probable that the different interpretations of the internal settlement organisation of Veii (Guaitoli 1981; Patterson et al. 2000; Ward-Perkins 1961) based on surface survey (Fig. 2.2) have much to do with changing surface conditions.

Allocation of Time and Resources: Sampling Units, Site Definition and Intensity of Research

The choice of sampling units has been very variable, as outlined in Chapter 1. The trajectory towards state formation involves phases of nucleation and dispersal that require the study of contiguous as well as more randomly distributed sampling units. The tension, as remarked on by many survey workers, is between maintaining a regional level of study, often of quite a large scale (major Etruscan centres are at a distance of 20–60 km from each other) and detailed analysis of contiguous areas. Gradually attempts are being executed at resolving this tension.

The higher-order centres, with clearly demarcated boundaries, have been the focus of a large proportion of research. As a result, the problem of site

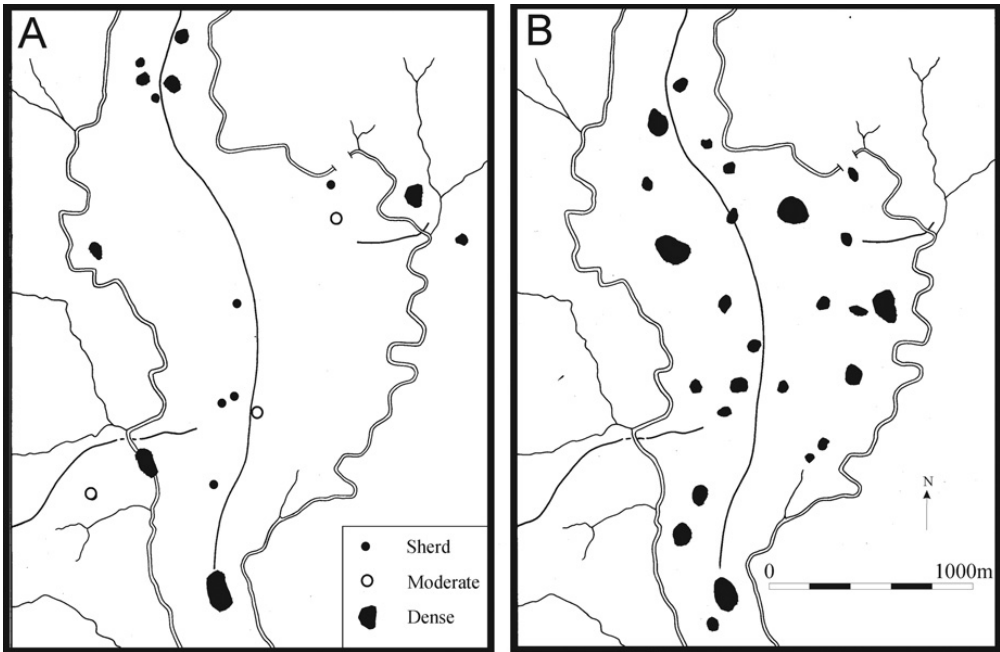


Figure 2.2 Alternative survey outcomes on the plateau of Veii. A. Ward-Perkins (1961). B. Guaitoli (1981).

definition has not been raised as a serious issue until recently. To this must be added a new, slightly different matter, namely that some sites, such as Capena (Turchetti & Bartoloni 1995) in South Etruria and Chiusi in North Etruria, are now considered by some scholars to be multi-focal (Stoddart *in press*). In other words, less strongly nucleated centres are now grouped together as one political centre, potentially affecting site definition in a dramatic way, most notably calculations of surface area. In the light of the research traditions outlined in Chapter 1, considerable work still needs to be done on rural settlement (particularly for the middle of the first millennium); although some recent studies within Etruria (as opposed to the more peripheral areas) have had success in this regard since the 1980s (Barker & Rasmussen 1988; Barker & Symonds 1984; Cucini 1985; Naso & Zifferero 1985; Rendeli 1985a, 1985b; Zifferero 1985). The results of the Ager Cosanus survey (Carandini & Cambi 2002; Perkins 1999a) show interesting preferential patterns of landscape exploitation on the basis of *c.* 200 sites of the Etruscan period; for instance, more marginal zones only seem to have been exploited in the Roman period. In this project, the survey of rural settlement has also been profitably linked to the excavation of one small site at Tartuchino (Perkins & Attolini 1992). There are now extensive rural surveys of a number of major Etruscan cities (Enei 1987, 1993; Patterson *et al.* 2004) and the interstices between them (Botarelli 2004; Cambi 1996; Campana 2001; Cenni 2007; Felici 2004; Nardini 2001; Paolucci

& Francovich 2007; Stoddart et al. in press; Valenti 1995, 1999), allowing a new measure of density and differential distribution of the living population. Nevertheless, the investigation of more widespread use of the ancient landscape, through such techniques as ‘off-site’ archaeology, has been relatively unexplored except in a few exceptional cases (Malone & Stoddart 1994; Terrenato 1996, 1998).

Aerial photography is a major extensive survey technique that has been used to great effect in the recording of centres and their territories in spite of military restrictions that existed until recently. The work of Bradford (1947) exploited the widespread coverage of the RAF; although the photographs (of 1944) were not taken for archaeological purposes, the results were important and prompted Bradford to recommend more systematic work. Bradford saw extensive aerial photography not just as a means of finding more sites but as a method for establishing the organisation of related monuments, such as tombs in a cemetery (Bradford 1957: 114). His work at Cerveteri and Tarquinia, for instance, was complementary to the other forms of remote sensing carried out by Linington with equally impressive results (Linington et al. 1978). This tradition of work at Tarquinia has been taken much further and has been remarkably successful in detecting the internal street plan of the city (Rasmussen 1985–6: 110–1; Cavagnaro Vanoni 1997; Harari 1997; Bagnasco Gianni et al. 2017). Italian work was developed by the implementation of an *Aerofoteca Archeologica* under Dinu Adamesteanu (Schmiedt 1970b: 91) in collaboration with the Italian *Aeronautica Militare*, in conjunction with systematic work on the ground by the British School at Rome and the *Istituto di Topografia Antica* of the University of Rome (Guaitoli 2003).

All the traditions of survey are moving towards more intensive survey and a more conscious appreciation of the biases that can affect survey results in a pattern shared by survey traditions elsewhere in the world (Stoddart 2000). One particular indication of the increased intensity of research is the detailed plotting of areas of high density of finds in many projects, illustrated for state formation by the work of Walker (Attolini et al. 1983: 449–53; Perkins & Walker 1990; Walker 1985a, 1985b) and Guaitoli (1981, 1982, 1985). Unfortunately, the intensity of effort is frequently directed towards the recovery of material from particular periods; topographers and survey workers rarely have the necessary span of expertise from the coarse wares of the later Bronze Age to the imports of the Archaic. Even if ‘full recovery’ is attempted, this expertise is as important in the field as it is in the later laboratory analysis.

The result is a bias in the recovery of material of different periods. This can be seen at a project level. The British School at Rome survey has been criticised for its orientation around the classical periods (di Gennaro & Stoddart 1982). Surveys of the *Ager Cosanus* have produced different results; the first surveys (Bronson & Uggeri 1970) have the highest recovery rate of prehistoric material,

the most recent surveys (Celuzza & Regoli 1982) the highest recovery rate of classical material. The biases against periods are also visible at a more general level. The Late Bronze Age is well known for its settlements in naturally defended topographical positions; only gradually is the diversity of this picture becoming apparent. The Villanovan is known for the sudden nucleation of settlement; only slowly are the intermediate steps, the subsidiary settlements, and consequently more gradual processes, becoming clear. The Orientalising is known for its rich burials; the concomitant dispersal of settlement is being pieced together slowly by survey. The Archaic is known for the large primate cities; the rural population that supported these centres is only known in a few cases. A complex combination of the intrinsic nature of the settlement organisation and the methodological approach has differentially affected recovery of individual periods.

The Analysis of Settlement Data for the Study of Central Italian State Formation

Important steps have been taken towards the analysis of what would otherwise be a passive set of data, to reach an understanding of the different dimensions of state formation. In the particular context of spatial studies based on regional field survey, these are demographic change, the development of settlement hierarchy, intra-settlement organisation, functional variation between sites, centralisation and decentralisation and at a wider level the inter-regional developments of shifting political focus that are characteristic of emerging complex society. In many cases this interpretative stage has been reached (Atti 1982) and has generated much debate on the basis of data whose collection has not, in itself, generated sufficient methodological debate, and which have not been uniformly collected under rigorous field survey conditions. The standard of data collection is adequate for some of the analytical techniques employed, but not for others. With the notable exception of the Anglo-Italian collaboration over the British School at Rome material (Patterson 2004; Patterson & Coarelli 2008; Patterson et al. 2000; Patterson et al. 2004; Patterson & Millett 1998), the stage has not been reached where the data of certain surveys can be reused by later scholars with different research strategies in mind, such as has been done for the Valley of Mexico (e.g. Alden 1979; Earle 1976; Steponaitis 1981). Assemblies of survey data from disparate sources (Palmisano et al. 2017) must be accompanied by new methodologies of empty spaces (Campana 2015) and detailed source criticism (Stoddart et al. in press).

The concentration of research around the principal centres has encouraged the use of geographical techniques for their analysis. Some of these techniques demand little use of sophisticated survey technique. Historical records were the first approach (Pallottino 1937), retrojecting later records onto the past.

Thiessen polygons were first strictly geographical techniques to be used to demarcate the territories of centres (Renfrew 1975), and modifications have been made to these polygon territories on the basis of geographical relief (di Gennaro 1982). The only assumption made of survey here is that the choice of the primary centres is correct. Usually (with a few exceptions such as Doganella), the selection can be made on the basis of relative size, backed by the later literary sources. It is not very probable that the *Teotihuacans* of Etruria have been missed after the long tradition of research described above.

The Central Italian evidence is rich, but not universally easy to interpret, particularly as a consequence of the traditions of analysis. Firstly, much evidence for settlement development is necessarily indirect, gleaned from the extensive work on the more visible, more regularly researched, cemeteries. Settlement survey is beginning to have an important impact, but there is considerable risk in drawing on individual case studies for generalisation at a more inter-regional level. Considerable care must be taken in the scale of analysis. The higher-order settlements are much better represented and dated than the lower-order settlements, tending to give a reinforced impression of centralisation for most periods. Secondly, there has been a strong temptation to equate political control with cultural contact. The territories of individual polities have frequently been measured on the basis of cultural affiliation. Consequently, there are fundamental problems to be tackled about the meaning of phrases such as *irradiazione di cultura* and *dipendenza culturale*. The relationship of the Faliscan territory to the major city of Veii shows how political control may be divorced from cultural identity (Ceccarelli & Stoddart 2007 and Chapter 6, this volume).

Site Typology: Location, Function and Internal Organisation

The typology of sites has been a strong analytical aim in Italian research. The criteria chosen are not, though, always related to the processes of complex society. Pacciarelli (1979) and Guitoli (1977; 1984: 375) have classified proto-historic and Latial centres respectively according to their topographic position and chronological development. The survey workers of the Ager Cosanus (Celuzza & Regoli 1982: 43; Fentress 2002a) have selected, principally, the criterion of size for Roman sites. More recently, detailed research of large centres such as Veii (Cascino et al. 2012), Tarquinia (Mandolesi 1999), Vulci (Pacciarelli 1991) and La Doganella (Perkins & Walker 1990) has been directed towards more subtle appreciation of the function and development of such sites.

A key, more theoretical, issue is the nature of the development of the Villanovan centres (Guidi 1985, 1989). Early survey work by Ward-Perkins (1961: 21) suggested that the tuff plateau occupied by the later city of Veii was

only partly occupied (in the form of clusters of settlement) in the Villanovan period (Fig. 2.2). Recent survey work (Guaitoli 1982) suggests a dispersed continuous occupation of the whole plateau, a point developed by Guidi (1989). Subsequent work reanalysing the full British School at Rome data suggests a pattern somewhere in between (Cascino et al. 2012) (Fig. 4.7). The resolution of such differing data can only be resolved, as others have elsewhere pointed out (Barker & Symonds 1984: 283; Walker 1986: 94), by a greater appreciation of site-formation processes. A relevant model is provided by Walker's study (Attolini et al. 1983: 449–53; Walker 1985a, 1985b, 1986) of La Doganella, a site whose size should make it a primary centre, and yet which has remained unmentioned in the classical sources. In this study, the integration of stratigraphic evidence, good diagnostic artefacts, geomorphological study and detailed survey have allowed a high degree of resolution in the determination, not only of function of the site as a whole in its regional setting, but differentiation of function within the site. This work has been assisted by the presence of open ploughed fields, but such a circumstance occurs on a number of Etruscan sites both large and small (e.g. Cifani et al. 2012; Patterson et al. 2000; Wikander & Roos 1986).

Rank Size

The use of the rank-size technique in Central Italy raises more fundamental problems that are closely connected with survey design. The seminal work of Judson and Hemphill (1981) and Guidi (1985), taken together, has outlined the transformation in hierarchical organisation of the settlement systems of these communities over the period from the late twelfth century BC to the early tenth century BC (tenth century in the original publication) to the sixth century BC. The empirical technique of rank-size analysis was employed to examine the changes in settlement size (i.e. area in hectares) for the zones immediately to the north and south of the Tiber, that is Etruria and *Latium vetus* respectively. Briefly, the Etruscan area north of the Tiber develops fairly suddenly from a convex rank size curve (where there is no great size range) in the twelfth century BC to the early tenth century BC into a late tenth century to early ninth century BC (ninth century BC in the original publication) primate settlement system with several disproportionately large centres. South of the Tiber, the twelfth century BC to the early tenth century BC starting point is similar, but the subsequent trajectory more gradual with a greater approximation to central place theory (Guidi 1985; Fulminante 2014). As discussed above, four potential methodological problems affect the presentation of data of rank and size in this form. It is worth illustrating this in terms of the concrete examples provided by the Italian data.

Representivity of the Data It could be claimed that analysis of this type is premature until the distribution of the full range of settlement is understood. The twelfth-century BC to early tenth-century BC sample may be greatly affected numerically, but the overall convex pattern is unlikely to be affected. Even the discovery of centres hidden under later occupation, such as shown by the recent excavations at Tarquinia (Bonghi Jovino 1986), will not greatly affect the general form of the rank-size curve, unless the centres are unexpectedly large.

Contemporaneity The dating resolution to between 100 and 200 years (as conservatively defined in Table 2.1) is not as accurate as that carried out in analyses of historical settlement systems. However, it is fairly good for an archaeological situation; most of the sites concerned are the well-dated principal centres and the study area is geographically close to the important excavation sequences and burial seriations with many cross dated imports. The problem lies in linking such dating to data on size of settlement.

Boundary Definition The correct boundary is very difficult to determine. The distinction between the areas north and south of the Tiber selected by Guidi has been made on the grounds of material culture. Funerary distributions have been employed in some cases (Colonna 1967; Cristofani 1986: 152). However, smaller (around centres) or larger (Mediterranean) system boundaries may be more appropriate. The allocation of territory to centres by techniques such as Thiessen polygon can be arbitrary despite some modification as a response to local geographical features. The use of other models such as XTENT may offer some solutions and is the preferred solution here in later discussion, but is not without its own problems. An independent means of boundary definition is difficult to attain, particularly given the potential fluidity of such systems in spite of the power of place. Rome, itself, in the final stages of development the largest primate centre of all, lies on what is generally considered the boundary of the Latium and South Etruria settlement systems. It is, therefore, a matter of debate between archaeology and ethnohistoric sources as to where the settlement system boundary should be placed.

Calculation of Settlement Size The measurement of size is difficult to disentangle from any pre-conceived theory about the density of settlement within the natural plateaux (see above) or shifts of settlement from one location to another within the natural locations. It is also difficult to detect changes in size through time. Many of the definitions here are based on

assumptions about topography, and without detailed excavation there is little that can be done either to challenge or to confirm these assumptions.

Interpretation A major problem related to rank size is the exact definition of territorial boundaries of the developing centres by a means independent of material culture. In multi-period field survey, the boundary problem has been significantly reduced, although by no means eliminated, by choosing natural limits: a lake basin or similar. At an analytical level, the most frequent approach has been to use cultural (Pallottino 1937), Roman or even medieval (diocesan) (Caldarelli 1932) boundaries. Thiessen polygons have been used by Renfrew (1975) for Etruria. Di Gennaro (1982) has modified the boundaries of the territories of South Etruria by incorporating geographical relief. The problem has not, however, been solved, although the later analysis in this volume employs XTENT as a potential refinement of this issue.

In the first study of 1981, Judson and Hemphill (1981) were content to present the distributions of the sixth- to fifth-century BC settlements of South Etruria without entering into the theoretical debate widespread in geography over the causation of different types of distribution. They point out some interesting discrepancies between the size of settlements and the importance of such settlements attributed by ethnohistoric accounts. For instance, the size of Acquarossa is greater than would be supposed from the classical authors. In contrast, the size of Capena, considered by Livy to be an important centre, is relatively small. One solution is to study the internal organisation of such ‘irregular’ settlements. Work at La Doganella by Lucy Walker (1985a, 1985b) in the probable territory of Vulci has shown by surface survey the commercial function and specialised production of a site that seems to have been distributed over a larger surface area than its ‘primate’ centre. Judson and Hemphill also make some simple statements about the spatial position of the settlements. Acquarossa and Falerii Veteres are recognised as being placed away from the regularly spaced major centres. Some generalised statements were also made about the spatial position of the minor centres in the supposed territories of the primary centres. Interpretation has not gone much further, and the lack of comprehension is shown by the fact that their graph has been reproduced several times without correction of the mislabelled y-axis which exaggerates the size of the largest Etruscan settlement by some 50 per cent and shows a misunderstanding of the logarithmic scale (Barker 1988: 776, Fig. 2; Rendeli 1993: 108, Fig. 44).

Guidi’s study of Latium and Etruria from the late twelfth century BC – early tenth century BC to the mid-ninth – mid-eighth century BC (tenth to the seventh century BC in the original publication) makes a more theoretical interpretation of the rank-size distributions. In common with Johnson (1981) and the systems theorist Simon (1955), he suggests that a lognormal distribution

is indicative of an integrated settlement system, and that deviations towards concavity or convexity are indicative of less- integrated systems. However, even if this theoretical interpretation is accepted, in his published article Guidi made some errors of interpretation of some of the distributions. Whereas Guidi claims that Etruria (north of the Tiber) represents a more integrated system, i.e. tending closer to the line of lognormality, on the basis of the same distributions, the rank-size index (not used by Guidi but explored below) would suggest Latium (south of the Tiber) as showing greater approximation to the rank-size rule. Fulminante (2014) has revisited this work and taken it to a much more sophisticated level. The implications of this analysis will be explored in Chapters 4 and 6.

Population The complex problem of the determination of population levels and the distribution of population emphasises the tension between maintaining a balance between intensive restricted coverage and a suitably regional cover in field survey. The archival tradition (which from the first had an interest in population density (Ashby 1902: 137)) has made a record of all the large sites, but not all the examples of aggregation are of the dimensions of the archaic city-state. Spacing between and ranking of the larger sites covered by the analytical techniques so far discussed can be relatively easily measured, but the concentration of effort on the major centres leaves many gaps in knowledge about the rural population. Yet it is probable that it was here that, at least in certain phases of development, large proportions of the population were housed (see the interesting discussion of these issues in Perkins 1999a, 1999b). The absence of settlement and/or the development of short-lived settlement between major developing polities (in buffer zones) can be already noted, but the level of analysis must remain coarse until the balance of regional and intensive survey is attained, although these challenges have been addressed separately (Stoddart et al. in press). For the purpose of this volume, impressions of centralisation and decentralisation of control have to be based on phases of occupation of the larger centres, drawing on a data set with an artificial ‘cut off’ in size below which our knowledge is very limited. Nevertheless, the set of case studies that have employed survey techniques to examine the rural hinterland as well as the principal centres are now of sufficient number to demonstrate the great potential of current trends of survey work, and have been explored separately (Stoddart et al. 2019: in press).

Causal Mechanisms: External and Internal Forces

In the 1980s, a standard contrast was often made between external forces of contact, and internal politico-administrative and economic forces. Simple contrasts of this sort have been found wanting. More convincing is a systemic

solution, but this has greater strength for understanding the system operation and later development than of critical changes in the early trajectory. An intermediate position was then proposed that sought to understand the different level at which internal and external factors operate (Renfrew 1982, 1986). He suggested that political units did not rise in isolation but by reference to other equally ranked political units that share similar scale, structure and, at an appropriate level of generalisation, ideology, which can be rewritten in post-colonial terms as entanglement (Dietler 2010; Thomas 1991). Similarly, equally ranked political units seem to collapse together (Renfrew 1986). Emphasis was transferred from interaction at a supra-regional level to an inter-polity level. This can be connected to other interesting questions of ethnicity, group consciousness and, under certain circumstances, linguistic affiliation (Renfrew 1986; Stoddart & Neil 2012). Peer-polity interaction is an empirical generalization that receives wide support among archaeologists (Cherry 1986), provided it is formulated in a suitably nuanced manner responsive to more recent concerns with ideology (Chapter 7).

Unfortunately, the intermediate solution of peer polity interaction shares the problems of a more generalised systemic analysis. The model is good for describing development and operation from the moment that the peer polities are established but is unable to determine the cause of foundation of such polities (cf. Cherry 1986). Explanation of the foundation of such polities remains at best very general, working from the empirical observation, that, since the polities appeared together, there must be some causative mechanism hidden in their contemporary formation. Nevertheless, an essential exploration is of the nature of contact at three levels: the inter-regional, the inter-polity and the intra-polity. At the inter-regional level, it needs to be established whether the timing of external contact could have been critical for the formation of complex polities. At the inter-polity level, the tenets of peer-polity interaction need to be tested: namely that interaction at this scale was crucial for the development of the polities. Finally, a comparison needs to be made, if possible, between interaction within the zone of dominance of the polity and interaction at higher levels.

Studies of peer polities have generally concentrated on the identification of the units of analysis (the polities) and of the interaction between those units once defined. However, attention needs to be addressed, also to the structure of the polity itself. In particular, the spatial structure of the polity deserves analysis. This includes the nature of the hierarchy within the polity (employing among other techniques the rank-size rule) and the distribution of settlement within its sphere of dominance (if that can indeed be determined), combining survey evidence with XTENT boundaries.

In the final analysis, no single causative factor can be pointed to as the major reason for socio-political development in most early state societies. The

underlying role of infrastructure will be addressed in the next chapter. Intensification of extraction, demographic growth, interaction between structurally comparable polities and the stress of increasing organisational scale all play a part in the development of hierarchy. Cumulative incremental change in the long term often leads to rapid organisational changes that underwrite the formation of the state. These run together with changes in ideology and identity that draw on the external entanglement to produce new formulations that are not passive receptions from outside.

The specific requirement for the Etruscan landscape – and more particularly the South Etruscan landscape – is a spatial analysis of dominant or primate centres where the cities – the places of power – dominate their immediate landscape in terms of size and political influence. An extra requirement is a dynamic expansion of power from a known starting point of settlement nucleation in the late tenth century to early ninth century BC. In the late 1990s, more ideological explanations have taken hold (Izzet 2007a, 2007b; Riva 2005; Riva & Vella 2006) which emphasise the entanglement of the internal and the external (cf. Thomas 1991). It is the marrying of these two approaches that is the goal of the present volume and which will be implemented in later chapters.

CHAPTER THREE

THE MATERIAL CONSTRAINTS

THE PROMINENT GEOGRAPHICAL FACT ABOUT CENTRAL ITALY IS THE most obvious: its centrality within the maritime Mediterranean (Fig. 3.1). The region lies at the middle point of the Tyrrhenian Sea, a fact which allowed ease of communication to the north, west and a vast arc of open sea to the south (and thereby to the east through the straits of Messina). It is no accident that two major state-formation processes of the first millennium BC took place in the territory bisected by the River Tiber, a major river that granted access into the interior of the peninsula. In the *longue durée* of human development, water was both a barrier and access to communication; in the central Mediterranean this balance was definitively tipped at the threshold between the second and first millennia BC, when the ease of waterborne transport was sufficiently increased to make navigation, out of sight of land, a risk-minimised procedure. In the second millennium BC, Central Italy was at the limits of Mycenaean communication (cf. Malta (Malone & Stoddart 2009: 379, Fig. 14.17)). In the first millennium BC, it became central to Mediterranean communication, although the direct evidence from shipwrecks (Parker 1992) is restricted to the sixth-century examples off the north end of the island of Giglio (Bound 1985, 1991a, 1991b) and only increased in the third century BC (Gargiullo & Okely 1993; Gianfrotta 1982; Incitti 1986; Martelli et al. 1982; Pallarés 1983).

The region was, therefore, predisposed towards widespread contacts with the rest of the Mediterranean once the technology was in place. However, one theme of this book is how these contacts were executed on a reciprocal,

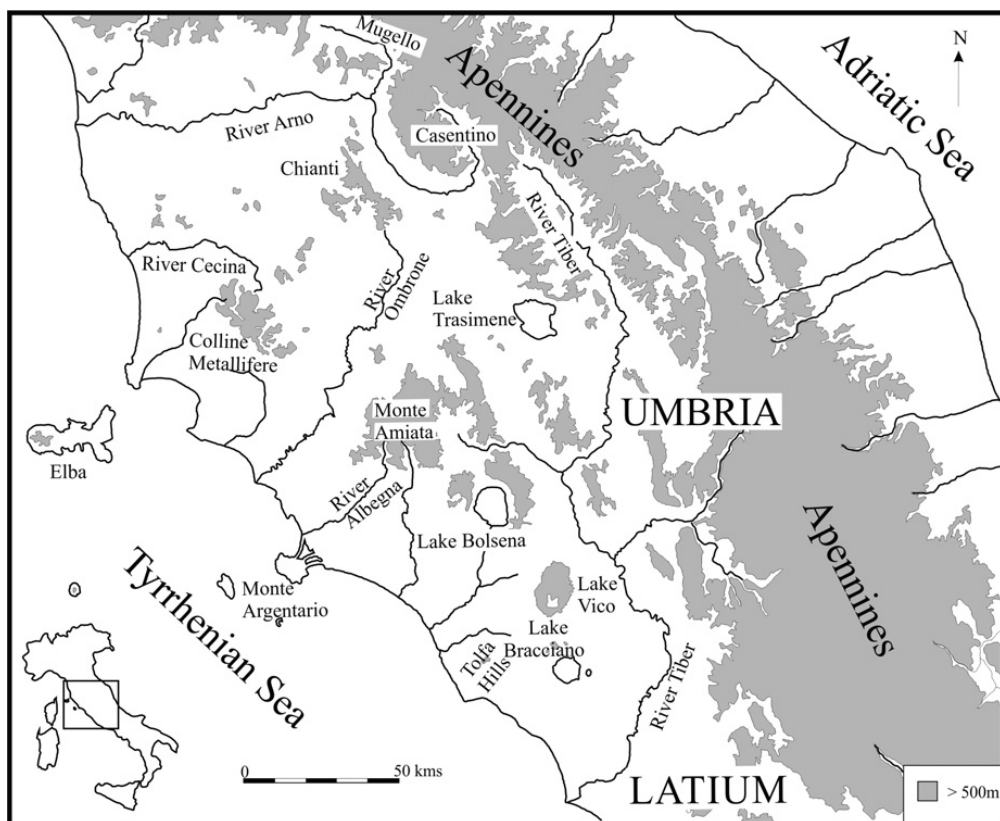


Figure 3.1 The geography of Etruria.

entangled basis, once the socio-political context was prepared. For this reason, the local geography of Central Italy itself is equally important. The developing political systems were enabled and, to a certain extent, constrained by the resources of the landscape. However, the strength of the political process was such that purely ecological constraints should not be overemphasised. Resources were human, or of human manufacture, as much as natural. Political relations became as important as ecological relations for the first time, at least for the upper levels of settlement, the powerful places, which form the main focus of the succeeding analysis. After more comparative field survey of rural settlement, it will become possible to approach, at a micro-level, the relations of man and landscape (cf. Stoddart et al. in press). At this lower level of the settlement hierarchy, there continued to be a much more deep-seated interplay between resources and human exploitation.

The geographical discussion below will follow the format of the analysis of the settlement systems, limiting discussion to the heartland of Etruria and not attempting to cover the whole peninsula, which has been undertaken elsewhere

in the politically relevant context of the Roman Republic (Stoddart 2006). Pre-eminently northern Etruria and northern Umbria will be contrasted with southern Etruria, bisected by the Albegna River system and enclosed to the east by the Apennines. This is the geographical contrast, whereas the cultural and political contrast, as explored later, cuts across geographical space in a way that some classicists do not appear to appreciate (e.g. Rasmussen 1992). Four broad zones of Etruria and northern Umbria can be readily identified: the volcanic landscape of South Etruria, the coastal plains (as they are today), the Tuscan upland and the inland tectonic valleys. The first set of major centres and rural settlements sits within the distinctive volcanic region (Chapter 6). The second sits within the political buffer area that coincides with the geographical partition of the Albegna valley between North and South Etruria. The final three sets of major centres and rural settlement cut across the three distinct zones of coast, upland and tectonic valley. The landscape centred on Populonia and Vetulonia lies at the edge of the coastal plain but must be related inland to the higher Tuscan uplands. The landscape centred on Chiusi lies in the more westerly of the tectonic valleys but again must be related to the upland areas to the west as well as further tectonic valleys to the east. The landscape centred on Gubbio and Perugia lies in almost the last of the inland tectonic basins but must be related to the highland Apennines to the north and the high mountain spine with its passes beyond.

THE STRUCTURAL LANDSCAPE

The key structural feature of northern central peninsular Italy is the presence of the Apennines (Figs. 3.1; 3.2A) which run from close to the sea at La Spezia through a length of some 400 kilometres, varying in breadth between 50 and 100 kilometres, down to the latitude of the Tiber mouth (Sestini 1984), and, beyond, down to Sicily. The area of lowland below 1,000 metres is more extensive in the Etruscan area, since the Apennines curve eastwards before turning south, but the peninsula as a whole is disproportionately mountainous (less than 20% is lowland). Consequently, mountain relief has often contributed to the character and definition of political territories and to the essential regionality of Central, as much as of all, Italy. This mountain chain has also had a profound effect on communications, defining the major routes of access between regions and enclosing the Etruscan and Umbrian political enclave from the east. In total, this presence of the mountains provides a *longue durée* setting for human action in the way defined by Braudel (1972) and developed by some archaeological projects (Malone & Stoddart 1994; Stoddart et al. 2012) in the area under consideration.

The Apennine mountain chain forms a continuous and prominent relief from north to south but is formed of a series of different blocks which have different characteristics. This variability has produced a range of different

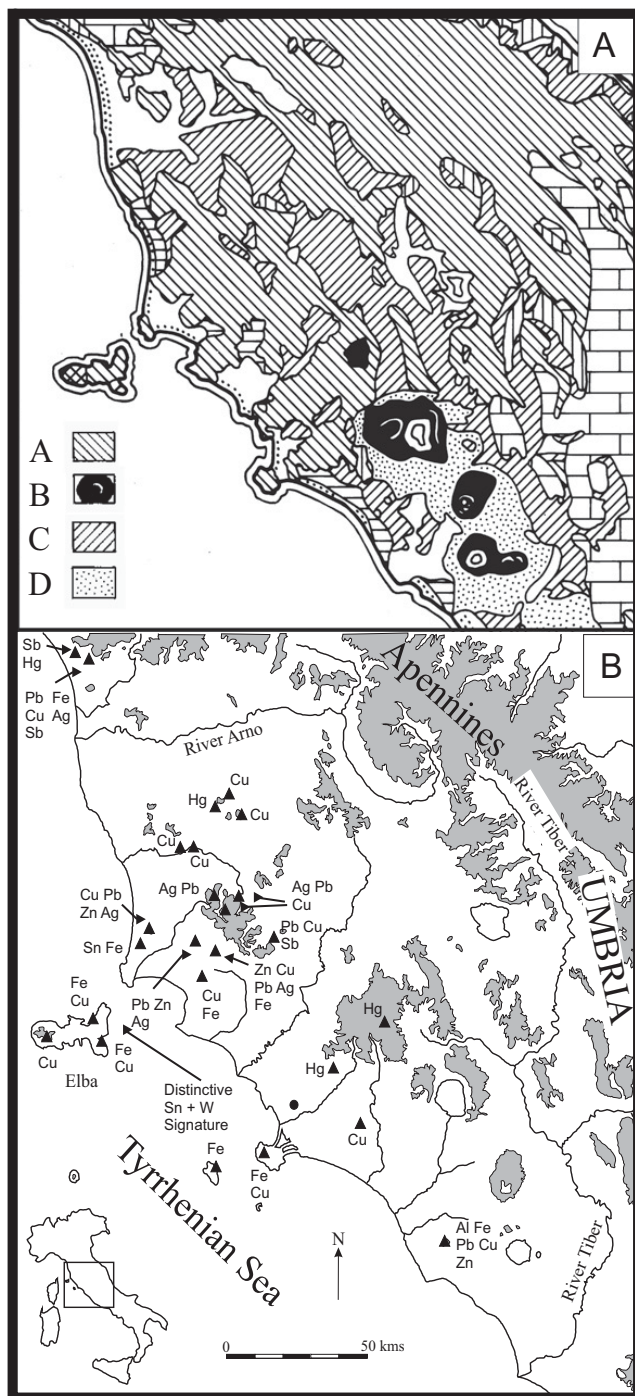


Figure 3.2 A. The geology of Etruria: a. conglomerates, sandstones and clays; b. volcanic cones; c. Pliocene plateaux and basins; d. incised tuff plains. B. Mineral resources.

weathered products that have further contributed to the regionality of the peninsula. The same area is also very active geologically, leading to an instability that ranges from the dramatic processes of earthquakes and vulcanism to the more drawn out but equally imposing processes of erosion, including intense landslip, and alluviation, which many authors stress took place episodically and thus quite dramatically to the living populations (Bintliff 1992). In this fragile environment, humans must be ready to respond rapidly to perceptible local environmental change (Van der Leeuw 2000). Part of the success of the politics of the first millennium BC was this effective response.

Neotectonics, related to the relative youth of mountain building, has led to a considerable verticality of the landscape. Transitions from valleys to mountain summits (between 500 and 1,500 metres) take place over relatively short horizontal distances and often reach quite substantial heights of 1,000–2,000 metres. The relative youth of the landscape has also led to steeper gradients and a more constrained width of valleys (Brown 1997). These constrictions have led to pronounced alternation of aggradation and erosion, contributing to a cut-and-fill stratigraphy which has both a general pattern (perhaps a result of climatic change) and local variations (perhaps a result of human land use) (Brown & Ellis 1995). More geomorphological studies still need to be undertaken to work out the relationship between human action and erosion at the local level. Some recent attempts to synthesise the erosional processes show that these were prominent in the first millennium BC, but that some of the key studies were off-stage from the political processes that form the central feature of this volume (Walsh et al. 2019).

THE NORTHERN APENNINES

The northern Apennines curve gently from west north-west towards the east south-east. Between the Giovi pass (472 m) near Genova and the upper valleys of the Tiber and the Metauro, the Apennines show an asymmetrical profile. The southern ('internal') slope is relatively abrupt, marked by broad valleys and basins, running in parallel to the mountain chain itself. The underlying geological structure here has a profound effect on the landscape. On this southern side of the Apennines, there is a series of intermontane basins, well sunk, by Pliocene tectonic action, between parallel ridges running with the main Apennine chain from the north-west to the south-east or from north to south. These basins are drained by the Magra, Serchio, Arno (Sieve, Chiana) and Tiber rivers. All were once lake basins, now turned into river valleys, leading to a broadly similar sequence of, often heavy, clay sediments. Lake Trasimeno, the largest lake of the peninsula (128 sq. km),

is formed in a shallow (6 m) depression within the alluvial sediments at one end of the Val di Chiana (Motti 2012). Much of the relief has been shaped by fluvial action, but given variation by the type of parent rock. The narrow V-shaped valleys of the Ligurian Apennines are cut out of the local marly limestones, sandstones and shales. The internal area of Tuscany is composed of two zones. The northern area immediately to the south of the Arno has geological formations similar to the Apennines themselves (including limestones and conglomerates). The southern zone around Volterra and beyond has a high presence of marine Pliocene deposits (clays, sands and gravels). This zone is today much affected by dissection and erosion, particularly under the impact of modern agriculture, but this degradation is almost certainly a longer-standing problem. At the southernmost limit of this area lies Monte Amiata (1,738 m), the most northerly and some of the most distantly active (9 million to 1 million years ago) evidence of vulcanism in the peninsula. The southern coastal part of this zone comprises the distinctive Maremma region (see below).

THE CENTRAL APENNINES

The relevant, most northerly, part of the northern Umbria–Marche section is made up of deep sea and marly formations, starting in a north–west to south–east direction and ending by running almost north–south towards the south. The peaks of this section vary between 1000–1200 metres and 1500–2400 metres and are often rounded or flat-topped. The geology is composed of various types of limestone: compact and homogeneous, cherty, marly and thin bedded (*scaglia*). On the inner Umbrian side of the mountains, there are rather longer mountain basins than in Tuscany filled with broadly similar sequences of lake and river deposits (the Tiber valleys, the valleys of Gubbio, Gualdo Tadino and Norcia).

THE COASTAL PLAINS

The approximately 570-kilometre coastline of North and South Etruria is today marked by a series of sweeping bays composed of coastal plains of varying size, separated by rocky headlands and other promontories (Mason 1944: 73). The headlands and promontories are either coastal extensions of the pre-Apennines or former islands now joined to the mainland. Some islands remain isolated by sea; Elba is the principal island of importance here. It lies about 10 kilometres offshore within easy sight of the Italian peninsula and consists of a confused geology of schists, diorites, limestones and other rocks of a wide range of dates. This tectonic confusion has revealed a great variety of mineral resources (see below).

The lagoonal conditions along the Tyrrhenian coast are typical of the early stages of coastal evolution of many other areas of the central Mediterranean (Delano Smith 1979: 328–59). Sediment has been deposited vertically and horizontally in a most measurable form since the Roman period, but clearly also before then. These changes are readily recognisable, but highly localised in their effect. The reconstruction of the coastal landscape is complicated by the conclusion of some researchers (Schmiedt & Caputo 1972) that the level of the Mediterranean was one metre lower in the Etruscan period. It is more difficult to judge to what extent the coastal headlands have been eroded, but this erosion can be considered to have been less drastic. Beach areas were highly unstable until the relatively recent drainage schemes and therefore unsuitable for major centres. These centres were necessarily placed on more stable landforms which in only a few cases were immediately on the sea itself. It is clear that parts of the resulting lagoon landscape were highly favourable to certain types of economic exploitation. The lagoons and their margins would have contained important resources such as fish and, in certain areas, grazing for animals. This type of economic strategy certainly continued into the latest Bronze Age and perhaps into later periods, where political constraints led the population to be less directly associated, except cyclically, with lagoonal areas.

The first stretch of coastal plain from La Spezia to Livorno is very narrow in the northern part, and archaeological survey and geomorphological reconstruction by the *Ager Lunensis* survey has shown this portion to be of relatively recent, largely Roman, formation (Delano-Smith et al. 1986). Further south, the plain opens into the Serchio and Arno deltas, which have required a much more complex reconstruction of the landscape changes. Some studies (Mazzanti & Pasquinucci 1983) which have combined geomorphological and archaeological evidence suggest that the coast around the delta would have been at least 5 kilometres further inland in the Etruscan period. The Archaic site of Massarosa was placed on piles in a presumably still seasonally waterlogged location and now lies three to four kilometres inland. Pisa and associated Archaic sites would similarly have been placed on coastal or lacustrine margins (Bruni 1998: 38–53; Pasquinucci & Storti 1989).

Between Livorno and Punta Ala, there are a series of smaller plains separated by narrow coastal strips. The first plain is that of the Val Cecina, which has a southerly coastal extension broken by Monti Calvi and then opening again into the Val Cornia behind the largely Cenozoic marl-sandstone promontory of Piombino on which the centre of Populonia was placed (Figs. 3.2A, 3.3Above). Cartography dating back to the fifteenth century shows that considerable portions of this plain were lagoonal until drainage took place in the nineteenth century (Fedeli 1983: 53–62). Neolithic finds from the central portion of this area do indicate, nevertheless, that the lagoons were accessible even at this date. A not dissimilar area was utilised during the Orientalising period. However, in common

with the Orbetello area to the south, there was a sand dune bar running along the modern coastline to the west of the lagoon, probably by the Pleistocene, but judging from finds eroding from the modern sand dunes, the modern surface dates to the Neolithic or Bronze Age. This would have been the landward access route to the promontory of Populonia and formed the simple beach required for the port of Populonia, protected in part by the promontory itself. The Follonica plain to the south-east, further around the Gulf of Follonica, is a similar former lagoonal area, with local access from at least the

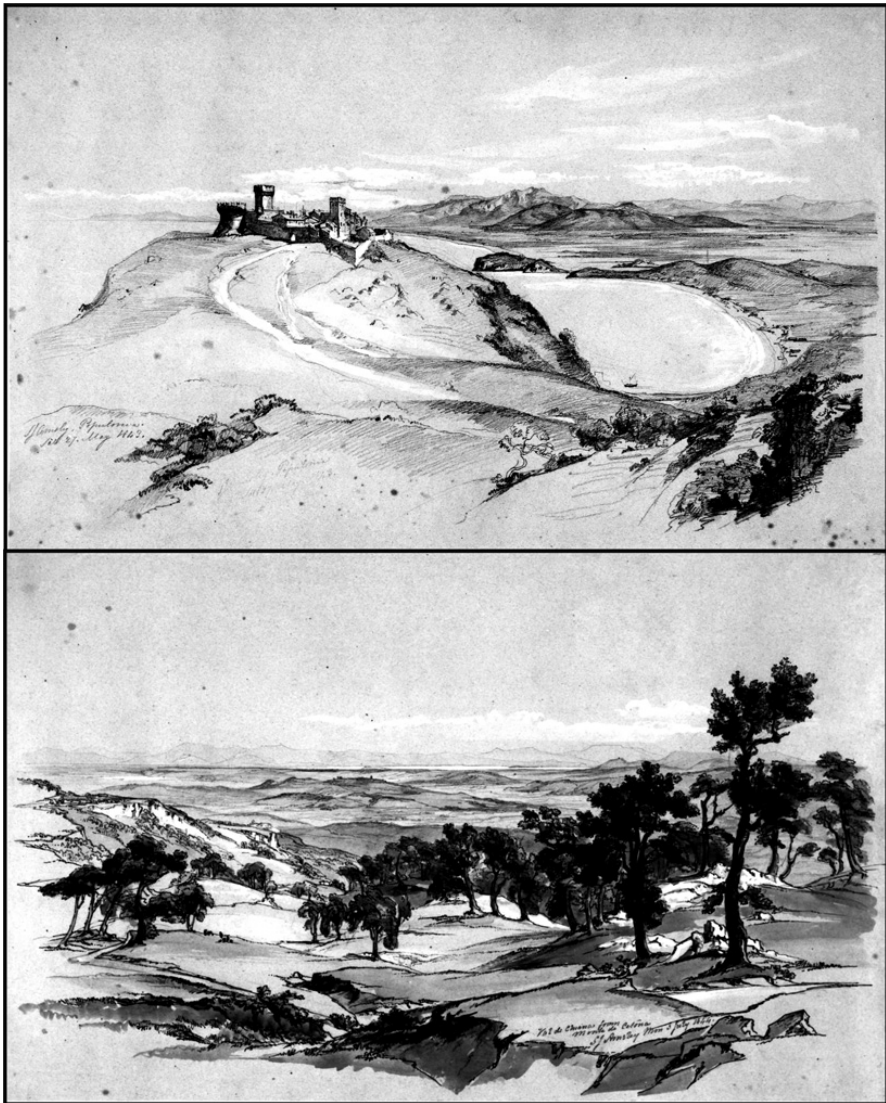


Figure 3.3 Above: View of Populonia, Samuel Ainsley, 27 May 1843 (British Museum). Below: View of Val di Chiana from Monte Cetona, Samuel Ainsley, 2 July 1844 (British Museum).

Bronze Age. Some significant recent pollen and other environmental work has been undertaken at the Lago dell'Accesa set back some 15 kilometres from the coast from Follonica. The results show some impact of the sixth-century BC Etruscan village on the lake (Drescher-Schneider et al. 2007: 291; Stoddart et al. 2019) through the presence of the chestnut/walnut/olive complex, a slight increase of pine with ash, juniper, bracken and Plantago, as well as hints of cereals such as flex and rye. Generalised studies of pollen (Stoddart et al. 2019) show that such impacts tended to be relatively local compared with Roman period.

Between Punta Ala and Cape Linaro, there are two rather larger coastal plains, separated by the Albegna valley and Monte Argentario. Punta Ala itself forms a more abrupt coastline whose steep cliffs and small inlets have probably changed little since the Bronze Age. The region to the south is the Maremma (Ciacci 1981), one of the larger coastal plains of Central Italy which is of interest to Archaic Italy because of the presence of cities such as Roselle. The northern part of the region is bounded by the Colline Metallifere, as the name suggests, an important metal ore zone, which projects into the sea, with Elba at its maritime limits. The whole region is composed of four river basins, the largest, the Ombrone, the fourth largest of the peninsula, is accompanied by three smaller rivers, the Albegna and the Fiora to the south and the Bruna to north. The Albegna (67 km long in a catchment of 737 sq. km) forms an important physiographic divide between northern and southern Etruria and is archaeologically the most studied valley of the region (Cambi 2002). The valley was, in fact, an important feature of the Archaic political geography, providing a self-contained buffer zone and a means of communication into the interior. A prominent characteristic feature of the coastal margin of this river valley is the lagoon that runs from Ansedonia to Pescia Romana, with a bar, accompanied by poor drainage promoted by sediment transport from up valley, which blocks the exit to the sea. Another prominent feature is the high promontory of Monte Argentario which protects the lagoon from the sea approaches and whose sand bars connecting to the mainland seem to have been a feature since at least the Bronze Age (Bronson & Uggeri 1970). Behind the lagoons, there are also some low isolated hills which stand above the surrounding alluvial plain; together with a hill zone backing onto the high mountains, these complete the key ecological zones of the valley (Caravaggi 2002). Southwards, a coastal bar continues to follow most of the modern coastline, sheltering the former lagoons behind. Emporia, such as that of Gravisca, were established on the wider stretches of these bars in positions where shipping of shallow draught could have been beached.

Further south, Cape Linaro stands at the centre of a promontory that allows only a much smaller coastal strip. Structurally the cape forms the seaward projection of the Tolfa mountains that form an important east–west boundary

which was open to adoption as a political boundary by the two Etruscan cities, Tarquinia and Cerveteri, lying to the north and south (Fig. 8.2). After Cape Linaro, initially rocky with steep cliffs, the landscape opens out again, particularly as it meets the Tiber delta. The delta of the Tiber to the south is much more difficult to reconstruct for the pre-Roman period (Salomon et al. 2009), although it is clear that the coastal plain has advanced many kilometres even in the last millennium.

THE TUSCAN UPLAND

The Tuscan upland is an area of variable height and geological formation made up of three principal parts (Mason 1944: 274): the Maremma/western highlands, the Siena trough and the Chianti. The Maremma and western highlands fringe the coast and divide up the coastal plains described above. The mountains are principally composed of Tertiary sandstones penetrated by some hard older rocks. The northern portion is generally of a lower altitude (below 300 m except for an area centred on Monte Vitalba). The southern portion is higher, reaching over 1,000 metres in the most northerly sector. Many of these upland areas, although not too high to have formed major barriers to communication, were probably unsuitable to have been intensively exploited agriculturally in the first millennium BC. Some of these mountains do contain mineral resources which it is usually assumed were exploited from at least the Final Bronze Age. The Siena Trough is occupied by much softer Pliocene rocks that under modern cultivation have been very susceptible to erosion. This low-lying area allowed relatively easy communication to the east of the comparatively upstanding uplands towards the coast. The suitability of the area for agriculture is very variable, depending on the surface deposit (Barbieri 1966; Valenti 1995: 11–14). The compact clays would have been generally unfavourable to early agriculture and particularly subject to erosion. The coarser sands would have been more readily cultivable, but not especially fertile soils. The Chianti to the east was another more upland area, although rarely exceeding 1,000 metres in altitude. The majority of the parent rock is sandstone, with some higher peaks, such as that of Monte Cetona to the south, of limestone. The terrain is not easy to cultivate without the considerable investment in terracing that dominates the landscape today. It is probable that considerable areas remained wooded and unexploited. The southern Tuscan upland is dominated by the most northerly extension of volcanic activity. This area, although containing some mineral resources, would have been rugged, inaccessible and, we will see, sacred, during the first millennium BC, since Monte Amiata at the centre rises to 1,700 metres. The mountain itself is densely wooded, and the extension of this forest cover would have been much more considerable in the pre-Roman period. The Tuscan upland area as a whole lay

between the more readily exploited zones of the coast and the inland tectonic valleys. The only centres of importance and long duration (e.g. Volterra and Monteriggioni) were at the head of communication channels facilitated by rivers penetrating from the coast. This intermediate geographical space was readily adopted as a temporary buffer area between complex polities.

THE INLAND TECTONIC VALLEYS

Inland the terrain is dominated by a series of roughly parallel, drained, lake basins. Lake Trasimeno is a remnant of a much larger complex of interlinked lakes dating from the Pliocene. Frequently these valleys have complex drainage patterns which have altered considerably over time, most recently under the influence of man, and are usually flanked to one side by a prominent tectonically induced escarpment dominating the valley, provoking asymmetrical drainage and colluvial/alluvial deposits. Many of the valleys have remnants of Plio-Pleistocene deposits that were too heavy for early agriculture. The valleys have clearly constrained communication and formed the natural territories for political units. There is, also, an important degree of verticality in many of these valley systems, where, within a short horizontal distance, both lowland agricultural lands and upland pastures and woodlands can be reached. The degree of fertility of these valleys, however, depended greatly on local factors: including the proportion of heavy (clay), generally Pleistocene, soils, to the often lighter soils of more recent formation. Political systems within these units would thus have been able to control a wide range of agricultural resources, but resources that would have been severely limited by the increasing altitude of even the valley bottoms as one moves east into the Apennines.

Moving from the north to the south, and then from the west to the east, ten major basins can be identified: the Mugello, the Arno plain, the Valdarno connecting to the north with the Casentino (the Upper Arno), the Val di Chiana (Fig. 3.3B), the Upper Tiber, the Perugia-Todi, Foligno-Spoleto, Gubbio and Gualdo Tadino basins. Other smaller basins lie further south in Umbria, outside the area covered in detail. The basins to the extreme north and east (e.g. Mugello, Casentino, Gubbio, Gualdo Tadino) are placed within the Apennines themselves, but only the Casentino is a severely enclosed valley with one restricted entrance from the south. Geographically the Casentino is an isolated upland valley, chosen in the medieval period as a refuge by monastic orders (Wickham 1988). In contrast, the Mugello was an important communication route through the Apennines towards Marzabotto and Bologna. The Valdarno, which effectively connects the two basins, opens out from a narrow gorge at the confluence of the Sieve (from the Mugello) into a wider valley bordered by gentle Pliocene hills. Although this area contains a fairly dense rural population today, the Pliocene soils would not have been very suitable for

early agriculture, because of their steep gradients. The valley continues south-east, bounded to the north by the high pastures of the Pratomagno that flank the Casentino, and to the south by the Chianti uplands, passing a small gorge before almost immediately entering the well-defined basin of Arezzo. This basin is well circumscribed by hills and is an important centre of communications, not only from the Valdarno, but north into the Casentino, east into the Upper Tiber and, most importantly, south into the Val di Chiana.

The Val di Chiana is a relatively flat and wide plain stretching to the south. This valley was a well-defined geographical unit providing natural boundaries for the political units developing within the area, facilitating easy communication and providing the environmental resources very ready for agricultural intensification. However, the conditions of the first millennium BC are difficult to reconstruct precisely given the considerable changes in drainage even within the historical period. The basin, after its lacustrine phase, was originally drained by the Tiber to the south, but this situation was reversed by a combination of tectonic, alluvial and human action (Losacco 1944; Piccardi 1973: Fig. 2). In the post-Roman period, the valley became virtually uninhabited and was only effectively drained by Fossombrone in the late eighteenth century (Rossi 1981). Prior to these changed drainage conditions, the basin appears to have been a very fertile area, although waterlogged conditions and small lakes were certainly already apparent, even by the late Etruscan period (Strabo, *Geography*, 5, 2, 9). At the southern end of the Val di Chiana, the calcareous peak of Monte Cetona provided an upland retreat for settlement, well withdrawn from the valley bottom and yet with good access not only to upland pasture but also to agriculturally more fertile terrain within a short horizontal distance. Intermediate positions, on the boundary of hill and mountain country of Pliocene and earlier date, encircling the former lake basin and the more lowland Pleistocene terraces, proved to be very suitable for settlement where the population required higher degrees of intensive agricultural production. Finally, occupation of the interfluvies of the Pleistocene valley bottom allowed access to some lighter sandier soils and to lowland grazing in the most probably seasonally flooded and locally lacustrine valley bottom.

The Tiber has retained the modern catchment of the most southerly portion of the Val di Chiana, including the area of Lake Trasimeno. During its upper course, the river and its tributaries, the Chiascio and Topino, also drain the remaining intermontane basins of north-east Umbria. The most northerly of these basins (north of Città di Castello) is deeply filled to the west with Pliocene and Pleistocene alluvium, which forms a well-defined upland area some 100 metres above the rest of the remainder of the 10-kilometre-wide valley. The valley is less isolated than the Casentino, with a rather greater potential for economic intensification; nevertheless, except for access from the south up the

Tiber valley and a natural pass through the Apennines some distance to the north, the area was surrounded by fairly rugged mountains on all sides. The connecting valleys and basins to the south, forming the main access route to the Upper Tiber, are smaller and dominated by mountains of up to 1,000 metres on either side. These peaks are most impressive immediately to the north of Perugia, where the limestone formations project through the sandstone and marl deposits that otherwise form the major geological formations of north-eastern Umbria.

Two broad basins stretch south from Perugia (Fig. 3.4A) towards modern Todi and Spoleto. The potential conditions for economic development in these basins are broadly similar to those of the Val di Chiana except in one important respect: they lie a further 50 kilometres east. Both basins have extensive recent alluvial plains which probably require modern technology for effective exploitation although, in the case of the Todi basin, without the drainage problems of the Val di Chiana. Extensive Plio-Pleistocene deposits flank the two sides of the Todi basin, and the western side of the Foligno–Todi basin; these sandy-clay conglomerates were probably rather less suitable for early cultivation, and in the 1940s were covered with scrub (Mason 1944: 319). As in the other basins of Umbria, the sandstone marl formations that provide the next structural level of relief are locally broken by prominent limestone peaks.

A continuous line of limestone peaks forms the eastern flank to the Umbrian basins, broken only by several stream-induced passes and occasionally by upland plateaux, most notably that of Colfiorito. This limestone chain overlooks a major communication route through the Apennines later followed by the Via Flaminia. One basin, that of Gualdo Tadino, runs parallel to this line of communication. The last basin, that of Gubbio, is reached either along this communication route from the east or from the Upper Tiber to the west. The key local topographical feature is a prominent limestone escarpment, in part the watershed of the peninsula, that runs the length of the north-eastern edge of the valley, reaching an apex of nearly 1,000 metres at the central point behind the city of Gubbio. This escarpment dominates a valley at between 300 and 500 metres, filled with heavy Pleistocene terraces, later alluvial fans and colluvial infill. A large proportion of the alluviation and colluviation was probably a consequence of human activity dated substantially to the Republican period when rural settlement increased considerably. As a consequence of the central infill of the valley, drainage takes place both to the south-east and to the north-west, ultimately reaching the Tiber from two tributaries. To the south-west lie the lower sandstone marl hills between Gubbio and the neighbouring city of Perugia. The whole valley forms a self-contained territory flanking the higher Apennines and the major communication route through to the Adriatic followed by the Flaminia to the east.

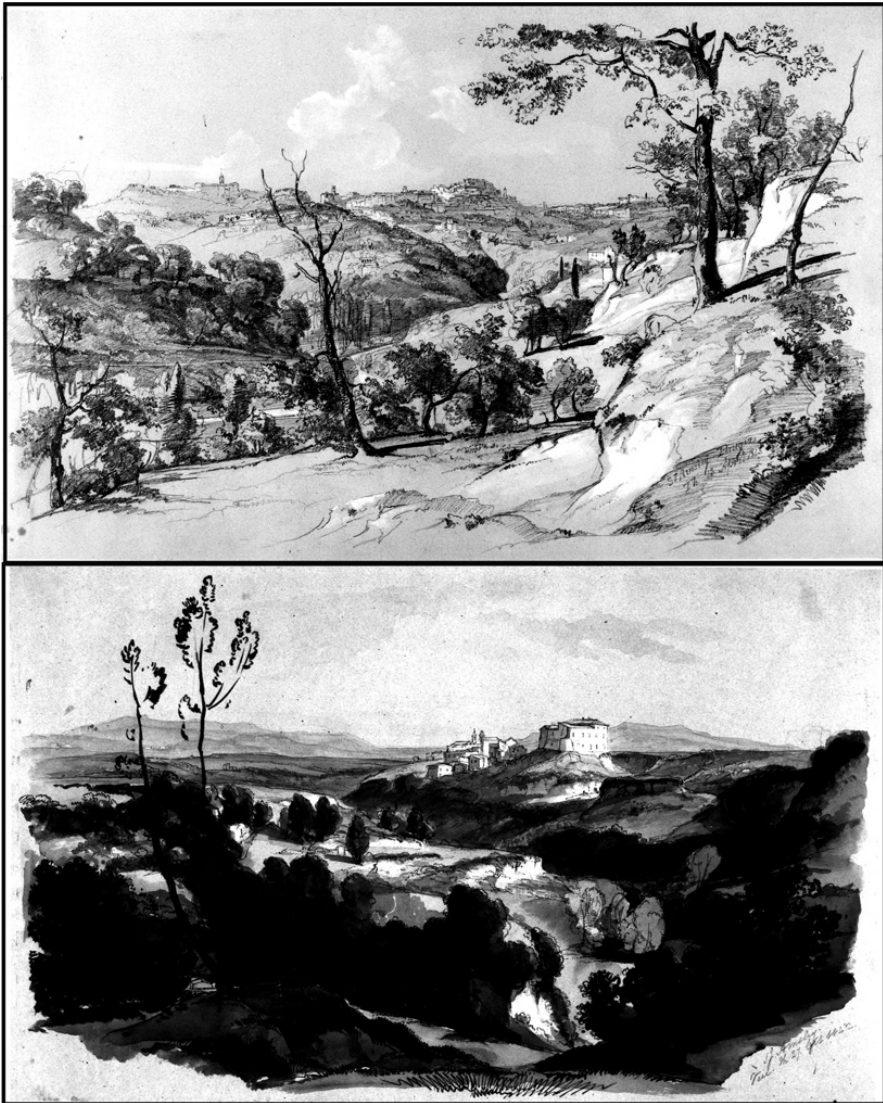


Figure 3.4 Above: View of Perugia, Samuel Ainsley, 13 April 1843 (British Museum). Below: View of Veii, Samuel Ainsley, 27 April (?) 1842 (British Museum).

Upland peaks, predominantly of limestone, but also of the upper range of the sandstone and marl, were important topographically in this mountain landscape. These positions offered defence and control, forming a potential nexus of political foci within visual contact with each other or potential ritual outposts under conditions of political stability. Many of these uplands could have formed areas easily cleared of a climax vegetation of mixed oak woodland (Allegrucci et al. 1994) to form pasture. The many natural territorial units enclosed by these upland peaks formed, as explained above, natural political

units, under the appropriate political conditions. Lower colluvial/alluvial slopes and fans were often present against the flanks of these peaks, to provide more accessible, but still not valley bottom, positions for more complex centres.

THE VOLCANIC LANDSCAPE OF SOUTH ETRURIA

The volcanic area of Central Italy is the largest expanse of rock of volcanic origin in continental Europe. The recent geological processes involved affected both positively and negatively the availability of resources and shaped the structure of the landscape that could be exploited politically. The developmental sequence of volcanism in Central Italy involves a complexity of which, fortunately, only the most recent part is of direct relevance to the present discussion. Three volcanic provinces (Alvarez 1975: 387) exist in Central Italy: the Tuscan (which lies to the south of the Tuscan upland around Monte Amiata), the Roman and the Campanian. The northerly Tuscan is earlier in date (9 to 1 million years ago) and represents a phase of only minor volcanism with shallow plutonism of an anatectic type (Alvarez 1976: 312), consisting of small intrusions and volcanic bodies of calcalkaline composition (Alvarez 1975: 357). A major change occurred about 1 million to 800,000 years ago when the chemical composition of the volcanic activity became potassic, and two new provinces, the Roman and the Campanian, replaced the first. The Roman province is itself divided into four districts: from north to south the Vulsinii (Bertini et al. 1971), Vico, Sabatini and Alban complexes. Each of these has, at its centre, one or more crater lakes. The Vulsinii district contained Lake Bolsena (114.5 sq. km and 146 m deep) and Vico the lake of the same name (40.95 sq. km and 48.5 m deep at a relatively high elevation of 507 m a.s.l.). The Sabatini district (De Rita et al. 1996) is made up of a grouping of twenty to thirty craters of which three would have been filled with water in the first millennium BC: Bracciano (67.5 sq. km and 160 m deep), Martignano and Baccano. These volcanic lakes trapped sediments containing pollen which reveals a relative late post-Etruscan clearance of their relatively steep slopes (Bonatti 1963; Frank 1969; Kelly & Huntley 1991). The date of the cessation of volcanic activity is difficult to determine but appears to be in the order of 40,000 years ago (Alessio et al. 1968; Bonadonna & Bigazzi 1970; Evernden & Curtis 1965). The importance of the volcanism is therefore in terms of its effect on the evolution of the landscape and the provision of resources rather than a direct effect on daily life. However, the grouping of these lakes conveniently formed a border zone between inland and coastal cities (Cifani et al. 2012).

The major processes after the deposition of the last major ash-flow tuffs were those of fluvial erosion and deposition. In the Sabatini province (occupied by

Civita Castellana, Nepi and Narce among other centres) the east–west streams had a gentle effect on the landscape, but the north–south streams cut deeply into the volcanic strata. The erosion revealed a succession of permeable and impermeable deposits that produced numerous springs and, along the north–south axis, canyons of *c.* 100 metres deep which divided the terrain. Numerous mesa-like ‘pedestals’ for isolated and defended settlement were formed. The smaller of these were occupied in the Final Bronze and Medieval periods. The larger of these were occupied by the primate centres of the Archaic Etruscan period (Fig. 3.4B). In certain areas, the preceding parent rock surfaces from under the more recent volcanic deposits. The coastal area is backed by Pliocene clays, marl and sandstone and to the south of Civitavecchia by harder sandstones; these represent a continuation of the type of geology found further north, providing similar constraints.

The result of this rapid succession of recent geological and geomorphological activity was a considerable range of resources including soils of very different potential. Parent rocks of calcareous, sandstone/clay origin are found, as well as a considerable variety of volcanic deposits. The most fertile (Migliorini 1973) of these are some of the less compact tuffs, which contain the minerals suitable for intensive cultivation. Reworked and redeposited volcanic tuffs are also of high fertility. However, a larger area is covered with more compact volcanic deposits that are more suitable for pasture and less-intensive agriculture. The variety of stratified deposits provided rich sources of raw materials. Pliocene clays exposed even in the volcanic areas in the river bottoms were used for house floors (Potter 1976: 51), pottery and tiles; the limited work carried out on pottery fabric from sites such as Narce (Potter 1976: 186) shows a clear continuity in clay sources, except for the distinctive imports. The tuffs, and, by the later periods, the travertines, provided easily cut stone for construction, and in the case of the softer deposits, tombs and sometimes dwellings within the deposits themselves.

THE DISTRIBUTION OF RESOURCES

Agricultural Potential

Some of the differences in economic potential for agriculture have been pointed out during the discussion of the structure of the landscape. Only a broad comparison need be made here. Coastal conditions were most probably dominated by unstable lagoonal regimes, except where more stable sand bars had formed. The shallower river valleys almost certainly provided some continuation of these conditions even into more inland areas. It was the mid-slope margins of the coastal areas that probably provided some of the most suitable conditions, balancing socio-political attraction of connectivity with the rest of

the Mediterranean and subsistence needs. In the inland areas, a major consideration is the relative contribution of calcareous, sand/clay and volcanic parent rock to the soils. The volcanic South had the greatest potential particularly in regions where perennial springs (e.g. Nepi) combined with volcanic soils of the most nutrient-rich chemical composition, such as some of the tuffs (Migliorini 1973: 33). The Tuscan uplands, through a combination of altitude, relatively low fertility of the soils and heavy vegetation, were predominantly low-resource zones in terms of the period under study. The major exception was that provided by mineral resources, reviewed separately below. Minor exceptions were provided by the Volterra area, where numerous rivers and the lower altitude provided a greater resource potential that was also exploited politically because of the spatial position of this area. The inland tectonic valleys shared a great range of ecological diversity that would have provided the potential for a mixed farming economy, comprising some lighter, well-drained agricultural soils as well as upland grazing. However, the more easterly of the valleys almost certainly had poorer resources, measured both in local climate (altitude/rainfall) and in soil conditions.

A major distinction between the different areas is climatic. Climatic change is unlikely to have been considerable since the first millennium BC. However, recent evidence does suggest that parts of Central Italy may have had more favourable, wetter conditions in the second millennium BC than other parts of the central Mediterranean (such as Sicily) on the basis of lake levels (Magny et al. 2007) and sediment accumulation; this may have given a small, but crucial, advantage to the contemporary Bronze Age communities which flourished in Central Italy in the later second millennium BC (Chapter 4). The local effect on vegetation was much more complex, affected by many local factors including human impact (Di Rita et al. 2018; Stoddart et al. 2019). There was increased clearance of tree cover, but this appears not to have been as generalised as in the following Roman period, even if perhaps more intensive around some inhabited areas; however, apart from Lago dell'Accesa, the pollen sites are not very well placed to assess this conclusion. By the same measure, there is some increase in direct and indirect indicators of erosion during the first millennium BC (Walsh et al. 2019), but direct studies co-ordinated with human activity are still restricted in number.

Nevertheless, modern conditions can at least be employed as a relative guide. The coast, buffered by the Mediterranean Sea, would, therefore, have had a typical Mediterranean climate with dry, even arid, summers, especially in July and August, and mild, damp winters. Relief and altitude would, however, have brought considerable variation; the breaks in relief and altitude can be most effectively seen by dividing the western side of the peninsula into anti-Apennine, pre-Apennine and Apennine zones (cf. Barker 1981: Fig. 4): the coastal plains, the Tuscan upland and the volcanic terrain belong to the anti-Apennines, the tectonic

valleys principally to the pre-Apennine zone but also to the Apennine region (in the case of Gubbio). Annual rainfall in Central Italy can vary from as little as 600 millimetres on the coast to as high as 1,500 millimetres in the mountains (1921–30 figures from Mason 1944: 423, Fig. 74); although the contrast is reduced by the location of the central Apennines at some distance from the Tyrrhenian Sea. A further contrast is that more of this rain falls in the spring on the coast, and in the autumn in the inland areas (Mason 1944: 425, Fig. 75). Temperature is also strongly influenced by altitude; more than fifteen days per year of snow can be expected in the mountains, whereas snow is relatively rare on the coast. These differences profoundly affect the growing period for agricultural production and limit the types of crop and natural vegetation. By way of compensation, some resources such as woodland would have concentrated in the uplands, and the presence of the major artery of the Tiber and some other substantial rivers could have facilitated the distribution of products into the lowlands, although there is only clear evidence for this in the Roman period.

Mineral Resources (Fig. 3.2B)

The distribution of metal ores is fairly easy to assess. It remains a much greater problem to decide which of these locations were exploited during the Late Bronze Age and Etruscan period and, therefore, to what extent modern knowledge can be extrapolated into the past (Zifferero 1991, 2002a). An example is the presence of iron deposits in the Acquarossa area (as the name suggests), but it is difficult to assess whether the deposits were sufficiently rich (Moresi 2014) for exploitation in the first millennium BC. As a general rule, deposits close to the surface were most probably of importance, whereas the deeper mines of the last century, although leaving a more visible imprint on the modern land surface, were almost certainly unexploited. Other resources, such as water and firewood, were probably of equal importance in the choice of mineral deposits. Modern geological mapping has shown that metals are present in three principal areas: firstly, in an arc stretching from the eastern part of Elba, with an extension towards Volterra and Montecatini perhaps not exploited in Etruscan times (Sestini 1981), through the modern settlements of Campiglia Marittima and Massa Marittima, a zone that contained many more accessible zones of copper, iron, lead/silver and even some tin ore (Giardino 1995: 122–9); Secondly, the area of Monte Amiata and extensions down to the sea at Monte Argentario where there was a more limited availability of lead, silver, copper and iron ores (Giardino 1995: 117); thirdly, the Tolfa mountains to the south, which was one of the richer sources of metal ores, including copper and iron (Giardino 1995: 109–15). Tin was found only in the Campiglia Marittima area. Iron was available from all three areas. Only gold was effectively absent among the major metals employed during the early first millennium BC.

THE APPLICATION OF TECHNOLOGY TO THESE RESOURCES

An important prerequisite for the political development traced in later chapters is the potential for intensification in agriculture, metallurgical production and the constructional techniques behind the monumentalisation of urban materialisation in the course of the first millennium BC. Artistic production has been much studied elsewhere and will not be reviewed here, but this in itself was heavily dependent on the infrastructure of Etruria, and the ways in which it is linked to the spatial development of the political process will be investigated in Chapter 7.

Agriculture

There is substantial evidence for intensification and diversification of agriculture between 1200 and 500 BC. The preceding Neolithic and Bronze Age in Central Italy was of relatively low intensity compared with both the North and the South of the peninsula (Barker & Stoddart 1994; Malone 2003), although there is well-established evidence for a long-term filling out of the landscape (Barker 1981: 155) and pollen data and SPD radiocarbon may tell a more intensive narrative (Stoddart et al. 2019). By the Final Bronze Age (late twelfth century BC – early tenth century BC), a general picture emerges of a relatively sophisticated mixed economy, albeit one still heavily dependent on pastoral activities, particularly in the upland regions. The diversity of the economy can be measured in the variation of the proportions of the three major domesticates (sheep, cow and pig), and, to a lesser extent, in the presence of other primarily undomesticated species. The three principal domesticated species can be analysed separately, since with the exception of some exceptional zones from Sorgenti della Nova (Caloi & Palombo 1981; De Grossi Mazzorin 1998), they comprise 90 per cent of the samples. The proportions of just the identified fragments have been plotted because this is the only level at which a comparison can still be made, even though over twenty years have elapsed since this was first executed (McVicar et al. 1994; Spivey & Stoddart 1990: 64, Fig. 27), in spite of the impact of the sophisticated work of De Grossi Mazzorin (1995, 1995b, 1998, 2001, 2006, 2008). Earlier work is often zoologically rather than archaeozoologically focused, with important exceptions such as Barker (1976: 297). A continuing problem is the miserably small sample size and other measures of the poor quality of the information (as also underlined by De Grossi Mazzorin & Minniti 2010); although we now have some eighteen chronologically and/or functionally differentiated samples from eleven sites, these only amount to a total of less than 15,000 identified fragments of which 75 per cent come from two sites subject to systematic recovery methods (Malone et al. 1994: 5).

The samples of the three domestic species analysed on this basis are mainly dominated by ovicaprids and cattle, suggesting complementary patterns of husbandry shared between these two animals (Fig. 3.5). Within this pattern it

is generally the ovicaprids which are most important, reaching the highest levels at the sites of Torrionaccio (a lowland site albeit with small samples) and Monte Ansciano (an upland site). Settlement sites often contain cooking stands (Scheffer 1981) and other ceramic apparatus that suggest a slow-cooking technology and separation techniques associated with cheese production. Both flocks of animals (De Grossi Mazzorin 2006) and metal (see below) could have provided stores of portable wealth for emerging elites in ways not permitted in funerary rituals. It is not surprising to find important presence of dog in the same deposits, presumably serving the multiple purpose of sheep dog, guard dog and rubbish disposal. Four deposits have larger proportions of cattle (between 40 and 60 per cent): Grotta a Male, Pitigliano, the Tre Erci deposits of Luni and Monte Rovello. Horse was already well established by this stage in the Bronze Age (De Grossi Mazzorin et al. 1998), although the stature of these individuals was still quite small. As the association of horse with social status increased, so did a selective breeding that increased their size, but this trend did not take hold until the subsequent Iron Age (De Grossi Mazzorin 1995a: 176). Another domesticate which seems to have been properly established alongside horse is the donkey found in Central Italy at Sorgenti della

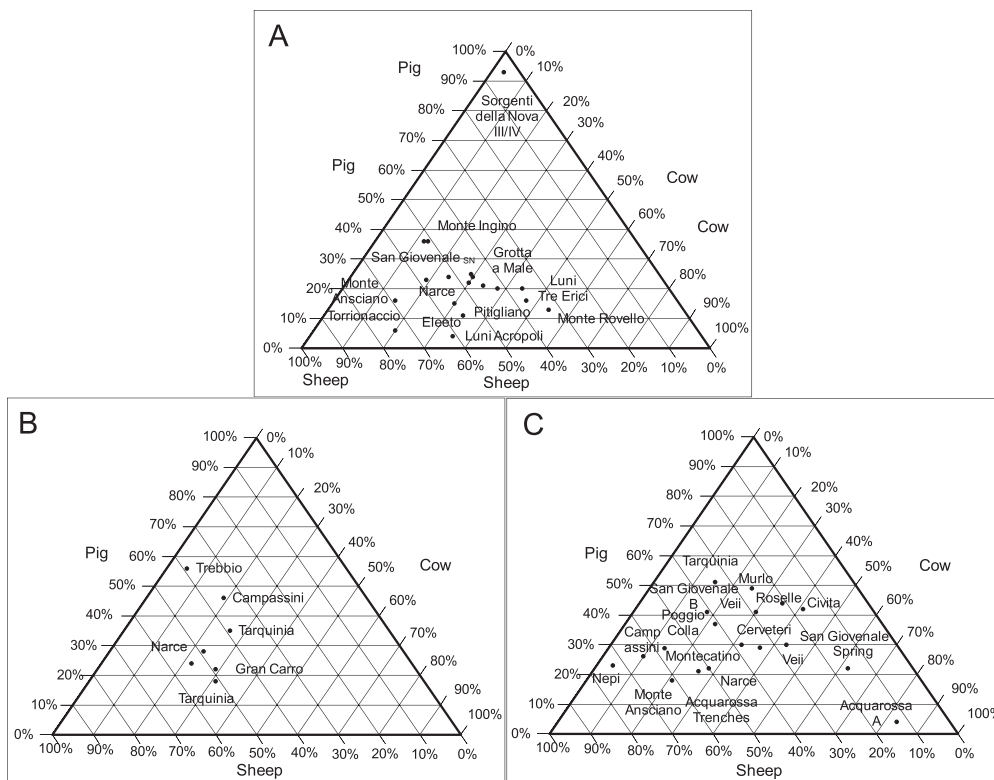


Figure 3.5 Proportions of main domesticated animals. A. Bronze Age. B. Iron Age. C. Archaic.

Nova, Scarceta, Luni sul Mignone and Torrionaccio (De Grossi Mazzorin 1998: 173–5).

The only exception to the dominance of ovicaprids and cattle is a particular series of deposits (mainly cave 10) at Sorgenti della Nova which shows all the characteristics of embedded ritual demonstrated faunally by a specialised focus on young piglets (including some fetuses). This perspective is strengthened by the calcined and burnt condition of the bones (De Grossi Mazzorin 1998) and by the presence in a nearby cave 7 of other structured deposits including part of a human skull, the horns of a bovid and a relatively high presence of wild boar, deer and badger. Wild animals, notably deer (and particularly red deer), also continued to play an important subsidiary role in subsistence, reaching as much as 10 per cent at the Luni Acropolis site and 18 per cent at Pitigliano. It has been suggested that the role of hunting in the Final Bronze Age was highly regional (De Grossi Mazzorin & di Gennaro 1992). The discovery of fish depends largely on the excavation methodology; in the main case where wet sieving has been practised, eels and cyprinids (chubb/barbel?) have been found, and their size suggests that they may have been procured at some distance from their find spot of Gubbio (McVicar et al. 1994: 95–6), perhaps an extra special ingredient of the feasting at this location.

The systematic flotation and sieving of archaeological deposits for botanical remains is still relatively rare, but the available evidence gives further information on a diversified mixed economy that was not simply pastoral. *Hordeum vulgare* (barley) and *Triticum*, in its major variants, *dicoccum* (emmer) or *aestivum-compactum* (bread wheat) are regularly present at sites such as Sorgenti della Nova (Follieri 1981), Narce (Jarman 1976), Torrionaccio (Follieri 1978), Luni (Helbaek 1967) and Gubbio (McVicar et al. 1994). At Gubbio, there was also a presence of *Triticum spelta* (spelt wheat), perhaps reflecting its upland location. At some sites there was a range of pulses, such as *Vicia faba* (broad bean) at Sorgenti della Nova and Torrionaccio and *Pisum sativum* (pea) at Narce and Gubbio. Some gathered resources were collected at Torrionaccio (*Cornus mas* (Cornelian cherry)) and Gubbio (*Cornus mas* and *Bromus*). These data give an indication of the range of resource procurement, but it is very difficult still to quantify their contribution to the subsistence economy.

The Early Iron Age (late tenth to mid-eighth century BC) has even fewer faunal samples (6) of an even smaller sample size totalling less than 1,500 identified fragments. Clearly the poor quality of the data may have affected the pattern of the results, but these, such as they are, show a consistent focus on ovicaprids (c. 50%) with support from pigs (20–30%) and bovines (20–30%) in the major nucleated centres. Ovicaprids seem to have had a multiple slaughter strategy to provide prized lambs for meat, more economical meat at two years, and longer-term maintenance mainly for milk (De Grossi Mazzorin 2006: 81). Another indication of intensification is the increased robustness of bovines that

emerged in this period, suggesting that they began to be employed for their power as much as for their direct food products (De Grossi Mazzorin 1995a: 172), and indeed the slaughter patterns appear to make the same suggestion (De Grossi Mazzorin 2006: 80–1). At Gran Carro, a less-nucleated settlement, the contribution of deer to the meat supply continued to be important. In northern Etruria and the Upper Tiber Valley, Campassini (approaching 50%) and Trebbio (60%) (Crezzini 2009) appear to have had a more prominent emphasis on pigs. One important probable (although not proven in Central Italy) introduction during this period was the domestic fowl (De Grossi Mazzorin 2001: 325; 2008: 163), which increased the diversity of diet and, like the pig, was able to consume the waste products of increasingly dense populations. Although its presence is clear in peninsular Italy as a whole, its presence in Central Italy seems more linked to funerary ritual (De Grossi Mazzorin 2005); the very visible cycle of life from egg to chick to hen made the animal an obvious metaphor of transition between the world of life to death and the world of humans to the world of the Gods (cf. Stoddart 2007–8 (2009)). Only from the fourth to the third century BC do deposits from Veii, Blera, Populonia and Musarna show the full involvement of domestic fowl in the mixed farming economy (De Grossi Mazzorin 1985; Grossi Mazzorin & Cucinotta 2009; Ricciardi et al. 1987; Tagliacozzo 1990). This conforms with the view in central Europe that the introduction of the domestic fowl is linked as much to its plumage (Rieckhoff & Biel 2001) as to its productive qualities. In the case of the cat, found from the Iron Age onwards, this facet of social distinction was clearly the main motive (De Grossi Mazzorin 1997).

The floral evidence, although rare, is fortunate to have evidence from the well-preserved underwater site of Gran Carro in Lake Bolsena (Costantini et al. 1987; Costantini & Loredana 1995). This demonstrates the preservation not only of *Triticum dicoccum* and *Vicia faba*, as might be expected, but a diversity of collected resources such as *Cornus mas*, *Coryllus avellana* (hazelnut), *Castanea vesca* (sweet chestnut), acorns of *Quercus*, *Prunus* (plum), *Rubus* ((black?)berry) and *Rumex* (dock), a number of which had been deliberately stored in containers (Hopf 1995). Even more important was the discovery of a concentration of grape pips which, after statistical analysis, appeared to be within the range of domesticated varieties. On this basis grapes were being systematically cultivated already by this early date. Pollen evidence shows an increase in tree crops (chestnut, olive and vine) over the same period, although later than southern Italy and Greece (Stoddart et al. 2019; Langgut et al. 2019).

In the Archaic period broadly conceived (here, given the lack of samples, this includes the Orientalising and thus from the seventh to sixth century BC), there are now available a larger number of samples (14), including a range of small and large urban contexts, but the sample size is still small amounting to just over 3,000 identified fragments, although the recent analysis of Murlo has

added at least another 5,000 fragments (Whitcher Kansa & McKinnon 2014). As much as these data can be interpreted, they show a broader range of husbandry practices where there are not only sites specialising in ovicaprids such as Nepi, Campassini and parts of Acquarossa but also specialisation on cattle in the same site of Acquarossa. The numbers and slaughter patterns at Campassini suggest that rearing of ovicaprids was focused on wool and meat (De Grossi Mazzorin 2006: 84). A number of larger urban sites, such as Tarquinia (Civita), Cerveteri (Clark 1989), Veii and Roselle, appear to have a balanced production of ovicaprid (20–40%), cattle (30–45%) and pig (30–50%), and this is also seen at Murlo (Whitcher Kansa & McKinnon 2014). A trend that begins to emerge is the greater presence of pigs in some of the urban sites (De Grossi Mazzorin 2006), perhaps linked to greater demographic stability, their consumption of domestic refuse and their potential importance in social feasting. Pollen analysis suggests a peak of pastoral activity during the Archaic period (Stoddart et al. 2019). Pigs may also have been one of the preferred victims of sacrifice, as is shown by the ritual closure of a cistern in the Piazza d'Armi area of Veii, a deposit that also includes tortoise, dog, donkey, horse, deer and birds (Grossi Mazzorin & Cucinotta 2009). A related embedded ritual is indicated by the high presence of deer in the deposits of the San Giovenale Spring site (Sorrentino 1981) and at Tarquinia (Sorrentino 1986), and is a clear indication of the type of deposits that have traditionally been sampled for faunal remains. The food for the Gods may have been closely linked to the food for the aristocrats since there is tantalising mention of hunting from faunal evidence at both Acquarossa (Östenberg 1975: 48–9) and Murlo (Azzaroli 1972: 296), although detailed analysis of Murlo shows less than 10 per cent (principally wild boar and deer). In general, no good midden deposits have been uncovered to allow a thorough understanding of workings of subsistence procurement in the Etruscan urban environment. However, the comparison of two deposits at Roselle does suggest processing of animals and specialisation on wool and milk on the edge of the city and a more mixed strategy of consumption of meat and use of milk/wool in the heart of the city in a more domestic location (Corridi 1989); this type of analysis shows the potential. Some fish has been found in the Cerveteri deposits as well as bone working (Clark 1989). Recovery of floral deposits in most excavations have been particularly disappointing, adding little to knowledge (Castelletti 1986). Where material has been systematically collected at Cerveteri, there is evidence of *Hordeum vulgare*, *Triticum dicoccum*, *Vicia faba*, *Vicia ervilia* (bitter vetch) and *Vitis* (grape), as well as weeds such as *Polygonum* (knotweed) and *Malva* (mallow) (Stevens 2000). The evidence from Tarquinia has been successively improved as substantial carbonised and mineralised deposits have been encountered in a series of embedded and then more formalised ritual deposits, progressing from *Triticum dicoccum* and legumes (including pea) (Rottoli 1997)

to the richest of variety of evidence for the period (Bonghi Jovino 2010: 172; Bonghi Jovino et al. 2005; Rottoli 2005) of a wide range of cereals, legumes, fruits, vegetables and more exotic plants that give a much more realistic picture of the diversity supporting Etruscan state formation and where quantifiable analysis will be possible: *Hordeum vulgare*, *Triticum aestivum/durum*, *Triticum dicoccum*, *Triticum monococcum* (einkorn), *Triticum spelta*, *Lens culinaris* (lentil), *Vicia*, *Lathyrus* (sweet pea), *Ficus carica* (fig), *Sambucus* (elderberry), *morus nigra* (black mulberry), *prunus* (plum), *malus* (?) (apple), cherry (?), *Vitis vinifera* (grape), *Petroselinum sativum* (parsley), *Camelina sativa* (gold of pleasure), *Apium graveolens* (celery), *Cucumis melo/sativa* (melon/cucumber). Another exception is the excavation of a rural farmstead at Podere Tartucchino in the Albegna Valley at the end of the Archaic period where, although animal bones were not preserved, there was clear evidence for specialisation in wine production from the floral remains (Perkins 1999a: 101–2; Perkins & Attolini 1992), with probable in-situ installations for the same purpose. *Triticum dicoccum* and one *olea europea* (olive) stone was also found at this site. A much smaller, but diverse, sample of twenty-nine carbonised seeds has been recovered from a similarly dated site a little further north at Pian d'Alma near Populonia (Mariotti Lippi et al. 2002). This sample was dominated by *Triticum aestivum* and *Cornus mas* but also contained some *Pisum*, *Cicer* (chickpea), *Rubus* (blackberry), *Hordeum vulgare*, *Vicia*, *Lathyrus*, *Lens* (lentil), *Malus*, *Vitis* and *Corylus*. From a slightly higher altitude in the nearby region of Gubbio, there is a mix of *Triticum aestivum* and *Hordeum vulgare*, with a small amount of *Triticum dicoccum*, *Bromus* and *Polygonum*, suggesting specialisation and intensification (with some weeds) (McVicar et al. 1994: 103). The Archaic period was also the phase when olive production would have been introduced on a systematic basis although direct evidence is still sporadic (Rottoli 1997: 98), now substantiated by peaks visible in the pollen record for all three main tree crops (olive, vine and chestnut) (Stoddart et al. 2019).

As can be seen, the material details of agricultural production are elusive for the full period of Etruscan state formation. Scientific studies of diet, such as trace-element analysis (Bartoli et al. 1997), are in their infancy but do suggest some considerable variation. In spite of the difficulties derived from the practice of research, we can be certain that Mediterranean polyculture was in place by the sixth century, supported by other means of intensification such as terracing and water control. Some specialist bronze pruning tools have been noted in Bologna as early as the eighth century BC in the hoard of San Francesco (Vitali 1985). Terracing is notoriously difficult to date, but the study of water channels, particularly through the soft tuff rock of Etruria has received some attention (Bergamini 1991), and these engineering feats of different scale have been dated by topographical association (Judson & Kahane 1963) and by stratigraphic deposits (Ceccarelli & Stoddart 2013) to at

least the sixth century BC. These engineering feats demonstrate the effective active collective political response to the dynamic environment created by economic intensification.

Metallurgy

Metallurgy is frequently given a major role in underwriting the Etruscan political process, but whereas much time has been devoted to typological and artistic analysis, there is relatively little understood about raw material extraction and production.

The Final Bronze Age was the period when bronze technology first had a major impact. At this stage, there was a simultaneous increase in the functional range and quantity of bronze objects: pins, fibulae, small metal tools (awls, etc.), more efficient axe forms (shaft hole and winged), knives, spearheads and swords became relatively frequent (Bartoloni et al. 1980; Bietti Sestieri 1973; Giardino 1995; Peroni 1980). An important trend was the increased quantity of specialised tools that would have had an economic spin-off by contributing to other spheres of economic activity such as woodworking.

In spite of increased settlement excavation and many sporadic finds, hoards remain the most plentiful but ambiguous evidence for metalwork. Metalwork was valuable and curated, not discarded, except under special conditions such as the hoards themselves. Chronological sequences have generally been based on associations constructed from hoards (Carancini 1979). The hoards have been interpreted in both functional and socio-political terms, but not in the multiplicity of ways that similar deposits have been considered in northern Europe (Bradley 1990; Fontijn 2002). Whatever the proximate intentionality behind hoard deposition, it is probable that their contents reflect changes in the organisation of production and an accumulation of portable wealth, interpretations that are to be found in the studies of the Ardea (Peroni 1966) and Contigliano (Bonomi Ponzi 1970) hoards. At the very least, the hoards can be considered as the placing of an important accumulated resource out of circulation.

In the Iron Age, the use of the material was initially rare. As in many parts of Europe, the definition of the beginning of the Iron Age on this basis is relatively arbitrary. Iron has been noted in the form of incrustations on bronze objects or as objects otherwise dateable to the eleventh or tenth century BC (Delpino 1981: 292–3). Giardino (2005: 498–9) also notes that some rare objects occur perhaps as early as this in the settlement of San Giovenale and the necropolis of Forchetta di Palano. Hartmann (1985) gives a clear account of its subsequent introduction into Etruria, although his interpretation that iron was imported from Greek sources can be best described as controversial. His work has been revised by Giardino (2005), who emphasises the regional variation, namely that

northern Etruria (notably Populonia and Vetulonia) lacks early iron production. In the late tenth and early ninth century BC, iron was restricted to the manufacture of fibulae, iron rings and other decorative objects. Almost half the objects were bimetallic (that is made up of bronze and iron components). These objects were found frequently in graves of greater wealth. Some early iron objects also directly imitate the equivalent in bronze, and this has been found most clearly in the case of fibulae and swords. Iron production at this stage did not have a separate production identity and, in common with the same innovation process in other parts of Europe, had a restricted functional role. In Tarquinia, swords, spearheads and fibulae are known from the ninth century, whereas in Veii early finds are restricted to a fibula and a nail. In course of the eighth century, iron products increase in number (as seen at Narce) and from the late eighth century BC, a wider range of objects was made from iron. The decorative and bimetallic components were reduced. Bronze nevertheless, remained the dominant metal, particularly with functional items, although swords, knives and other instruments began to be produced. With the development of social ranking, iron became an important additional indicator of wealth. This innovation process had its earliest recorded development in the southerly centres of Veii and Tarquinia; however, this must be interpreted cautiously, since it is for these two centres that the most refined cemetery sequences have been established (Hencken 1968a, 1968b; Pacciarelli 2000; Toms 1986). It is also worthy of note that these centres were located following a political logic, rather than to maximise access to the metal ores of the Tolfa mountains and the *Colline metallifere*. There is no clear evidence of developed iron production before 550 BC in conjunction with a substantial increase in extraction and smelting of ores (Warden 1984). It is from this period onwards that there is clear evidence for the proper incorporation of iron into the full range of tools, industrial and agricultural, that had an impact on the intensification of other sectors of the economy. It is very probable that the intensification of iron production followed a similar pattern to that recently demonstrated for central and western Europe (Berranger & Fluzin 2012). However, it is symptomatic of the state of research that one of the best evidences of this new level of production is a clearly ritual hoard of miniaturistic agricultural tools in bronze rather than iron from the temple site of Talamonaccio (Ciampoltrini 1987; Micheluzzi 1979); some iron versions of the same tools (e.g. plough share at Gravisca) have been located, but often in ritual contexts (Boitani 1987; Bruni 1987).

Work is beginning to be undertaken on the more difficult study of ancient mining patterns in the key areas where ores can be mapped geologically. The first approach was to look at the density of early settlement in ore-rich areas. This appears to work well in the Tolfa mountains from as early as the Final Bronze Age, but there is less evidence for early settlement close to the ore

deposits behind Monte Argentario or in the Elba–Colline Metallifere arc; this contrast is easily put down to levels of research intensity (Giardino 1995) or later intensive extractive activity but is unlikely to be the whole picture. Warden (1984) was the first to look at the issue of identifying the distribution of ores most likely to be extracted in pre-industrial times. He suggested, convincingly, that in the Elba–Colline Metallifere area, extraction grew from seasonal extraction of native copper from the Pari area prior to 750 BC to a more specialised extraction of copper from the Massa Marittima, followed by the intensive exploitation of ferrous ores from Elba and Populonia from the mid-sixth century BC. Doubt has been cast on some early studies of iron production (Minto 1940), suggesting that ceramic kilns have been covered with later slag heaps. More recently definite advances have been made in studying the sixth- and fifth-century smelting processes at Populonia (Cristofani & Cristofani Martelli 1985; Martelli Cristofani 1981) and at decentralised locations nearby at Follonica Rondelli and further inland in locations such as Scarlino and Massa Marittima, well-ventilated locations close to alternative ores and prize heather wood for fuel (Mariotti Lippi et al. 2000). Another metalworking area (primarily smithing) has been found further south near Fonteblanda, a probable port location just north of Orbetello (Ciampoltrini & Firmati 2002). Great advances have been made by Zifferero (1991, 2002a) in assembling the available evidence and examining the most probable locations for early mining and contemporary settlement, successfully prospecting for early dating evidence in likely workings, such as natural karst cavities which penetrate into the earth. He has also highlighted the distribution of iron-bearing coastal sands over a much wider area of Etruria, providing an alternative mode of extraction, more appropriate to the technology and needs of the period.

Clearly the presence of iron deposits was important for underwriting the socio-political processes of Etruria. However, the dating of the intensification of the process to the sixth century BC suggests that a political rather than economic dynamic must be sought. How much this related to external interaction with Sardinia and Greece (Ridgway 1984) or internal forces remains a matter of debate (see Chapter 7). Most importantly, the productive forces of agriculture and metallurgy certainly contributed to the potential for monumental construction, and more prosaically the move from oval huts of wattle and daub to rectilinear constructions of stone, pise and tile (Brandt & Karlsson 2001). The underlying economics enabled the realisation of the most recognisable material forms of ancient Etruria.

CONCLUSION

Three geophysical regions have traditionally been defined for Etruria (d'Agostino 1985): Maritime South Etruria, mineral-rich north-west Etruria

and agriculturally rich north-east Etruria. These distinctions are, in outline, broadly true. However, resources did not determine political development. Political processes determined many levels of the organisation of the landscape. Where the evidence of more intensive survey can be brought together, it is possible to penetrate beneath the political landscape formed principally by the major centres. The study of rural settlement gives a much deeper understanding of the extraction of resources and the importance of such extraction to socio-political development (Chapter 6; Stoddart et al. in press).

CHAPTER FOUR

CONTRASTING HIERARCHIES OF SETTLEMENT

THE DISTINCTIVE FEATURE OF ETRUSCAN STATE FORMATION IS THE process of nucleation on a scale comparable to that seen in the valley of Oaxaca at a slightly later date in the New World (Stoddart 2010). This is what is meant by the ‘power of place’. Once the place was founded on a substantial scale, it determined the power structure of subsequent development, in rivalry with other powerful places, until truncated by Roman imperial action from one overwhelming central place. This apparent power play should not disguise an internalised heterarchical narrative of the descent groups which composed these communities and whose loyalty was differently directed (cf. Terrenato 2019). The aim of this chapter is to take a step towards bringing study of Central Italy into line with other major global studies of early state formation by focusing on measures of centralisation and hierarchy, exploring the broad trends of temporal and regional variation. The regional analysis will be taken a step further in Chapter 6.

An essential contrast will be drawn between the levels of centralisation and hierarchy of northern Etruria and north-east Umbria against the overall pattern set by South Etruria. First, centralisation will be defined and measured within the settlement hierarchy of South Etruria. Secondly, although the data do not yet exist to provide comparable mathematical analysis for North Etruria and Umbria, comparisons can be made at a general level, across the same periods of time. Thirdly, the major categories of settlement will be identified that constitute the elements of these regionally diverse hierarchies. Finally, the

characteristic components of these hierarchies will be outlined from primate centre to rural settlement.

The technique of rank size is an excellent means of exploring the development of this particularly centralised settlement structure. The rank-size index (RSI) of Johnson (1981), and the rank-size coefficient (RSC) of Drennan and Peterson (2004) (Chapter 2) will be employed as a measure of centralisation for the geographical area of South Etruria. This will be done without ignoring the problem of combining several independent political units or the sensitivity of such an index to the boundaries of the area of study, since these independent political units and their intervening buffers zones once defined in Chapter 5 will be analysed in Chapter 6. The critique made of rank-size analysis in Chapter 3 should not detract from the convincing evidence for transformations in settlement hierarchy towards markedly primate settlement development presented by Guidi (1985) and Judson and Hemphill (1981); these two sets of data have been brought together and enhanced with fresh data drawn from sources such as Barbaro (2010) for the Bronze Age and Perkins (1999) and Cifani (2003) for the peripheral areas of South Etruria. The graphs will be taken in chronological sequence, demonstrating the striking transformation in settlement development. The pattern can be seen visually, but interpretation is aided by the use of the two quantitative devices (RSI and RSC). These quantitative measures allow the interpretations made by the original authors to be, where necessary, corrected and enhanced by engaging with the whole (albeit simplified) chronological sequence across the full geographical area. The RSI may be the most appropriate measure for this chapter, since it measures the state of the whole South Etruscan landscape which brings together at least five independent units. The RSC may be most appropriate for the next chapter, since it emphasises the upper part of the settlement system, and it is in this chapter that individual political units are analysed

THE LATE TWELFTH CENTURY BC – EARLY TENTH CENTURY BC

The economic and spatial processes of settlement in Central Italy have their origin deep in the second millennium BC; however, the relevant variables of space, time and size are sufficiently unambiguous to avoid confusion only in the Final Bronze Age. This was the phase when the processes of economic development in agriculture and metallurgical production reached new and substantial levels, permitting the potential accumulation of portable wealth in the form of flocks and metals (Chapter 3), perhaps in locally favourable climatic conditions. Conceivably in consequence of this, demographic growth had taken place, but the effect was more marked on the number rather than the size of communities (Palmisano et al. 2017; Stoddart et al. in press). These were

collected in small villages which were often fortified by their natural position in the landscape.

The best knowledge of one of these villages comes from Sorgenti della Nova, one of the larger 15-hectare settlements. The settlement comprises an oval outcrop of ignimbrite tuff, surrounded by river valleys on three sides (Negroni Catacchio 1995; Negroni Catacchio & Cardoso 2007). The excavated settlement evidence consists of the footings of large oval structures, smaller circular huts, service areas and partly rock-cut cave structures with probable forward-projecting structures just known from their footings. At least one poorly preserved structure has been characterised as monumental, reaching some 30 metres in length, and its character has been compared by the excavators to larger-scale structures at Luni sul Mignone and Monte Rovello. Some of the rock-cut cave structures (notably cave 7 with foundation deposits and cave 10 with the pig deposits discussed in the previous chapter) and some of the other buildings contained distinctive ‘structured’ deposits which might be characterised as embedded ritual activity. Given the preservation of the footings and floor levels of these buildings, it has been possible to begin to reconstruct the social and symbolic living space in a more interpretative framework of food preparation/storage to the back, sleeping to the side and living and craft to the centre (Dolfini 2002, 2005). In terms of population we might be dealing with low hundreds of individuals.

There has been some considerable discussion of the potential hierarchical relationship in society based on clusters (*grappoli*) of smaller settlements around a larger village that may start as early as the Middle Bronze Age but intensifies in the Final Bronze Age (Bietti Sestieri 2010: 233; Peroni 1994: 224), and by the analysis of burial and the study of rank-size distributions. The best candidates for clusters of smaller settlements around a larger centre are in the Val di Fiora (Pacciarelli 1982: 79), in the Tolfa mountains, and more specifically around Monte Santo/Sasso near Cerveteri (di Gennaro & Barbaro 2008: 123). An accompanying trend is the increased focus of population on fewer defended locations during the course of the Bronze Age (di Gennaro & Barbaro 2008: 119–20). This approach towards a different definition of hierarchisation has been further studied in the Tiber valley by Schiappelli (2008), who has refined the degree of defensive potential into three grades, although it is difficult to see in his graphics the formation of obvious political groupings. The best candidates for monumental funerary structures have now had their dating questioned (di Gennaro 2009), so it appears that any emerging differentiation was largely masked ideologically, although the increasing concentration of cemeteries (di Gennaro & Barbaro 2008: 125) around settlements suggests an increased focus on the identity of place. The evidence from the collective rank size of these settlements is less conducive to suggesting the presence of hierarchy, simply because it may group together several phases disguising a building trend

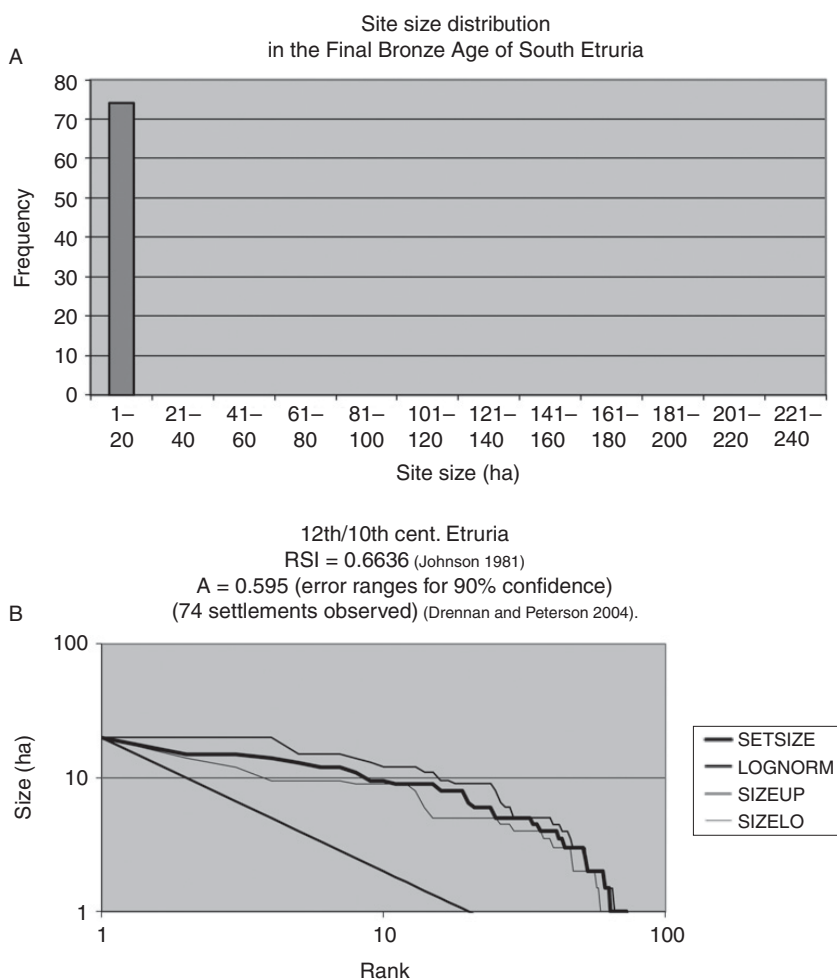


Figure 4.1 A. Site-size distribution of Final Bronze Age South Etruria (data from Barbaro 2010).
B. Rank size of Final Bronze Age South Etruria.

towards a tipping point in demographic and political control. Nevertheless, the rank size shows a profoundly convex curve (Fig. 4.1B) with an RSI (emphasising the whole curve) of 0.6636 and an RSC (emphasising the larger settlements) of 0.595, a pattern that is very consistent with the pattern of coalescing villages described above.

THE TIPPING POINT OF THE LATE TENTH – EARLY NINTH CENTURY BC

Over a period of a few generations, a very radical shift took place in the settlement system of South Etruria. A defended village system, albeit coalescing

into larger communities, was replaced by a defended plateau system. A set of small places with emerging identity was replaced by a smaller set of large plateaux with an even more clearly defined identity. In the study by Schiappelli (2008), almost all the known occupied locations have a high defensive potential by this phase. However, in some ways the dramatic change was not as radical as it first appears, since in almost all cases each of these plateaux had a founding community either within the plateau (e.g. Tarquinia) or in very close proximity (e.g. Veii and Isola Farnese).

As explored elsewhere, the debate over the explanation of these changes is very similar to that which has taken hold for Monte Alban in Mesoamerica (Stoddart 2010). The Mesoamerican case gives some guidance as to the nature of the transition, and the term tipping point is helpful. It is clear that conditions of political, and probably military, uncertainty accompanied by economic intensity (measured in agricultural and metallurgical production) increased in the late second millennium BC, leading to the progressive concentration of population on a smaller number of well-defended places. Increasingly, these became defined politically in terms of their spatial logic, including the pre-positioning of many of the small villages within or near the large plateaux which became the future cities (see Chapter 5). At a crucial juncture, the majority of the population took what appears to be a confederate decision (the Blanton model of Monte Alban) to unite forces in five major powerful places (within South Etruria).

There has been much discussion about the political composition of these new centres at this early formative stage in the late tenth century BC. In particular, there has been much debate about the political identity of the constituent parts. Early work on the city of Veii by Ward-Perkins emphasised the enduring identity in the cemeteries and the separate village structure within the plateau following his surface survey (1961). Guidi (1989) proposed a counter-argument that the settlement was immediately united in one proto-urban structure on the basis of later surface survey of Veii by Guaitoli (1981) and other surveys of some of the other major South Etruria centres. More recently, the Ward-Perkins data of Veii have been reanalysed by an Anglo-Italian team (Cascino et al. 2012), presenting yet another picture of the survey evidence (Fig. 4.7). Unfortunately, the level of excavation of the late tenth- and early ninth-century levels of settlements that might provide additional information is still very restricted (Bartoloni 2009; Linington et al. 1978; Stefani 1944; Ward-Perkins 1959). The existing evidence suggests the continuity of many of the building structures found in the pre-existing villages. Nevertheless, without more exacting excavation, the survey evidence is at best ambiguous, but the distinctive spatial distribution of the cemeteries does appear to be indicative of an enduring heterarchical character of the community that is most parsimoniously

explained by a very real contribution of political identity from the original constituent villages, and, by inference, from their descent groups. The enduring heterarchical character of the Etruscan communities continued as an important counterweighing facet of the power of Etruscan places in their long-term political development.

The broad patterns of the rank size are, nevertheless, clear (Figs. 4.2, 4.3). In both phases of the Villanovan Iron Age, the late tenth/early ninth and mid-ninth to mid-eighth century BC, the rank size measured by the RSI became strongly primate (-0.2708 and 0.2635 respectively). The RSC (0.093 and 0.022 respectively) shows a less primate character, emphasising the oligarchic nature

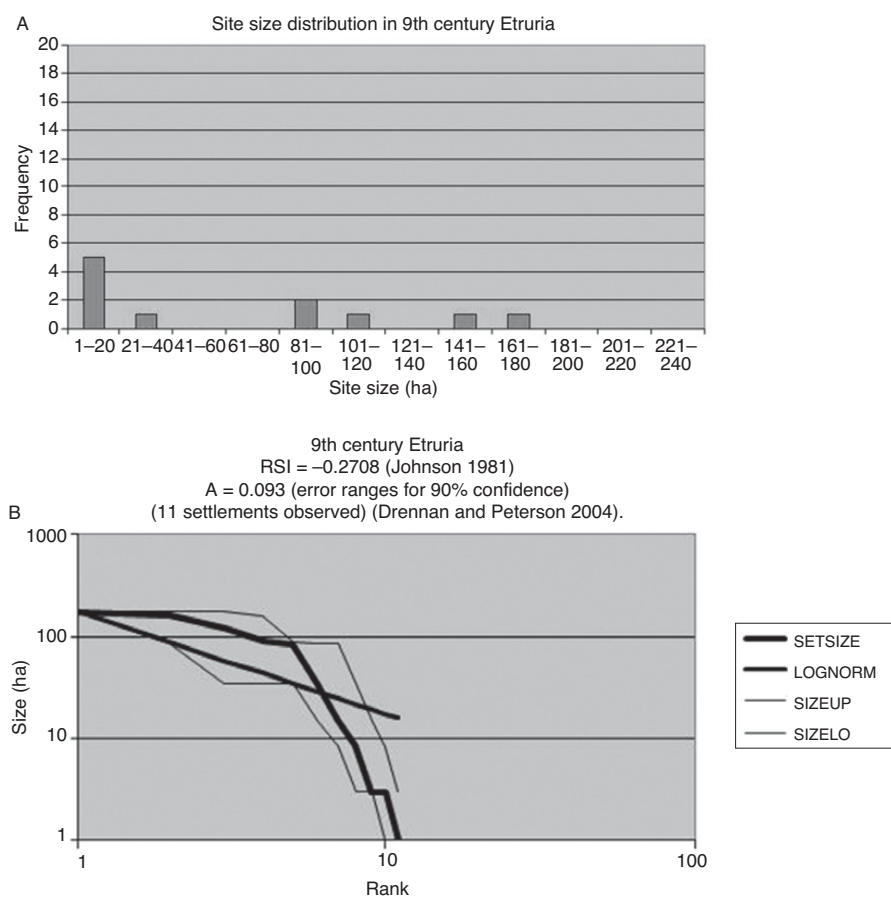


Figure 4.2 A. Site-size distribution of 9th-century BC South Etruria. B. Rank size of 9th-century BC South Etruria.

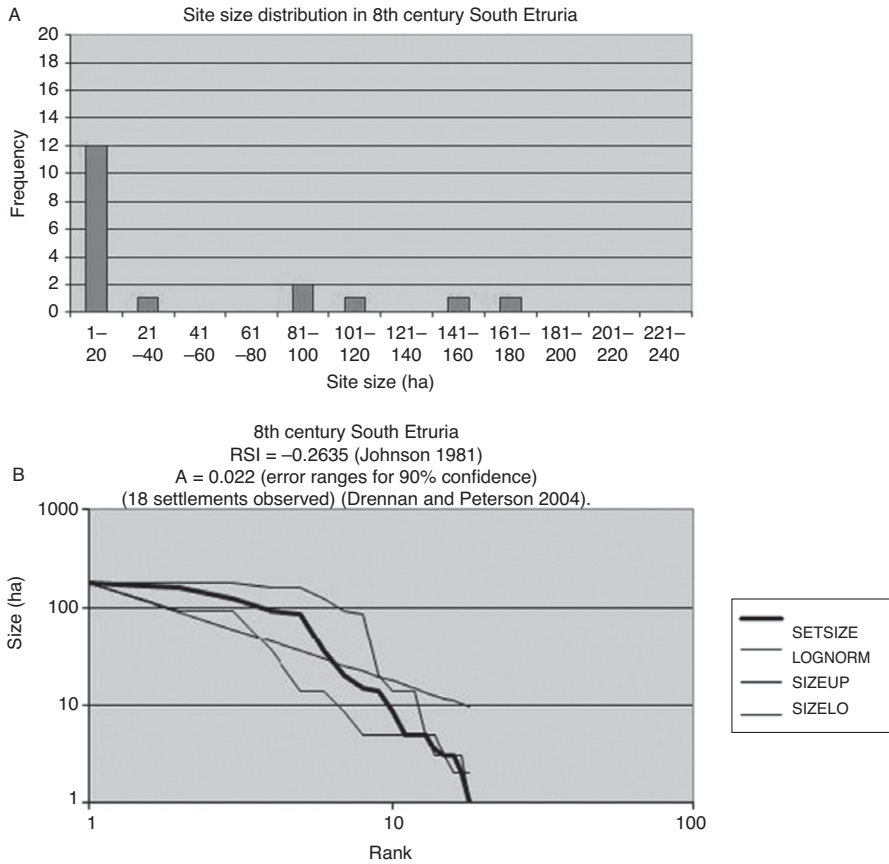


Figure 4.3 A. Site-size distribution of 8th-century BC South Etruria. B. Rank size of 8th-century BC South Etruria.

(Clark 1967) of the settlement organisation in the form of competing primates (Chapter 5). Although these two measures show different emphasis, they both concur in demonstrating a shift in equilibrium between the two phases, from relative decentralisation to relative centralisation.

THE MID-EIGHTH TO LATE SEVENTH CENTURY BC

During the mid-eighth to late seventh century BC, there was a period of recolonisation (Chapter 6) of the landscape outside the major centres. Part of this process appears to have been driven politically by the major centres themselves. On the other hand, in a mirroring of Kopytoff's internal frontier (Kopytoff 1989), another dimension of this dynamic was the search by independently minded descent groups for liberation from central political control at

the margins or boundaries (Chapter 5). Over a long time, a new equilibrium of political organisation was being resolved in the form of competing (roughly) peer polities.

THE SIXTH AND FIFTH CENTURIES BC (FIG. 4.4, FIG. 4.5)

When the level of hierarchisation is calculated quantitatively again in the sixth century BC, it was a very different mature landscape where only a few potentially independent centres were tolerated at the boundaries of the major powerful centres. In this period the RSI shows a considerable relaxation of primacy (0.0377) moving steadily in a positive direction, as smaller settlements developed under the jurisdiction of the primate centres. This was only checked

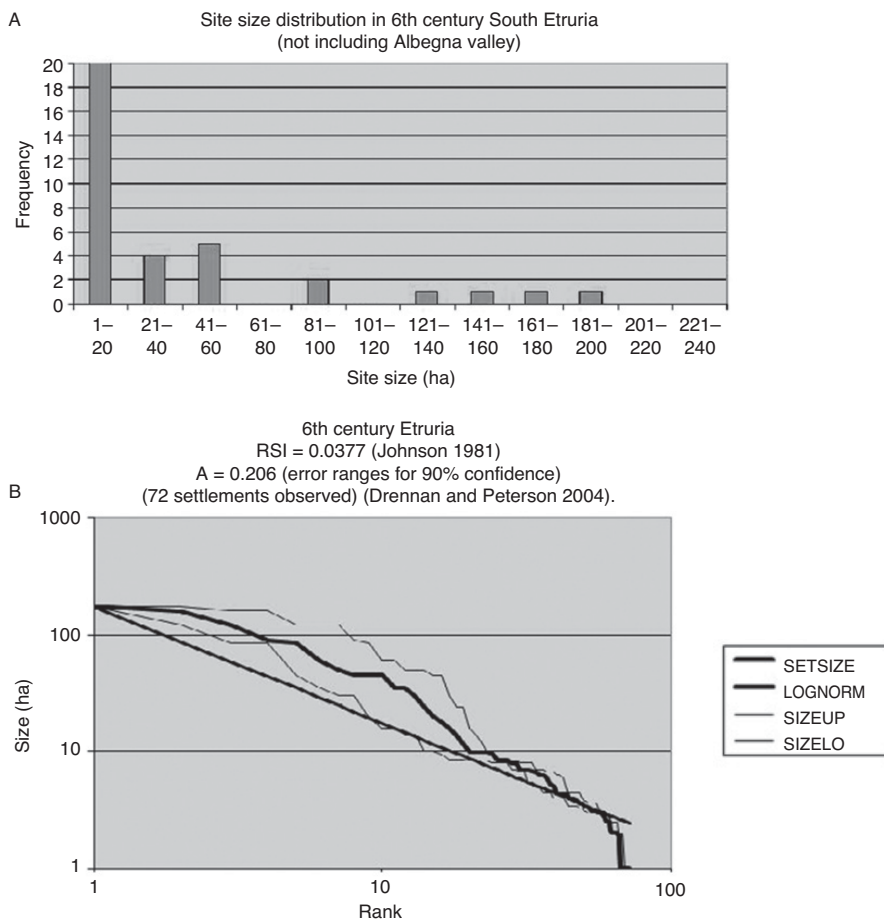


Figure 4.4 A. Site-size distribution of 6th-century BC South Etruria. B. Rank size of 6th-century BC South Etruria.

TABLE 4.1 *Changes in the rank-size index for South Etruria over time (Fig. 4.6)*

Date	RSI	Trend	RSC	Trend
Twelfth/Tenth	0.6636		0.595	
Tenth/Ninth	-0.2708	+++++++ Primacy	0.093	++++ Lognormal
Ninth/Eighth	-0.2635	- Primacy	0.022	+ Lognormal
Sixth	0.0377	+ Convex	0.206	++ Convex
Fifth	0.0318	+ Lognormal	0.176	+ Lognormal

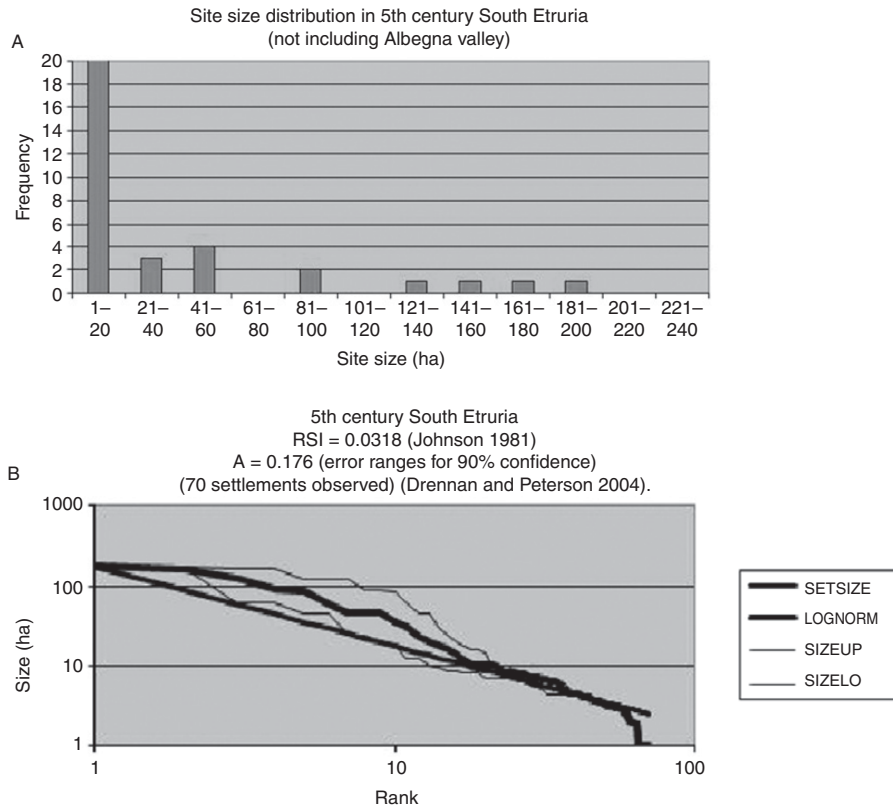


Figure 4.5 A. Site-size distribution of 5th-century BC Etruria. B. Rank size of 5th-century BC South Etruria.

slightly by the loss of some middle-ranking settlements in the fifth century BC, such as Bisenzio and Acquarossa. The RSC index moved towards convexity over the same period, adjusting towards lognormality in the final period. This was also the period when economic intensification properly took hold,

supported by the prominence of high levels of iron production and the consolidation of tree crops.

THE CONTRAST WITH ROME (FIG. 4.6B)

It is not the purpose of this volume to analyse the rise of complex society to the south of the Tiber, a group of states later to have much greater impact; this has been investigated elsewhere (Bietti Sestieri 1992a; Pallottino 1993) and more recently by Fulminante (2014). However, it is worth contrasting the cyclical centralisation of Etruria with the slower, more stable trajectory that lay at the foundations of the socio-political power of Rome. *Latium vetus* did not go through the highly primate stage of organisation visible in Etruria. Over the same time period, whereas South Etruria showed a drastic increase in the size of settlements and a decrease in their number, *Latium vetus* showed an increase in the number and size of sites. *Latium vetus* combined a confederate political organisation with a stepped hierarchical structure. In contrast, the politically independent polities of Etruria were never able to maintain a stable league organisation. This analysis is confirmed by the RSI/RSC comparison where three important contrasts can be noted in *Latium vetus*. Firstly, there is a gradual, staged move towards lognormality (except for the RSI in the final stage, which moves towards primate status once the scale of Rome has moved beyond the local region). Secondly, both the RSI and the RSC worked in tandem, closely matching each other (except for the RSI in the very final stage). This suggests that all parts of the settlement system were working under the same political and economic directives. Finally, in the major stages of transition, of state formation, there is no suggestion of primate organisation. Rome moved steadily and effectively towards a lognormal solution that gave it a powerful political advantage over its Etruscan neighbours who were equal states in a dynamic equilibrium. Rome was the most powerful place by consequence.

NORTH ETRURIA AND UMBRIA

Another contrast can be observed with the part of Etruria to the north of the Albegna valley, and again to the regions of north-east Umbria. The distinctions will be analysed in more detail in the next two chapters, because they cannot be quantified to the same degree. It is much more difficult at this stage to assess the size of individual centres. However, the basic contrasts can be mentioned. The coastal area of Populonia and Vetulonia was most similar to South Etruria, reaching a peak of centralisation in the Iron Age, and then undergoing a process of decentralisation in the Orientalising (Cucini 1985; Curri 1978), before reverting to more centralised primacy in the Archaic. The intermediate area of Murlo lacked the central focus of a primate settlement and must have been dominated by

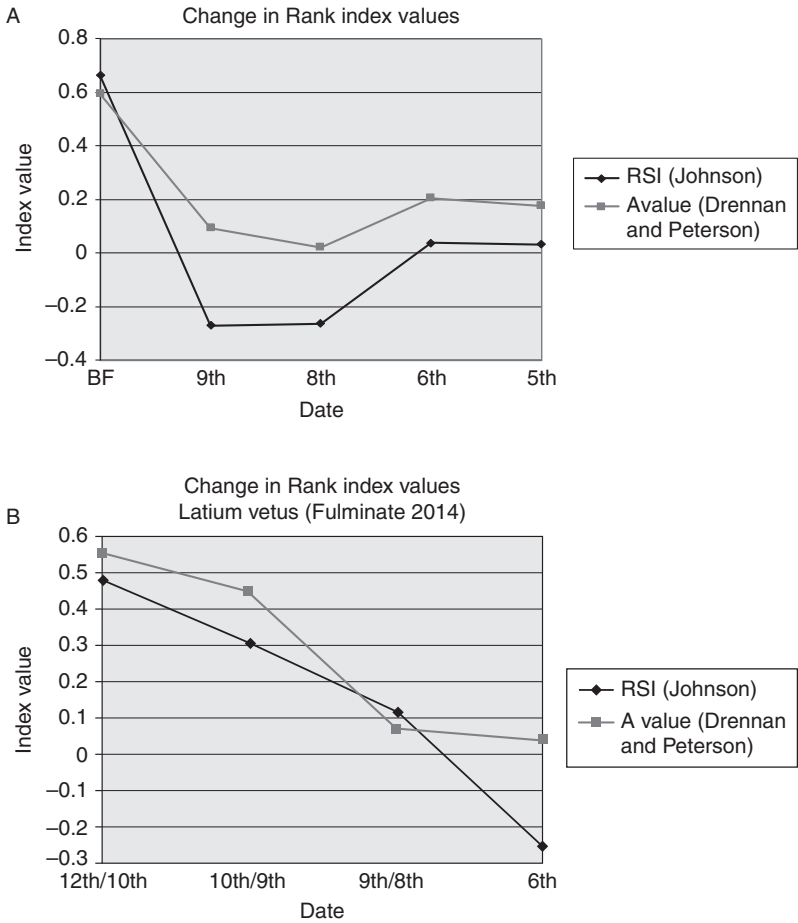


Figure 4.6 A. Changes in the rank-size indices (Etruria). B. Changes in the rank-size indices (*Latium vetus*). Data for Etruria summarized in Table 4.1.

a convex settlement hierarchy. Chiusi within the Val di Chiana was most probably close to lognormal throughout its development, or even tending towards convex. Perugia and Gubbio both (and more particularly Gubbio) lacked the same number of subsidiary settlements until late in the period covered by this volume, providing a highly focused, but little developed hierarchy.

CLASSIFICATION OF HIERARCHY

Complex societies (as discussed in Chapter 3) are often distinctive in terms of the formation of hierarchical structure. The discussion of rank size (this chapter) and spatial distributions (next chapter) shows that a classical stepped functional hierarchy expected by some scholars in state societies (Wright & Johnson 1975) did not exist in Etruria. Nevertheless, the sites of Etruria do have clear functional differences according to their spatial position and their political relationships. To

a certain extent, these can be treated as variables rather than traits: surface area, the number of urban temples, the size of cemeteries, the quantity of exotic imports and the number of inscriptions. The analysis of size has already been studied above. The analysis of the inscriptions and trade goods will be delayed until Chapter 7, where the evidence for information and style will be drawn together. Here the limited evidence available from excavation of the different types of centres will be considered. The classifications of sites below run the risk of freezing the development of the dynamic landscape at differing moments in time and grouping together settlements from different political and spatial contexts. It is in that light that different temporal landscapes are discussed in the next chapter, which demonstrate that political typologies simplify reality.

The Primate Centre (Fig. 4.7)

The primate centres of both North and South Etruria accumulated a quantity of functions in proportion to their size. Population and the activities associated with its political and administrative control were centralised in this powerful place. Evidence from the most extensively excavated of Etruscan centres, Acquarossa, although not itself typical of a primate centre, has allowed a more reliable estimate of population size for the Archaic period. The Swedish team has calculated, from the thirty-nine buildings discovered in their excavations (assuming a household of four to seven persons), a density of 120–210 persons per hectare (Persson 1986). If these data are transferred to the major primate centres, a total urban population of 22,000–30,000 inhabitants can be estimated for the largest of primate centres.

The internal organisation of primate centres, in spite of a recent spate of excavations, is still incomplete and somewhat confused by the expectations created by the elaborate urban planning of the late, peripheral, site of Marzabotto (Mansuelli 1979). This site shows all the spirit of the time of its construction in the fifth century BC: formal planned streets along ritual alignments (Bozzo et al. 1994; Sassatelli & Gori 2005; Vitali et al. 2001), in common with contemporary sites such as Prato Gonfienti (Poggesi et al. 2005) and Musarna (Broise & Jolivet 2002). An attempted formality was apparently imposed on sites of earlier foundation, such as Tarquinia, which have been picked by remote sensing (Cavagnaro Vanoni 1989, 1997). Urban planning of an earlier date centred on religious zones, not necessarily tied into the later schemes, has been found at a number of sites: Tarquinia (a long sequence starting in late tenth century BC in the western spur of the Civita and the sixth-century BC temple of Ara della Regina to the east (Bonghi Jovino 2010)), Roselle (only formalising from c. 670 BC) (Bartoloni & Bocci Pacini 2002), Cerveteri (a confused deposit from the ninth century onwards at Vigna Parocchiale (Maggiani 2001) and another sequence starting in the Iron Age with burials and monumental huts at Sant'Antonio (Izzet 2000; Maggiani &

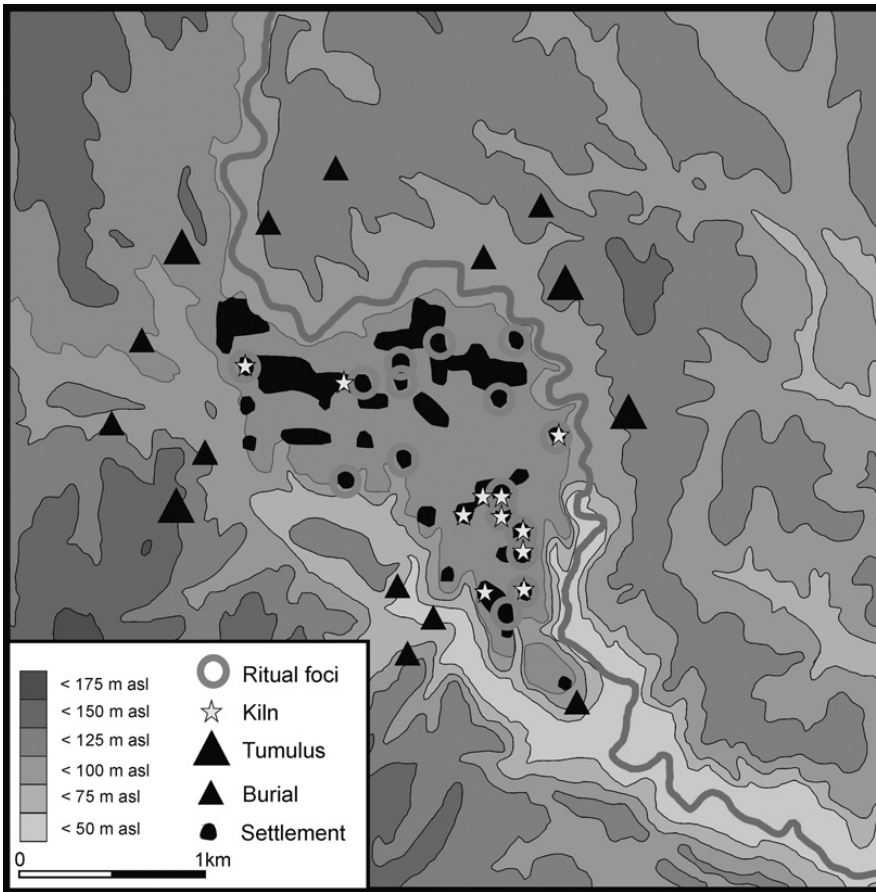


Figure 4.7 The primate centre of Veii in the 6th century BC (based on Cascino et al. 2012).

Rizzo 2001)) and Veii (from the ninth century BC at Piazza d'Armi (Bartoloni 2009) and another less clear sequence of similar duration at Comunità (Belelli Marchesini 2001a)). Religious buildings at Orvieto, although numerous, cannot be tied accurately and stratigraphically into layout of the ancient city because of the continuity of occupation and early investigation (Stopponi 1985). However, suburban ritual structures are now much better known from recent study at Campo della Fiera (Stopponi 2011) and Cannicella (Bonamici et al. 1994).

Another distinctive feature of the primate cities is their walls (Paoletti & Bettini 2008). These probably defined the identity of the city as much as providing defence. Fortifications are much more difficult to date, since this must be achieved either by some form of general typology of construction or by the rare investigation of bedding trenches. The earliest may exist at Roselle in the seventh century (Bartoloni & Bocci Pacini 2002; Cygielman & Poggesi 2008), while other better-studied examples include the excavations at Tarquinia, while the enclosure of the main area of Veii may belong to the

fifth century, and the famous gates of Volterra and Perugia belong to a later date.

Monumental encircling cemeteries provide not only a flavour of the former monumentalisation of urban centres but another distinctive feature of the primate city. The evidence from Orvieto (Bizzarri 1962, 1966) and Cerveteri (Proietti 1986) has been especially useful in providing a sense of urban organisation and planning. Even when these cemeteries lack the formal layout, their position is demarcated and liminal to the urban area, providing a sense of order and place. Much has been written about these cemeteries (Pallottino 1937; Riva 2010), and it is not the purpose of this volume even to attempt to summarise this extensive work. It is sufficient to emphasise their considerable importance in defining the power and place of the city.

Systematic programmes of urban excavation to knit together these fragmentary data are still undeveloped in spite of major advances over the last two decades. The long-standing excavations at Roselle (Bianchi Bandinelli 1970; Bocci Pacini et al. 1975) have only rarely penetrated to the formative levels, and because of its complementarity to Vetulonia, there appears to have been little nucleation until the seventh century BC. The more recent, interdisciplinary, excavations at Tarquinia have met with more success and have established important elements of urban organisation and early levels of the city (Bonghi Jovino & Chiaramonte Treré 1997). The recent excavations at Cerveteri have lacked, until recently, the interdisciplinary approach and uncovered mainly disturbed deposits (Cristofani 1986, 1988; Cristofani et al. 1986). The successful extension of knowledge will require the combination of geophysics, trial trenching and open area excavation. These steps are now beginning to be made in the large coastal cities of Etruria, most notably in recent times at Veii. Urban excavation requires much more patient input than the traditional fare of cemetery excavation, which has its self-contained, self-satisfying, sampling units, and the process of urban understanding is only just beginning.

The clearest evidence of the spatial logic of part of a primate centre from Piazza d'Armi has been designated the earliest known urbanised piazza of Central Italy (Colonna 1986). The excavations (1917–22) by Stefani (1944) had already defined the spur projecting from the main plateau of Veii as fortified and containing a regular layout of the street plan dating to as early as the end of the seventh century BC. The combination of recent and earlier excavations has now suggested at least five major phases of development of this urban space (Bartoloni 2003b). The layout between the ninth and the middle of the seventh century BC consisted of scattered groups of round or oval huts, sometimes with a projecting veranda. During the course of the seventh century BC, the huts placed in the centre became more prestigious. By the end of the seventh and the mid-sixth century BC, terracottas had been deployed to decorate at least three structures, and the regular road network

was implemented. By the middle of the sixth century BC, the houses were organised to reflect this road network and the central square. Finally, this road layout and accompanying building were modified to connect with new gates to the projecting spur of Piazza d'Armi.

The strongest signal for the construction of place, albeit from a more limited excavation area (c. 30 x 40 m) than the Piazza d'Armi, is from Tarquinia at the so-called Area Sacra of La Civita (Bonghi Jovino 2010: 163–74). The first phase was the construction of a small oval (2.8 x 2.2 m) hut in the tenth century BC towards the north-west, a small bedrock cavity (c. 1 m diameter) towards the centre, and an even smaller pit (0.35 m diameter) towards the south. All these illustrate a series of socially embedded rituals (Bagnasco Gianni 2005) (and it needs to be pointed out that their practitioners could not have been aware of the more formal construction of place that followed). In the ninth century, the small bedrock cavity continued to function, surrounded by residual floors. On one of these was placed the corpse of a sickly child. In the ninth century, the surviving evidence for use of the area intensified with the laying out of more floors, a series of pits and possible posthole structures in the southern part of the excavated area, and further use of the oven. At this level, a deliberately killed young adult (with fragments of a Euboean jug), and three newborn babies were discovered. An oval hut was placed to the east. In the early seventh century BC, the layout became visibly monumental for the first time, with the installation of rectilinear stone footings to buildings. The most prominent building was aligned east-west, and two pits were cut into the approach route to the building. These contained storage, drinking and serving vessels, goat and pig bones and three bronzes – an axe, a trumpet and a shield. In the middle of the seventh century BC, the building was placed in an enclosure on the same alignment. Five further individuals were buried in this area, of which three suffered a violent death. The process of monumentalisation intensified during the first half of sixth century BC with accompanying deposits of food, drinking vessels and human burials. A well and possible cisterns were also introduced. Ceramic and metallurgical production also seems to have been present. The area continued in use until the Hellenistic period.

In the present circumstances, in spite of these emerging details, much of the evidence for urban organisation must be indirect. Important storage facilities are suggested by finds in tombs. Extensive industrial areas with regional specialisation in different products can be assumed from the high concentration of particular products in particular centres: *bucchero* at Cerveteri and bronze-work at Vulci. Work has focused on the ritual foci of the settlements to the detriment of knowledge of domestic architecture and refuse deposits which, as has been suggested at Cerveteri, may contain evidence for mundane activities such as bone working (Clark 1989).

Marginal Centres

A series of centres, located at the margins of the political territory, have a size below the primate centres (Chapter 5) and were probably politically independent. These centres vary in size according to their geographical context, that is, broadly speaking, whether they are located in North Etruria, between the cities of Arezzo, Volterra, Chiusi and Roselle, in the Albegna valley on the border between North and South Etruria, or in the hinterland of South Etruria itself. The shared characteristic of these centres (e.g. Murlo, Castelnuovo di Berardenga, Marsiliana d'Albegna, Acquarossa and Bisenzio) is that they were generally short lived and discontinuous, compared with the primary centres (Chapter 8, Fig. 8.3). Such centres did not have the long historical trajectory to develop complex urban structures. As will be discussed in the next chapter, they were politically vulnerable to the expansion of the power of the primate centres and have an uncanny similarity to the ethnographic models of the internal frontier investigated by Kopytoff (1989).

There is no clear rule about surface area, since so much depends on the position of the centre with respect to neighbouring primate centres. Generally, the surface area was markedly less than the primate centres, but in the upper range of the remaining centres. The most recent estimates of the habitation area of Marsiliana d'Albegna reach some 47 hectares (Camilli et al. 2008) now that analysis has moved beyond the study of cemeteries (Minto 1921). Another reliable estimate is provided by Acquarossa whose surface area has been estimated at c. 30 hectares with a maximum population of 7,000 (Persson 1986), although the polyfocality of this centre may have been under-estimated (Chapter 6). At the other extreme, the site of Murlo could not have been much larger than several hectares, and investigation by excavation has only recently extended beyond one small area. A smaller size would be in keeping with the much more decentralised political organisation of North Etruria.

Acquarossa (Fig. 4.8) developed into a complex urban community with extensive residential areas as well as monumental architecture. Certain areas (Zone B) are completely residential in function; these areas clearly developed without any central planning. The buildings are, nevertheless, well constructed on rectangular foundations of stone. Unfortunately, only the foundations and roof tiles have survived, and the many imaginative reconstructions of these houses vary considerably. It is, though, clear that the buildings varied quite considerably within certain technological limits, and there is strong evidence for the modification and extension of buildings during the course of their occupation. Within the buildings, storage jars (*dolia*), cooking stands (*formelli*) and pottery have allowed some reconstruction of the activities of domestic life. However, it has proved too difficult to attach precise functions to buildings. Cooking probably took place primarily outside the buildings. Other activities

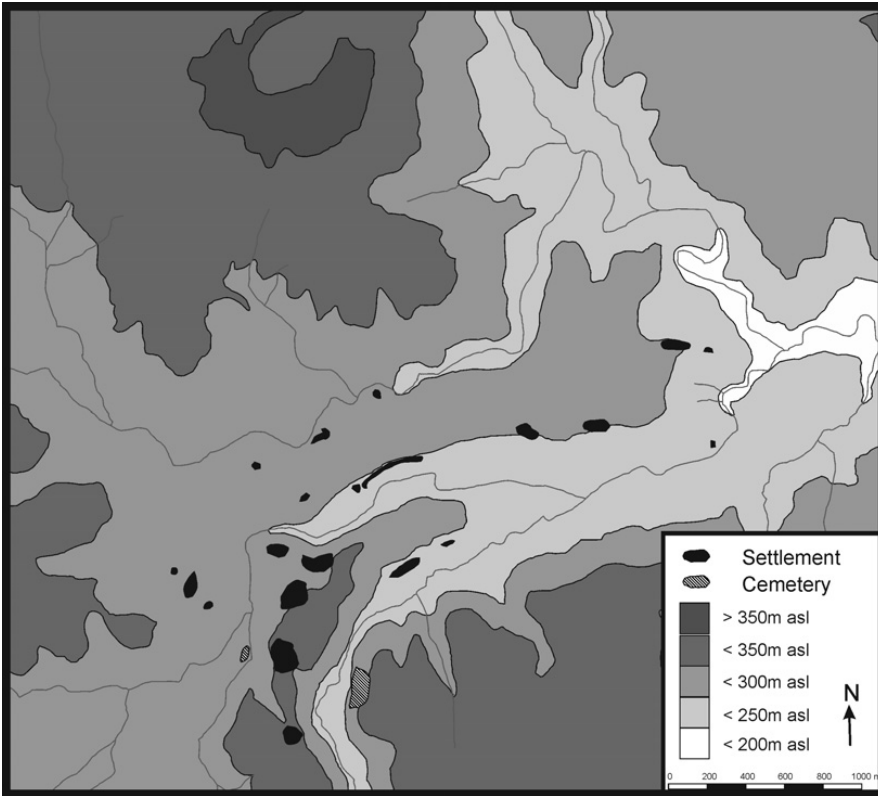


Figure 4.8 The buffer centre of Acquarossa (based on Romagnoli 2014; Wikander & Roos 1986).

are revealed by the considerable number of loom weights and spindle whorls. Other areas (Zones C and F) are made up predominantly of monumental buildings, with seemingly public, rather than private, functions. Zones C and F are made up of three groups of buildings more formally arranged and separated by rectilinear streets; two of the buildings were decorated with terracotta reliefs. It is very possible that the structures combined residential and ritual functions. The four principal cemeteries of the city were placed in much the same way as for the primate centres: on the slopes facing the city.

Murlo (Poggio Civitate) (Fig. 6.15) was a centre of well-developed monumental and artistic accomplishment that has mystified art historians. It was a settlement where the overlap of residential and religious functions has created problems of categorisation for classical archaeologists, accustomed to the definitions of Livy and the developed city state. The centre seems to have been a small nucleated centre, clustered around the residence and independently minded descent group that exploited the artistic motifs of the surrounding polities to full effect, during two-three short-lived and interrupted phases of occupation.

The older phase of occupation at Murlo has unfortunately been largely destroyed, but evidence survives of a long eastern wing underlying the later structure. It is clear that this was an important production centre of luxury products particularly in ivory (Nielsen 1985), bronze and iron (Nielsen & Phillips 1985). Ceramic production was also important and had a precise function: to provide containers particularly of *buccheri* for elaborate and conspicuous consumption of food (Bouloumié 1972, 1978; Bouloumié-Marique 1978). A further important function was storage, presumably to provide a cache for the important events of conspicuous consumption: large pithoi were set into the ground. Pithos fragments have also been found at Castelnuovo di Berardenga (Mangani 1985a: 156), the similar related site, to the north in the Chianti area. Other pottery suggested the preparation of great quantities of food. At this period there was considerable evidence for domestic activity, in the form of loom weights, spindle whorls, and fishing and hunting implements. Contemporary burials have been found for this phase in a loosely structured cemetery.

The later phase of occupation at Murlo has better structural evidence, but poor in situ evidence for function, since the area was completely cleared of almost all evidence of functional activities at the time of its destruction. However, it does seem that few utilitarian metal items have been found in the later levels, suggesting that certain domestic and industrial activities took place elsewhere. The excavated portion of the site was not, though, devoid of domestic activity; considerable quantities of loom weights, spindle whorls and *rochetti* have also been found in the upper levels. It appears that most of the terracottas and at least the coarse wares were made locally; but, at present, no evidence has been found for the manufacturing centre. The coarse wares have been found in great quantities, but, in this second phase, without evidence of storage. This suggests a much more extensive local supporting centre of population, which has now been found in excavation (Shingley 2017) and regional survey (Campana 2001). Within the principal excavated area, the repeating modular structure of rooms around an internal colonnaded courtyard suggests the focal point of an administrative centre. A similar structure has been found at Castelnuovo di Berardenga, so this was not an isolated instance. At Murlo, there is also evidence of defensive construction to the south of the complex, formed by a double wall and possible towers. A real difficulty is to determine whether there was any radical change in function between the two phases of occupation, given that the available evidence is complementary from the two phases of occupation. However, it does seem that the centre changed its status as a relatively modest political entity engaged in sumptuary production to become the focal point of political authority for the region; this argument will be addressed further in later chapters.

The Coastal Emporia (Fig. 4.9A)

These centres took the form of contact zones between political systems of a strikingly different cultural formation (Greek, Phoenician and Etruscan). Occupation was relatively long lived, but the internal organisation was strongly tied to the political relationships between Etruscan primary centres and Greek city-states, which fluctuated considerably over the period under consideration. The organisation of the sanctuaries changed over time from the operation of ethnically diverse rich leaders to an Etruscan state-controlled operation (Torelli 1983; Torelli & Gros 1988: 40). As will be seen in the next chapter, these emporia form part of a dendritic settlement system where the coastal emporia provide ports of trade to the focal centre of power in the Etruscan primate centre.

The two port centres of Gravisca and Pyrgi had estimated surface areas of 24 and 10 hectares respectively. The temples at Gravisca and Pyrgi had inscriptions of Greek, Phoenician and Etruscan language in prominent ritual positions. In the case of Pyrgi (Belelli Marchesini 2001b; Colonna 2006; Neppi Modona & Prayon 1980), an Orientalizing settlement appears to have preceded the formal sanctuary in the seventh century BC. By 550 BC, this settlement was connected by a formal road to the local primate centre of Cerveteri. The first evidence for formal ritual dates to *c.* 550 BC, in the form of terracottas, and to 500 BC in the form of a temple structure (Temple B). In the case of Gravisca, we can now trace the development of the sanctuary (the main focus of study) fairly clearly (Fiorini 2005: 181–201). The first phase was a small structure (580 BC) with evidence of metallurgy and strong connections with the Greek world. This was extended (550 BC), accompanied by extensive animal offerings, demolished (530 BC) and reconstructed. In 480 BC, a major reconstruction coincided with a reorientation towards Etruscan state organisation that was further enhanced at part of wider urban planning *c.* 400/380BC. Generally, these sites show an initial port of trade engagement with the Mediterranean, followed by a subsequent greater integration with the Etruscan state. Cemetery areas have less importance, since political authority and identity were located outside the settlement, whether Etruscan, Greek or Phoenician.

The Internal Emporium (Fig. 4.9B)

The one clear example of an emporium in internal Etruria differs from the coastal emporia in two respects. Firstly, the commercial orientation of this emporium is north–south across a major river valley. The emporium is set slightly (5 km) back from the sea, although with relatively easy access down

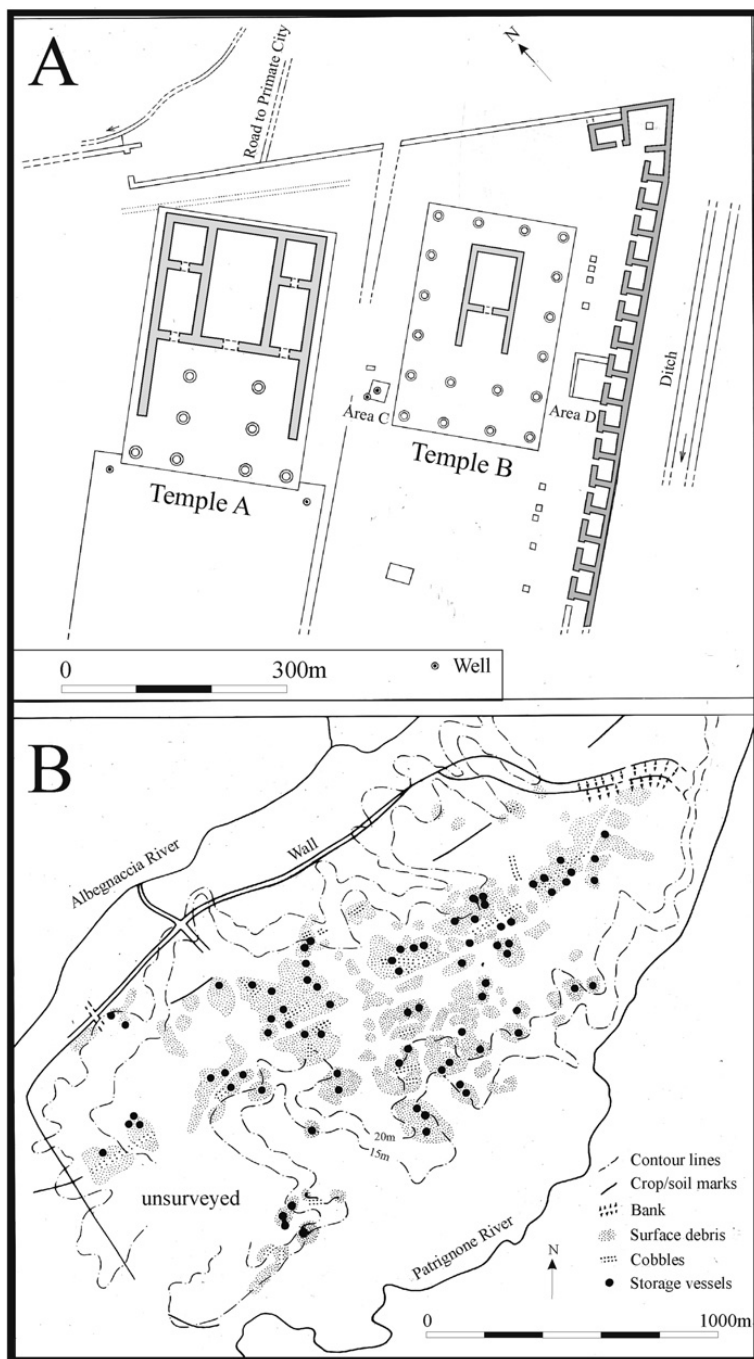


Figure 4.9 A. The port of trade of Pyrgi (based on Spivey & Stoddart 1990). B. The internal emporium of Doganella (based on Perkins & Walker 1990).

valley to the ports of Orbetello and Telamon. Secondly, it lacks the ritualisation of the coastal emporia, since the political context is very different. This site was first occupied in the sixth century, reaching a peak of activity in the fifth and fourth centuries BC, and then a rapid demise in the third century BC.

The site of Doganella in the Albegna valley is the one example of this type of emporium, one that emphasises the significance of the spatial hiatus between north and south Etruria. The site is, firstly, considerably larger (240 ha) than its primate neighbours, Vulci to the south and Roselle to the north. Secondly, survey work has demonstrated an agriculturally (wine/amphorae) and industrially focused trading rationale behind its size and position (Perkins & Walker 1990). Much of the material is related to production activities. Of these, metalworking and weaving appear widely dispersed at the household level, whereas the amphorae/wine industry appears to be much more centralised. Another feature of this emporium is that it appears to have been for export (perhaps under the political control of Vulci) and that there is very little evidence of exotic imports, unlike the major primate centres (Perkins 1999a: 181).

The internal organisation of the city was not formal, except for a main street. Many open spaces appear to have been located within the formal perimeter, and it is estimated that only 80 hectares (60–70 ha in any one phase) out of the 240 hectares were physically occupied. This may bring the population levels of the site into line with its immediate neighbours. Estimates of actual population range from 8,000 to 15,000, suppressing somewhat the larger estimates which derive from extrapolation from the Acquarossa evidence. This more detailed approach, leading to a more conservative figure (Perkins & Walker 1990: 64–5), has been further suppressed to 6,000 (Perkins 1999a: 166) as a result of the lower density of occupation of a given enclosed urban area.

A formal public building may have been located at the eastern end of the city, and finer buildings may have been located along the main street, but monumentality appears to have been less marked than at the primate centres; this characteristic appears to extend to the cemeteries which are located to the north. In similar style, the wealth of the city was not exhibited in luxury imports.

Some of the same characteristics of Doganella may have been shared with Pisa (Bruni 1998) and even Prato Gonfienti (Poggesi et al. 2005), centres which occupied political vacuums that also mediated between different political worlds.

Politically Dependent Tertiary Centres (e.g. S. Giovenale, Blera, S. Giuliano, Chianciano Terme)

These are centres that appear from the spatial analysis in the next chapter to have been absorbed by the local primary centre. The size of these centres was

considerably smaller than the politically dominant centre. However, the actual size varied. A group of sites in the Mignone valley area were as much as 32 hectares in size. Whereas other sites, such as Castel d'Asso, are more in the order of 14 hectares.

The role of these centres differs considerably in space and time; three examples illustrate some of this diversity. Centres such as Pian di Conserva (32 ha) were strongly linked to the parent city of Cerveteri (Naso 1990; Naso & Zifferero 1985). Whereas, a late Archaic city, such as Castel d'Asso (Colonna di Paolo & Colonna 1970), was part of a swathe of small centres which developed on the margins of the major primate centres. Finally, Chianciano Terme (near Chiusi) was part of a much less centralised landscape (Paolucci 1988; Paolucci & Rastrelli 1999). In general, however, little political power was delegated to these centres (independently confirmed by the number of inscriptions recorded in Chapter 7). The functional role of these centres appears to have been to control the more distant areas of the territory under the control of the primate centres. The few centres that have been excavated show less sign of developed sacred areas, and formal cemetery areas were not as prominent as in the primate centres.

The study of the settlement and necropolis of Pian di Conserva illustrates the relationship of Cerveteri to one of its smaller centres. The settlement in this case was not clearly nucleated but distributed within the remains of the necropolis; although only surface studies have been made, the domestic remains do not give an appearance of monumentality. Only one local site, Pian di Santi, has traces of a sanctuary, and that is Hellenistic in date (Zifferero 1990: 67). However, Cerveteri had a clear impact on the funerary remains, including the construction of monumental tumuli over some of them. Of the tombs, 10 per cent have a clear Cerveteri format and style, while 60 per cent have some Cerveteri stylistic elements introduced into the simpler 'local' tombs. These settlements appear to have had a limited phase of intense occupation between the late seventh and early fifth century BC (Zifferero 1990: 68).

Boundary Temples

Ritualised landmarks were sometimes placed at the political boundaries of primate territories. In contrast to the villages below, the presence of population was minimal. The emphasis was on sacred topography. Sites such as Castellina del Marangone (Prayon 2005; Prayon & Gran-Aymerich 1999) and Punta della Vipera (Comella 2001; Donatella Gentili 1990; Torelli 1967) on the mountainous boundary between Tarquinia and Cerveteri are good examples of this phenomenon (Riva & Stoddart 1996). These sites appeared to have mediated the political authority of neighbouring cities without hosting a major stable population.

Villages (e.g. Castellina, Accesa (Fig. 4.10A)

The term village is an arbitrary term to cover centres which are generally less than 5 hectares in size. These are effectively small nucleated centres with no independent political authority. Some of these may have been fortified, particularly in boundary areas (Becker 2008; Morandini 2011). Only a very under-represented fraction of these centres are known below the size of 2 hectares, as shown by the rank-size graphs (cf. Stoddart et al. in press). Inscriptions are not generally known from this level of the hierarchy. The major function of these centres would have been subsistence production or protection of political boundaries. Small necropolises are sometimes known. The site of Castellina was 3.6 hectares in size and had two associated necropolises; limited excavation has recovered some houses and metalworking (Gianfrotta 1976: 134–8). Sites such as San Giuliano have produced densely packed houses and streets with the available area of 3.4 hectares (Berggren & Moretti 1960). The slightly larger settlement of San Giuliano has substantial cemeteries (Gargana 1929). One of the most extensively excavated villages is Lago dell'Accesa, and this excavation is at least beginning to produce some understanding of spatial organisation at the lower levels of the power hierarchy (Camporeale 1997) (Fig. 4.10A). The site of Col di Marzo on the northern frontier of Etruria was equally small and seems to have been at the lowest end of the spectrum, taking the form of a defended farmstead, whereas the nearby settlement of Civitella Benazzone may have been larger in size (Ceccarelli & Stoddart in press).

Rural Settlement (e.g. Podere Tartuchino, Casa delle Anfore (Fig. 4.10B)

These are the small poorly defined scatters of material that are recoverable only using recent survey techniques (e.g. Barker & Rasmussen 1988; Barker & Symonds 1984; Perkins 1999a; Valenti 1995; Palmisano et al. 2017; Stoddart et al. in press). Only a few house structures would have been present. The sophisticated surface surveys (Perkins 1999a: 18–19) have broken these scatters down into different sizes, but the same precision cannot be applied across the whole region. Given the uneven coverage, it is difficult to define the presence/absence of this level of the settlement hierarchy. The surface area of these settlements would have been no more than a few hundred square metres. Subsistence activities would have been carried out directly from these extended farmsteads. It was this type of settlement that predominated in the immediate environs of the primate centres, set under their immediate political control and providing no political challenge.

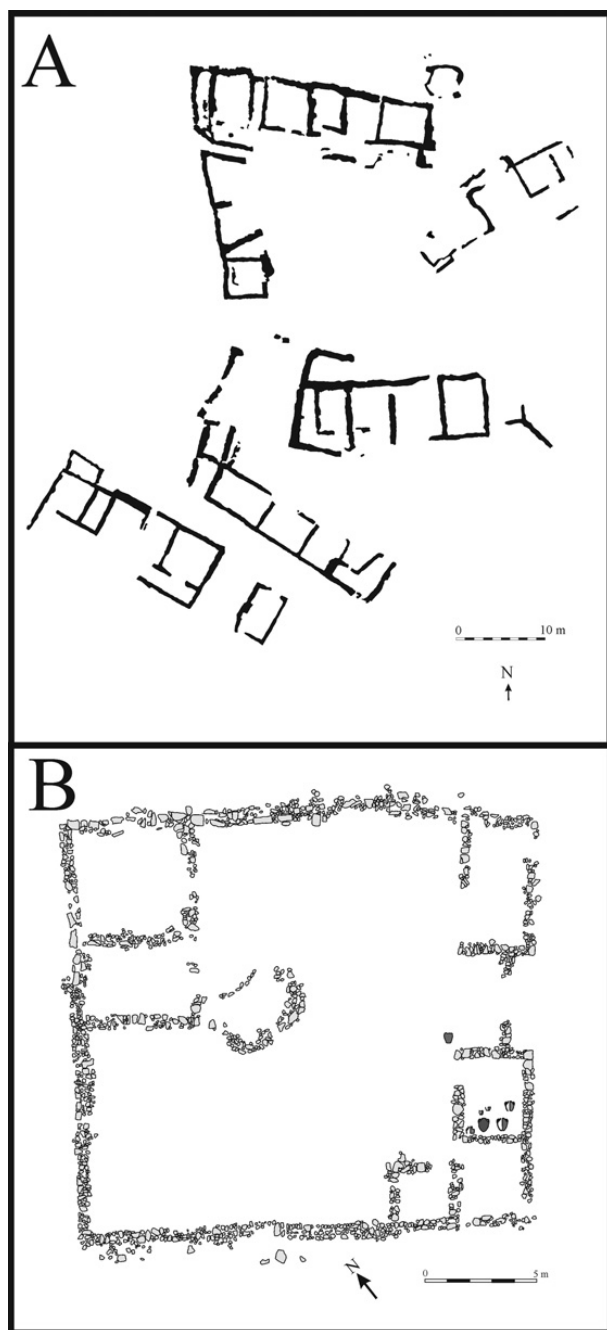


Figure 4.10 A. The village of Lago dell'Accesa (based on Camporeale 1997). B. The house structure of Casa delle Anfore, Marsiliana d'Albegna (based on Zifferero et al. 2009).

Only a very few rural sites have been excavated. Some have disappointed the excavators and remain largely unpublished, one from the Tuscania survey (Grant et al. 1993) and another in the Allumiere area (Gazzetti & Zifferero 1990). A further site, Casale Pian Roseto in the South Etruria area, is invaluable for the study of coarse wares but is less informative for the organisation of the site (Murray Threipland & Torelli 1970) and has been reinterpreted as a sanctuary (Torelli 2001). The detailed surface study of the sixth-century BC site at Sant'Antonio near Marsiliana d'Albegna (Camilli et al. 2008; Zifferero 2010; Zifferero et al. 2009) is much more promising even it is within 5 kilometres of the major settlement and closely connected to the production of amphorae and iron, and thus not likely to be a typical rural settlement, although the production of amphorae suggests the ability to produce a surplus that does not occur in even more peripheral regions of Etruria until the Roman period (Stoddart et al. 2012). The excavation of another slightly later sixth-century structure at Poggio Alto (Camilli et al. 2008: 367–74) conforms to the pattern of the better-preserved Podere Tartuchino (below): tiled quadrangular drystone structures around a courtyard.

Another site has also been excavated with interdisciplinary vigour but lacking, unfortunately, any preservation of faunal remains: Podere Tartuchino above the Albegna valley (Perkins & Attolini 1992). This was a building of two phases, constructed out of wood and stone with clay mortar, dating to the transition between the sixth and the fifth century BC. On the surface the site appears to have been no larger than 0.03 hectares, whereas the subsurface structures at their maximum in the second phase were a third of this. The buildings were most probably occupied by an extended family, practising mixed agriculture (including wine production). The material culture gives an impression of austerity that can be generalised for rural settlement (Perkins 1999a: 199), although a fragment of possible *aes rude* (also found at the later Col di Marzo) may suggest an economic complexity previously unsuspected at the lower levels of the settlement hierarchy.

A further important rural site of similar date at Poggio Tondo (Pian d'Alma) (Fig. 6.16) was constructed from a wooden framework of *Erica arborea* (briar root) on stone footings (Mariotti Lippi et al. 2002). This small structure of 200 square metres can also be interpreted in terms of the use of space (Morandini 2011: 83–4), where Room A contained tableware and spinning weaving equipment and preparation of oil/wine, Room D contained storage vessels, a basin and grinding instruments and Room B a wine amphora, all arranged around a small internal courtyard. The site of Val Petraia further north was of similar character. There is tantalising mention of a similar sixth-century BC largely unpublished drystone, tile roof structure around a courtyard 5 kilometres east of Marsiliana, at Pietriccioli (Michelucci 1991: 346; 1996), another nearby at Il

Santo and other broadly similar structures from Montereppi (Berti et al. 1985), Santa Lucia near Bagnoregio (Cagiano de Azevedo 1974) and Pianello near Castiglione in Teverina (D'Atri 1986).

CONCLUSION

The overall pattern that emerges from these studies of hierarchy is the dependency of the configuration on its spatially defined political context. It is to this spatial patterning that the analysis now turns by deploying the heuristic technique of XTENT.

CHAPTER FIVE

THE SPATIAL DYNAMICS OF SETTLEMENT

HOW DID THE HUMAN ORGANISATION OF ETRURIA AND NORTHERN Umbria imprint itself on the physical landscape? The principal driving force behind the configuration of the upper levels of South Etruscan settlement patterns was the control of power that arose out of a substantial demographic tipping point over the course of a few generations during the tenth century BC, as outlined in the previous chapter. The location of the major – primate – cities was determined in great part by a physical distance from contemporary centres, comparable in power and influence, that was transformed into cultural and political distance.

It is important to focus, in terms of settlement, not only on the establishment of that power (Chapter 4) but also on its territorial consequences through time. This focus also provides an introduction to the developing settlement patterns of Central Italy. Subsequently, a detailed examination of southern and northern Etruria in conjunction with northern Umbria will provide a comparison of relatively centralised and rural settlement (Chapter 6), but this chapter sets the scene, since the political arenas of these different hierarchies are a consequence of different levels of hierarchisation (Chapter 4). For this purpose, the political landscape of the late tenth century BC must be our starting point, for it was then that the political foci that determined all later development was established.

By the late tenth/early ninth century BC, a new political landscape had been formed, a process that was most accentuated in South Etruria but also present

throughout much of the area under study (with some local variations that will be explored in Chapter 6). The most rapid phase of the population shift from the relatively dispersed settlement pattern prior to the tenth century BC was completed. More recent research has shown that the break in settlement organisation was not the sudden tipping point originally envisaged before research had progressed and chronological resolution increased. There is a strong case that some patterns of more modest demographic consolidation had already been achieved in the earlier tenth century BC (Chapter 4). The nucleated centres that formed the basis of the city-states were, furthermore, enlarged nucleations based on pre-existing villages within or close to the substantial plateau locations. The less well defined cemetery evidence has, for reasons of research focus, been known for some time at Veii (di Gennaro 1986: 103–5; Vianello Cordova 1968), Cerveteri (Sorbo and Monte Abatone) (Delpino 1985: 33; Enei 2001: 44), Orvieto (di Gennaro 1986: 21–2), Tarquinia (Hencken 1968: 411, Fig. 410, 227, 228, 205a; Mansuelli 1985: 114), Vetulonia (Delpino 1981: 269–70) and Populonia (Galiberti 1970). The settlement evidence has taken longer to understand but is now clearly demonstrated at Tarquinia (Bonghi Jovino 1986), Veii (Babbi 2005; Ward-Perkins 1959), Vulci (Pacciarelli 1991), Chiusi (Bettini 1988) and Perugia (Cenciaglioli 1990). A further issue is that not all pre-existing villages may have been completely abandoned (e.g. Monte Rovello (Biancofiore & Toti 1973: 22.1/2/5/9/12; 23.1/2/4/5/7/8–13), Sasso di Furbara (Brusadin Laplace 1964) and Sorgenti della Nova (Uccelli Gnesuta 1977: Figs. 4, 21, 36) and some new centres may actually have been tolerated particularly at the outer limits of the political territories (Pacciarelli 2000: 129).

It is, therefore, highly probable that the most favourably placed Final Bronze Age settlements for political manipulation enlarged their political control more successfully over the surrounding territory. In time, political supremacy was achieved over contemporary Final Bronze Age settlements, and their populations were co-opted. Mobilisation of manpower is an important constituent of incipient state formation (Stoddart 1999) but can only be maintained by the implementation of institutional hierarchy. The key debate of when that institutional hierarchy was put in place will be addressed in the last two chapters (Chapters 7 and 8).

Unfortunately, there is an almost complete lack of accurate evidence on the precise process by which the independent Bronze Age settlements were restructured in a new settlement formation. The result is controversy. Current research appears to show some truth in both of the alternative models discussed in Chapter 4. It seems probable that political authority, based in the Late Bronze Age centres immediately preceding the Villanovan centres, integrated the surrounding Late Bronze Age communities over time. In this way the Protovillanovan centres occupying the later Villanovan centres would have

established themselves as the foci of power and dominance, taking advantage of their spatial position in an unstable socio-political phase. Sites less well placed spatially and less susceptible to expansion were successively abandoned. The increasing evidence that all the principal Villanovan centres were already occupied in the Late Bronze Age re-opens the possibility of an underlying natural growth of these settlements. At present, the estimates of the size of the later Villanovan sites in the Late Bronze Age are small. However, more detailed investigation by excavation of the extent of Late Bronze Age occupation may show that these sites were already growing in size by the end of the Final Bronze Age, when compared with the size already established for contemporary sites such as Sovana and Monte Tosto. It appears highly probable that the importance of the Villanovan centres in the Final Bronze Age will be upgraded after future research.

THE CONSEQUENCES OF PRIMACY

The most prominent facet of the South Etruria settlement system has been recognised for a considerable period of time; the largest centres stand out from the political landscape as foci of power manifested most clearly in terms of size. This long-standing impression can, however, now be quantified more accurately. The major centres of the Archaic period are from between two and five times larger than the next rank of settlement. This disparity is even more marked if reasonable assumptions (explored below) are made about political dependence. The major centres are eight to nineteen times larger than the next rank of politically dependent settlement (with the exception of the ports). To put this disparity in a much wider perspective, the situation is broadly similar to that of Monte Alban compared with the next largest centre in the Valley of Oaxaca (Mexico) (Kowalewski 1983), but in no sense as distorted as the extreme primacy of some other centres in the New World (e.g. Teotihuacan).

The Etruscan political landscape, however, differs radically from that of the Mesoamerican in a number of important structural respects (other than the strictly cultural). The landscape of Teotihuacan was relatively an isolated phenomenon emerging out of one system, that of itself. The developments within the political landscape of Oaxaca involved greater degrees of competition with neighbouring valleys, but the main focus was on internal political development. For Etruria, the principal scale of analysis must be Etruria itself where the competition between centres can be properly registered and the extent of their territories calculated. This is the framework which will be provided here. The XTENT model proposed below presupposes an expanding political power from the powerful centres that were now in place.

In the present exercise, the precise latitude and longitude were established using the *Getty Thesaurus of Geographic Names Online* or calculated at an appropriate level of precision from a map. As Etruscan specialists will know, there is much controversy considering the values of site sizes for Etruscan and Umbrian sites founded in the late tenth century BC, since many of the estimates are based merely on topographic location (Chapter 2). Where possible the starting nucleation point in the Iron Age was taken, drawing on Pacciarelli (2000) for up-to-date consideration of this issue. Comparison was also made with the two main preceding rank-size studies of Etruria (Guidi 1985; Judson & Hemphill 1981) and, where information was still not forthcoming, the estimates were provided by Mansuelli (1985). These estimates still left considerable gaps, and estimates have been made for Murlo, Pisa, Gubbio, Assisi, Città di Castello, Spoleto and Todi based on personal experience. Given the fieldwork strategy at Murlo and the heavily wooded terrain, it is difficult to be more precise. The estimate for Pisa recognises the considerable fieldwork undertaken there in recent years, although it is very difficult to be precise about site size and is likely to be an underestimate. The estimate for Chiusi has been much discussed in recent years (Acconcia 2012: 154–5) with suggestions that it could be as much as 120–140 hectares (Gastaldi 2000, 2008; Pacciarelli 2000: 131–3); the figure employed here is a figure that reflects the greater understanding of its earlier history than was understood before, but maintains that the organisation was polyfocal and cannot be directly compared with the southern cities. The Umbrian sites have an appearance of replication of similar size in lake basin catchments, so the estimates give a reasonable illustration of the settlement process. The nature of the primate organisation of Etruscan settlement permits the analysis of a relatively small number of sites, since these were generally dominant in their landscape. However, there are some sites which could be included in further work, including Gualdo Tadino and Colfiorito on the Apennine margins and, more importantly, Amelia and Terni in southern Umbria. One great advantage of XTENT is that the mapping can be repeated using different criteria to explore the consequences of these changed criteria, and clearly the results of these changed criteria should be implemented in future work. In any case, after the deliberations outlined above, the values for site size in Table 5.1 were employed.

In any spatial analysis, boundary issues are a key consideration. The area of study was defined by the Tyrrhenian Sea to the west, and the Apennines to the north and the east. To the south, the Tiber was taken as the key cultural boundary, and thus the effect of Latin and Sabine centres was not considered. Equally, as already mentioned above, southern Umbria was only partly included in the analysis, and the centres of Terni, Amelia, Narni and Otricoli have not been included, but their presence has been predicted by the XTENT results as a political vacuum (see p. 114), filled by Veii in their absence (Fig. 5.1)! After these decisions, the area of interest for the purpose of the XTENT

TABLE 5.1 *Estimated site size*

Name	Size (ha)	Name	Size (ha)
Veii	185	Tarquinia	150
Cerveteri	160	Vulci	126
Vetulonia	100	Roselle	40
Populonia	150	Murlo	10
Volterra	100	Pisa	20
Chiusi	50	Orvieto	85
Bisenzio	35	Arezzo	32
Acquarossa	30	Cortona	30
Perugia	32	Civita Castellana	26
Gravisca	24	Fiesole	30
Gubbio	20	Todi	20
Assisi	20	Spoletto	20
Città di Castello	20		

analysis was defined by buffering the sites at two times the mean nearest neighbour distance and then clipping this polygon with the Italian coastline and the course of the Tiber. The DEM was created by obtaining elevation data from the Shuttle Radar Topography Mission (Rosen et al. 2000), re-projecting it in point form to IT_ED50/UTM and then generating an elevation model using topogrid (Environmental Systems Research Institute 2001). The energy-cost model was based upon the measurements of the cost of traversing slopes by Minetti et al. (2002).

MAPPING THE ESM MODEL

In his seminal article of 1975, Colin Renfrew chose Etruria as a primary illustration of his concept of the Early State Module (ESM) (Renfrew 1975) (Fig. 5.2A). The principal characteristics of Etruscan states appeared to conform to the principles devised by Renfrew. Firstly, there was a number of autonomous central places. Secondly, these autonomous central places had a spatial configuration of restricted and regular size, where individual territories covered some 1,500 square kilometres and the centres were approximately 40 kilometres apart. Thirdly, the groupings of early state modules formed clusters of ten to twelve. At the scale considered, the application of Thiessen polygons to the location of the city-states appeared to confirm this elegant, but simple, logic. In the mid-1970s, the knowledge of the urban structure in Etruria, epitomised by Pallottino (1975), appeared to confirm this pattern. The work of di Gennaro (1986: 143), substantially based on informed use of Thiessen polygons, suggests that the major centres would have approached the ESM

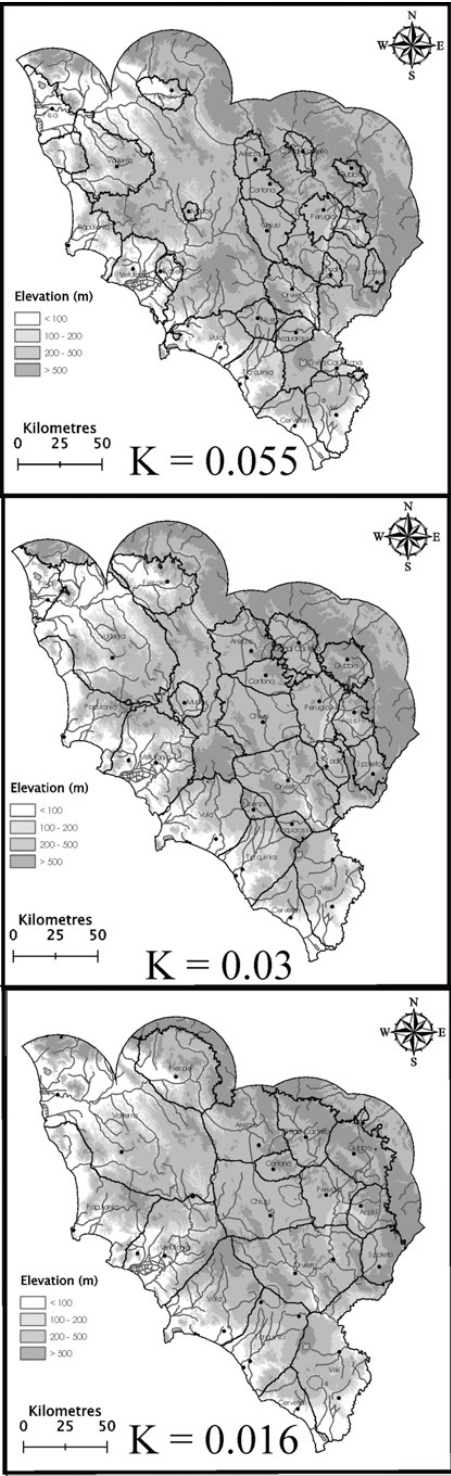


Figure 5.1 Mapping three values of k using XTENT

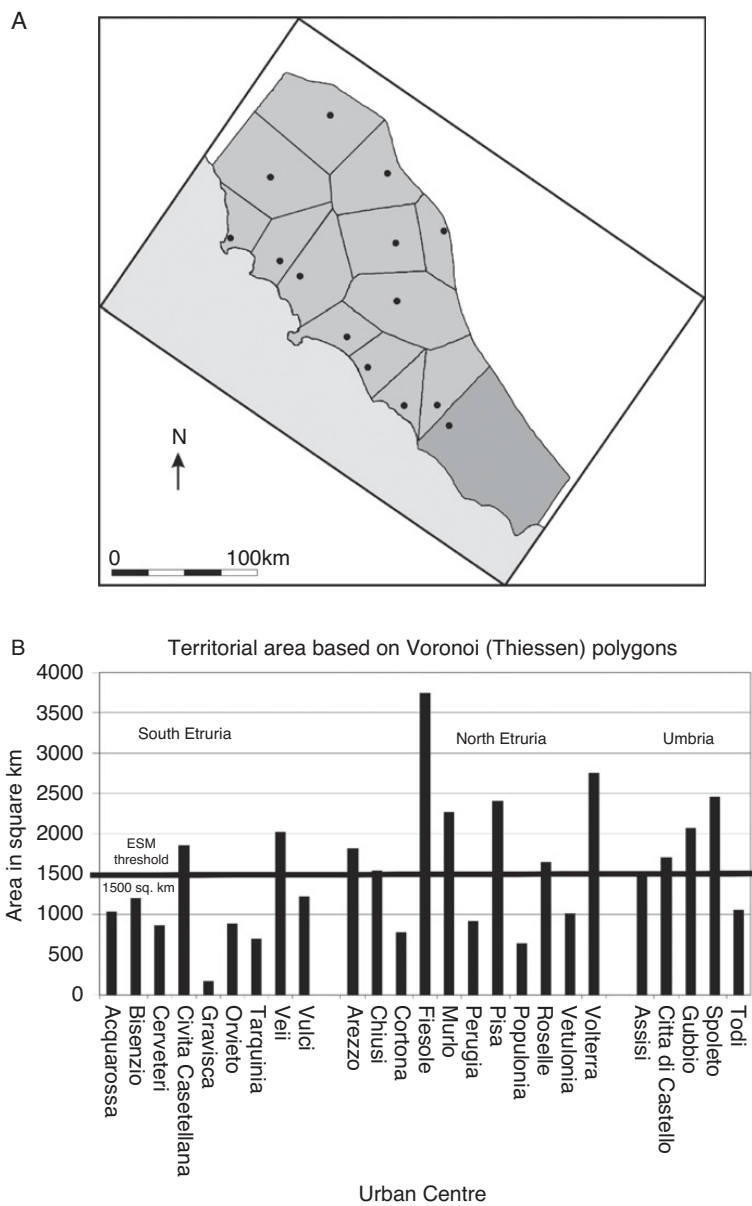


Figure 5.2 A. Analysis by Thiessen polygons. B. Territorial area based on Thiessen polygons.

threshold of 1,500 square kilometres reaching 1,500 at Veii, 900 at Cerveteri and 1,000 at Tarquinia.

One of the predictions of the ESM model is that Voronoi (or Thiessen) polygons might represent the territories of the individual centres, and that an area of 1,500 square kilometres would be a likely surface area of individual territories (or polities in later literature). As a first step towards the XTENT analysis, the areas of the territory of individual centres were calculated on this

basis (Fig. 5.2B). The size of the territories relates to the level of packing in the landscape. As a consequence, in South Etruria very few centres reach the 1,500 square kilometres threshold. Of the two that do, Veii is very understandable, but the power of Civita Castellana (Falerii Veteres) is greatly increased (although it is very probable that Civita Castellana was not re-occupied until the mid-eighth century BC). In North Etruria, the more spacious conditions permit seven out of eleven centres to achieve the predicted territory size. However, although Volterra's status is quite understandable, the role of Fiesole, Murlo and Pisa is greatly increased. Interestingly, it is the Umbrian fringe that conforms most consistently to the predictions because it is here that equal spacing is most consistently followed in a sequence of lake basins. The match would probably be even better if Gualdo Tadino and Terni were brought into consideration (with a corresponding decrease in the area of Gubbio and Spoleto).

PRESENTATION OF THE XTENT RESULTS

Renfrew and Level argue that variations in the constant value k permit the mimicking of the developing political landscape, and this principle was applied to Etruria. In this analysis ten values of k (0.2, 0.1, 0.08, 0.07, 0.055, 0.03, 0.02, 0.018, 0.016, 0.014) were applied while holding the $f(C)$ constant at $C^{0.5}$. Higher values present very small territories. Lower values present the collapse of the political structure of the landscape, ominously suggesting the encroachment of power from the south, here represented by Veii, since Rome is not considered in the present exercise.

The complete sequence of nine 'phases' shows a number of interesting developments: the emergence of corridors of political vacuum, often anchored on river valleys, lakes and prominent mountains; the survival of key intermediate-sized centres in the interstices between the major centres; a more rapidly maturing political landscape in southern Etruria compared with the more widely spaced north; a contrast between the developing disparities of territory size in the south and the regularities of territory size in the inner parts of Etruria and Umbria. For prehistorians, it is also useful to note that the independence of these large primate centres can be predicted from the use of XTENT without any resort to literary sources (cf. Spivey & Stoddart 1990). This sequence of nine phases will now be explored critically to explore the inter-relationship between these mathematical predictions and archaeological reality on the ground.

Under this analysis, the individual territories of Etruria and Umbria present some strikingly different trajectories. In South Etruria (Fig. 5.3B), three mega-centres (Veii, Orvieto and Vulci) present expansionist trajectories, although only Veii appears unstoppable in its development. History, of course, checked

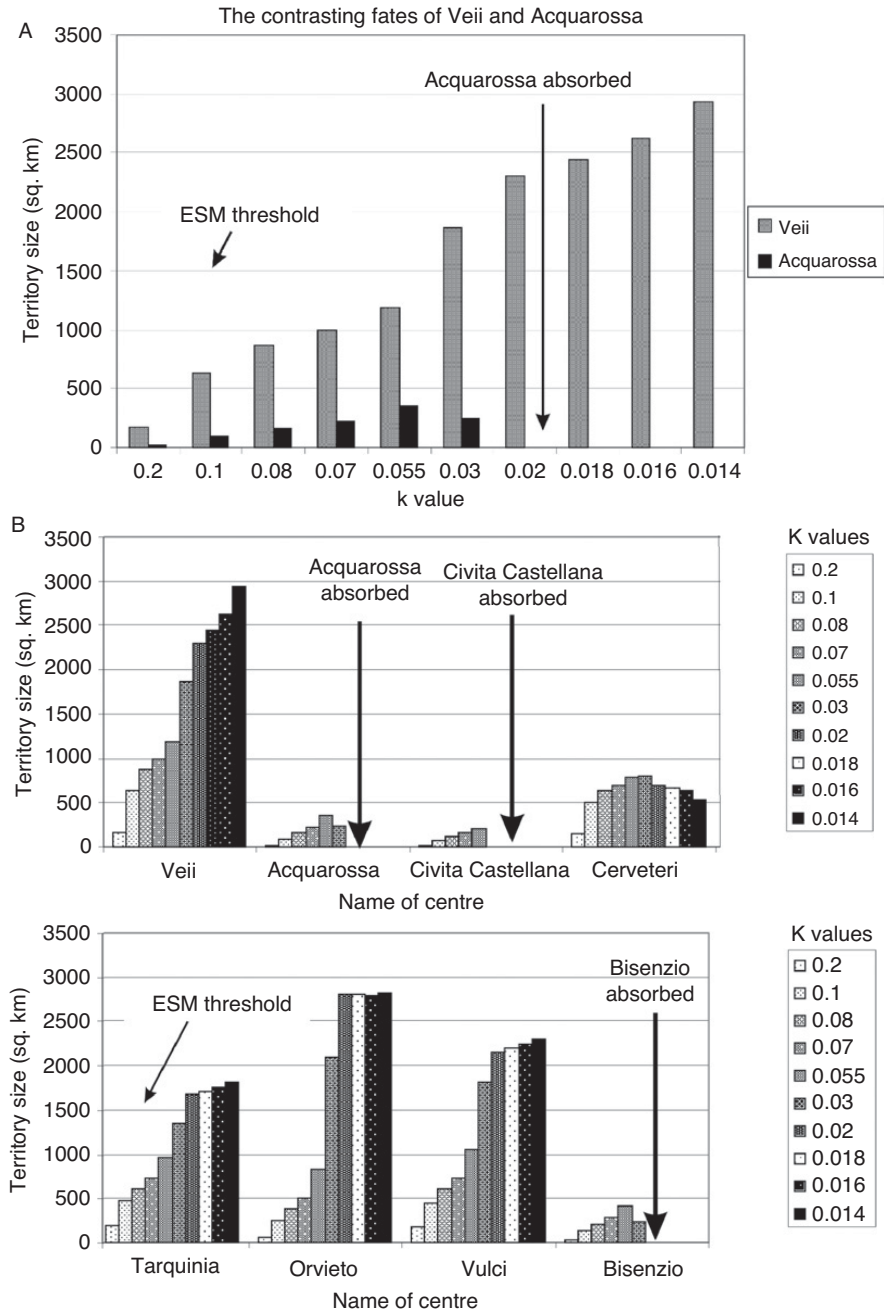


Figure 5.3 A. Contrasting fates of Veii and Acquarossa. B. Contrasting fates of major centres in South Etruria.

this occurrence by action from south of the Tiber, in the form of Rome. The territorial development of Tarquinia, and to an even greater extent Cerveteri, was checked by enclosing polities. The check was such that Cerveteri could not

achieve the 1,500 square kilometres threshold unlike all the other large centres. Finally three centres, Acquarossa, Civita Castellana (Falerii Veteres) and Bisenzio, were eliminated by their larger rivals. Of these predictions, only that of Falerii is controversial and is discussed more below. The contrast between the life histories of different centres and their accompanying territories is made explicit by the different developments of Acquarossa and Veii (Fig. 5.3A).

In North Etruria, long-term development is dominated by the expansion of Volterra, unrivalled in its control of the hinterland of North Etruria and able to penetrate to the sea through the Arno valley (Fig. 5.4B). Five other centres

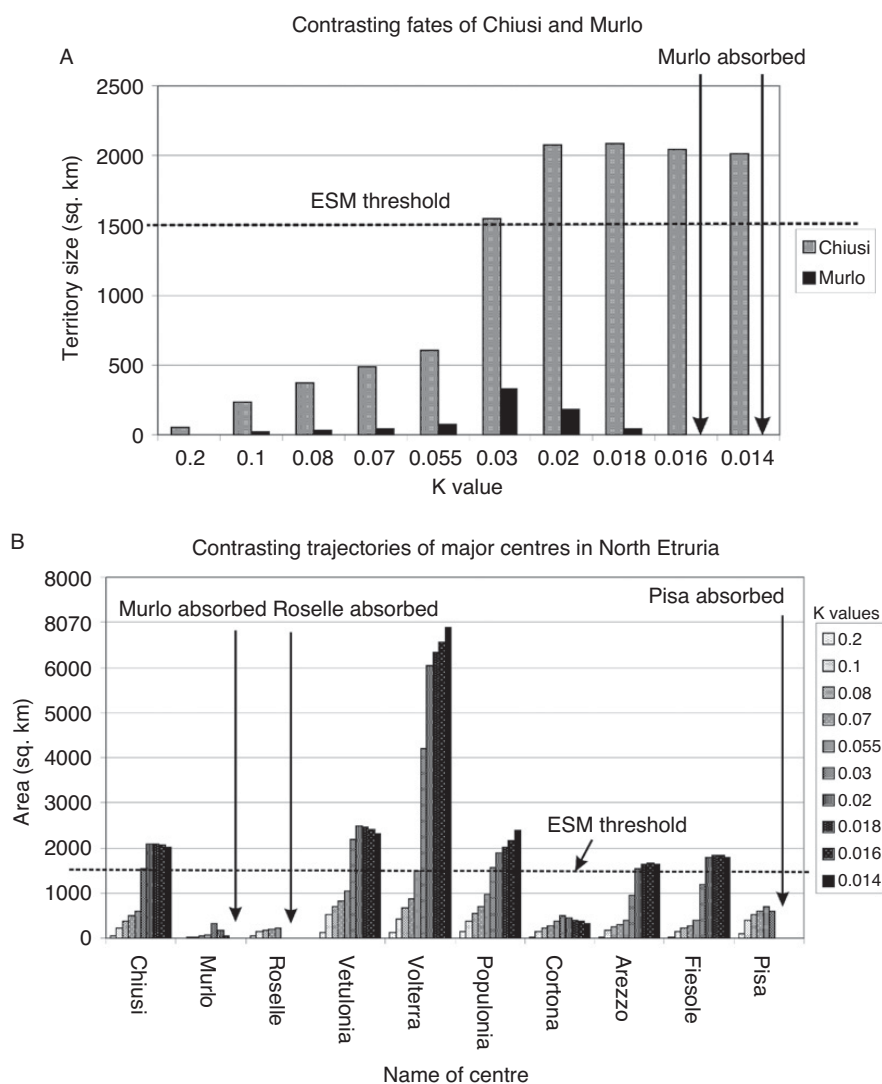


Figure 5.4 A. Contrasting fates of Murlo and Chiusi. B. Contrasting fates of major centres in North Etruria.

(Chiusi, Vetulonia, Populonia, Arezzo and Fiesole), conform very well to the ESM predictions and indeed enter some form of equilibrium just above the 1,500 square kilometre level. Four other centres (Murlo, Roselle, Cortona and Pisa) were eliminated or squeezed from the political landscape. Of these results only that of Roselle is controversial and discussed more below. The contrast in trajectories is made most clear by comparing Chiusi's expansion with Murlo's decline (Fig. 5.4A). In eastern Etruria and Umbria (Fig. 5.5B), there is much more of an equilibrium. Five out of the six centres settle at a level in the region below the 1,500 square kilometre prediction of the ESM model, although there is some variation between Assisi, hemmed in by rival polities, and Gubbio, with less marked constraints. The only centre whose demise is predicted is that of Todi under pressure from Orvieto from the east. An interesting contrast is

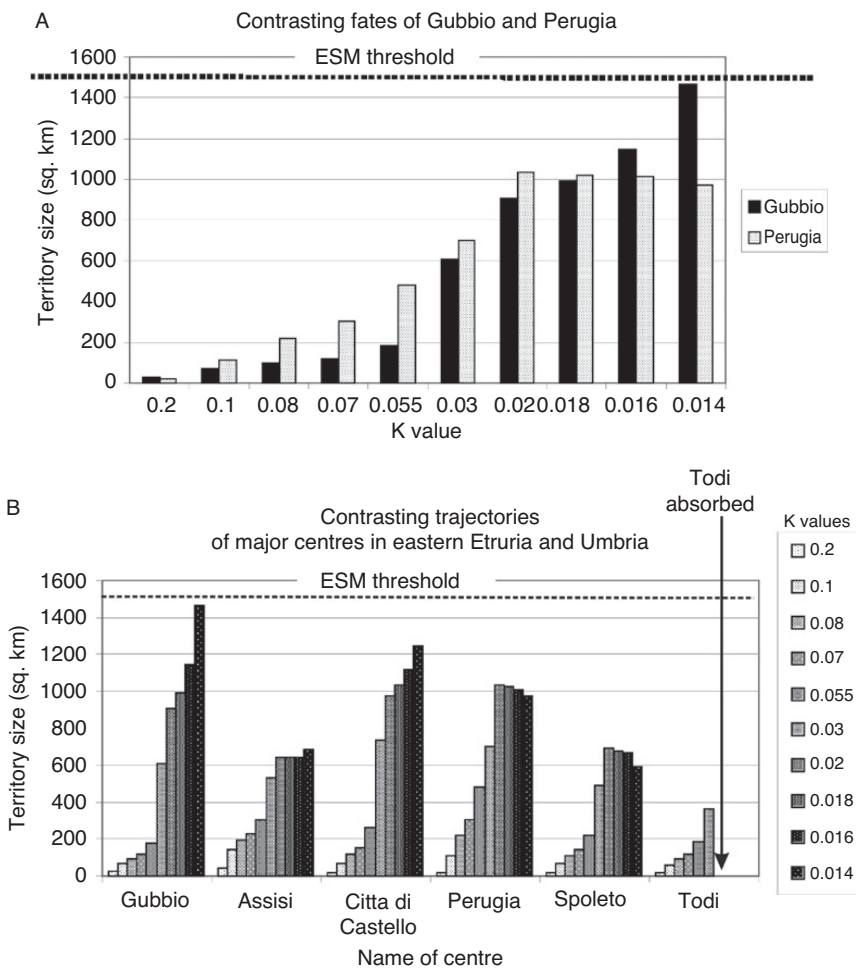


Figure 5.5 A. Contrasting fates of Gubbio and Perugia. B. Contrasting fates of centres in eastern Etruria and Northern Umbria

visible in the development of Gubbio and Perugia (Fig. 5.5A). Perugia's territorial development is forced into a plateau by the packed nature of her political environment. Gubbio, still one of the largest modern communal areas today, had greater freedom to expand, only limited by the Apennines to the north and east (although Gualdo Tadino to the east, not considered in this analysis, may have provided some check in this direction). The more detailed analysis follows.

Phase 0 ($k = 0.2$) (Fig. 5.6A) One of the problems of XTENT is deciding where to start the analysis with values of k . One criterion is where territories begin to show distinctiveness and differentiation from the Late Bronze settlement territories that preceded them. In this diagram, there appear to be two territorial types, the small inland and the often circular coastal territories of larger size, that have matured in territorial area to dimensions that are about four times (*c.* 200 sq. km) compared with preceding Bronze Age villages of an estimated 50 square kilometres.

Phase 1 ($k = 0.1$) (Fig. 5.6B) This diagram shows a much more plausible late tenth-century BC (Villanovan 1) landscape. It permits some quite large territorial boundaries (of between 400 and 600 sq. km) including the initial competition for space between major players such as the centres of Vulci and Tarquinia and the centres of Veii and Cerveteri. A number of political territories were already developing topographical niches in the river catchments that they occupy, most notably Gubbio, Chiusi, Città di Castello, Orvieto and Tarquinia. The model also leaves some very significant political buffer zones.

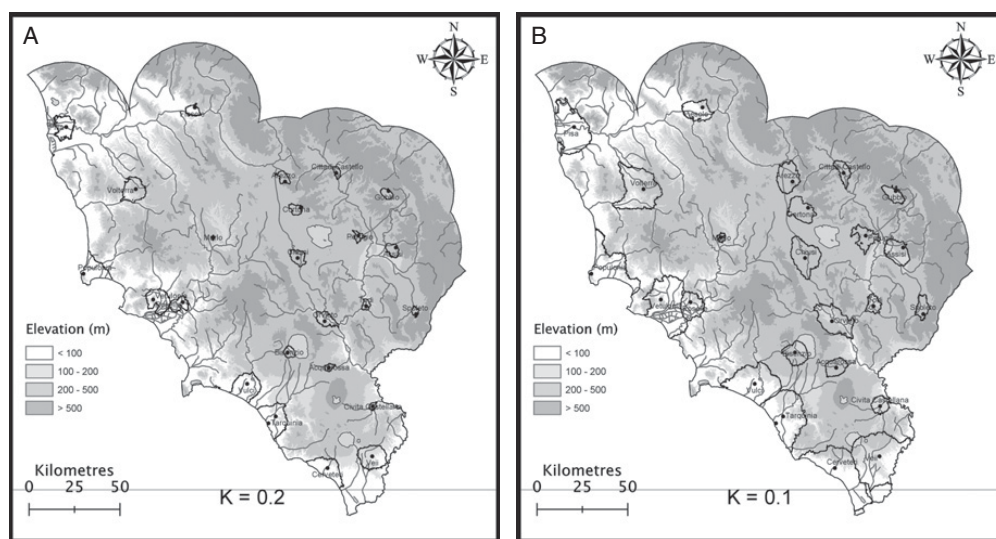


Figure 5.6 A. Plot of XTENT for value $K=0.2$. B. Plot of XTENT for value $K=0.1$

An important example is in the Tolfa headland region between Tarquinia and Cerveteri. It is in precisely this region that a number of scholars have noted the retention of a number of small centres in the first phase of nucleation (di Gennaro 1986: 197, Fig. 4; Pacciarelli 2000: 129). Some smaller settlements extended north into the predicted territory of Tarquinia, but a significant number were located in what is predicted to be unallocated territory close to where the Tolfa mountains come down to the sea at Cape Linaro (Chapter 3).

Phase 2 ($k = 0.08$) (Fig. 5.7A) In Phase 2, South Etruria was already beginning to become a packed political landscape in prominent contrast to the situation in northern Etruria. The territories of Cerveteri and Tarquinia were now contiguous, as were the territories of Vetulonia and Populonia in northern Etruria where open spaces prevailed. The relationship between Roselle and Vetulonia is already highlighted as problematic since the logic of socio-political space did not allow their simultaneous presence. We know archaeologically that over the course of time the early prominence of Vetulonia was replaced by the rise of Roselle. The power of place is more complicated in this particular region, and therefore, the predictive qualities based on powerful centres do not work, suggesting (as we know historically) a switch in political relationship between Vetulonia and Roselle. In part, this may have been affected by a large ancient lagoon between the two cities. In the north-eastern part of the study area (both north-east Etruria and northern Umbria, a smaller modular pattern emerged, responding to the larger number of smaller centres often located in self-contained valleys or part valleys. The analysis would be improved by the introduction of intermediary centres into

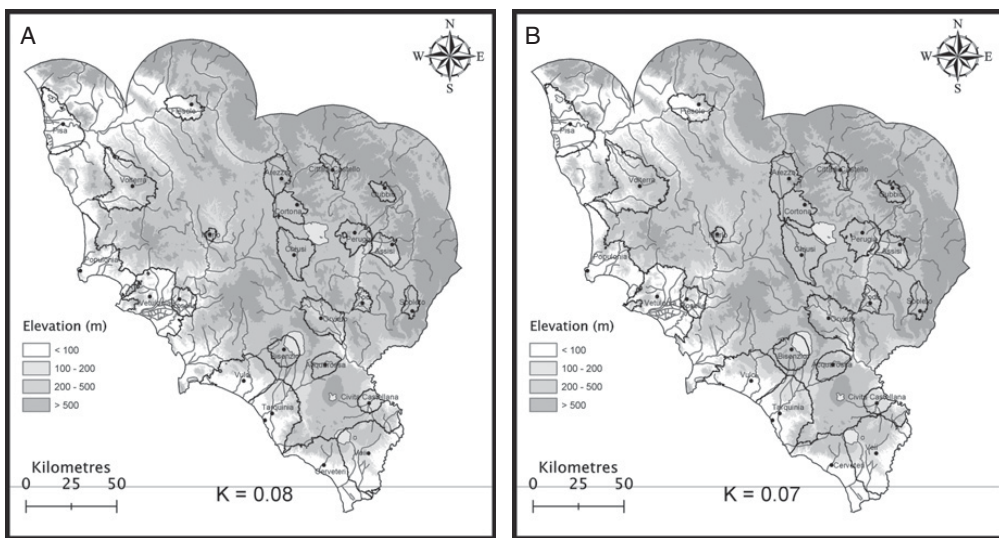


Figure 5.7 A. Plot of XTENT for value $K=0.08$. B. Plot of XTENT for value $K=0.07$

the analysis, for instance at Gualdo Tadino, Nocera Umbra, Foligno, Spello, Borgo San Sepolcro (Iaia and Moroni Lanfredini 2009), Umbertide/Fabbrecce/Trestina (Heymann 2005a, 2005b; Lo Schiavo & Romualdi 2009; Pellegrini 1902; Shefton 2014), which would fit gaps in the spatial logic of the system.

Phase 3 ($k = 0.07$) (Fig. 5.7B) This phase shows an almost completely mature coastal landscape in south Etruria, where boundaries between Vulci and Tarquinia (along the Arrone River) between Tarquinia and Cerveteri (coinciding with Cape Linaro and the Tolfa mountains) and between Veii and Cerveteri (excluding Veii from access to the sea, except down the Tiber) have been formed. The Faliscan territory around Civita Castellana was now encroached by Veii, giving emphasis to the gateway status of Nepi on the northern edge of the Veii's territory. Considerable unallocated space still existed around Bisenzio and Acquarossa. Further inland Orvieto, Todi and Spoleto occupied natural catchments. Perugia was beginning to encroach on the natural boundary of the Tiber, in contestation with Assisi that occupied a substantial part of the northern Valle Umbra. Further north, Gubbio and Città di Castello occupied natural basin catchments. In north-eastern Etruria, Arezzo, Cortona (Neppi Modona 1977) and Chiusi have defined their allocation of space in the Val di Chiana. To the west, a large tract of riverscape (defined by the Albegna valley to the south) and uplands (from Monte Amiata to the south to the Chianti in the north, to the Colline Metallifere to west) remained undominated by the major centres, permitting smaller centres such as Murlo (De Puma & Small 1994; Phillips 1993) to emerge when the political moment was ripe. To the west, Vetulonia and Populonia have defined their occupation of the coastal strip and the coastal catchments of the major rivers. Further north, Volterra has emerged from the mountain uplands down the major river systems of the Cecina (towards the sea) and Era (towards the Arno). To the north-east, Fiesole has dominated the middle Arno and to the north-west Pisa has dominated the Arno delta.

Phase 4 ($k = 0.055$) (Fig. 5.8A) In this phase, the South Etruscan landscape has matured to the extent that the buffer centres of Civita Castellana, Acquarossa and Bisenzio were now under pressure from the political domination of their larger neighbours, such that their territorial sizes reached their maximum extent at a cap of about 400 square kilometres. There was nevertheless considerable space for political opportunity in the region around the Lago di Vico and north-east to the area around Orte on the Tiber. Further north-east, Umbria and north-eastern Umbria were beginning to fill up, although intervening uplands were still distinctively unoccupied. To the west, the Albegna corridor still remained at the foot of the uplands of Monte

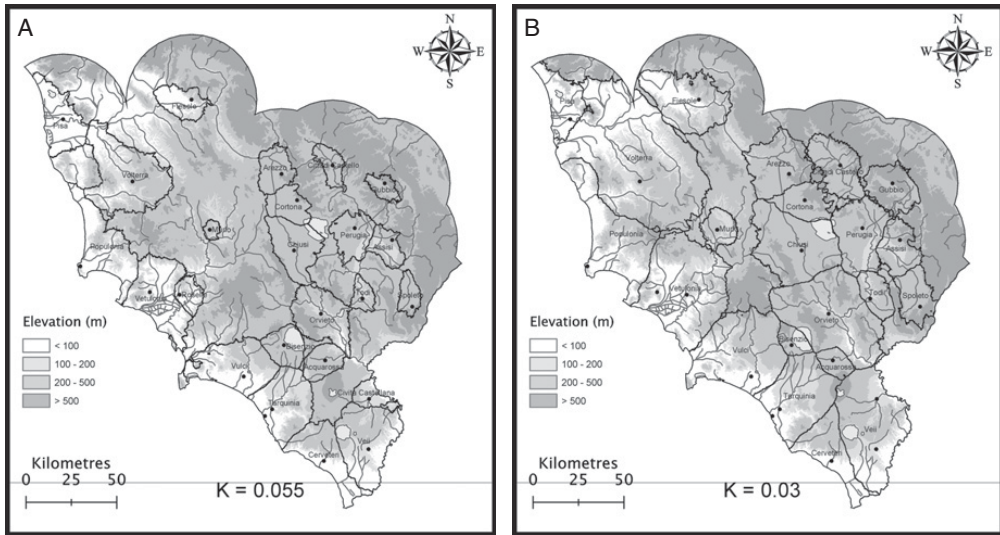


Figure 5.8 A. Plot of XTENT for value $K=0.055$. B. Plot of XTENT for value $K=0.03$

Amiata, the Colline Metalifere and the Chianti. On the coast, Vetulonia, Populonia and Pisa have almost completed the division of territory in the coastal strip, although Volterra threatened to achieve access to the sea from its upland location. Fiesole's territory has enlarged, but not sufficiently to threaten the political opportunities taken by other centres in the Mugello and lower down the Arno, such as Prato Gonfienti and Artimino/Comeana

Phase 5 ($k = 0.03$) (Fig. 5.8B) A more detailed analysis of the plot produced by the $k = 0.03$ value shows the potential of the integration of XTENT as a heuristic technique in confrontation with archaeological and historical information. It is the errors as much as the predictions that are interesting. A brief analysis of the landscape from south to north reveals the following observations, which build on an earlier analysis (Stoddart 1990). The technique suggests that Veii was cut off from the sea by the territory of Cerveteri and that the Faliscan territory was taken over by Veii to the north. These are both widely debated political issues. Some authors emphasise the overwhelming power of Veii (di Gennaro & Schiappelli 2004), whereas others prefer to emphasise the independent identity of the Faliscan territory (Colonna 1990). This is a debate between demographic and spatial logic, and cultural and historical tradition. Further north, the patterns make good, and uncontroversial, geographical and historical sense. The territory of Tarquinia neatly fitted the catchment of the Marta River and was restricted by the medium-sized centres of Bisenzio and Acquarossa in the hinterland. The territory of Vulci has encroached on the Albegna valley to the north-west and was restricted by the medium-sized centre of Bisenzio and the high ground of Monte Amiata (Cambi 1996). This territory adjoined the

border region of the Albegna valley, which was a zone of instability in the early development of the Etruscan landscape, a point noted by the presence of unallocated political corridor when higher k values of XTENT are applied (Fig. 5.1: $k = 0.055$). It was in this corridor that first a series of small instable settlements – e.g. Marsiliana d’Albegna (Iaia & Mandolesi 1993; Minto 1921) – developed, and then the massive entrepôt of Doganella (Perkins & Walker 1990) precisely on the XTENT boundary.

Further north, the territory of Vetulonia has overtaken the territory of Roselle. In historical reality, the centre of Vetulonia went into decline and Roselle took over the more prominent role in the local area. This is the one instance where the results of XTENT clearly contravene the patterns of historical development, because the general patterns of spacing and dominance of primate centres were also contravened in this one case. Local political conditions led to the changed concentration of power in these two centres. One contributing reason may be the importance of the local river (Ombrone) in the development of Roselle and its communications with the interior. Another may be the presence of a large lagoon between the two cities in ancient times. These are factors not considered in the present analysis. Another interesting prediction lies in the penetration of Populonia’s power up the coast of Etruria into the Cecina valley (exploiting the low relief up the coast) and threatening Volterra’s access to the sea, particularly if Pisa’s size and thus territorial dominance is increased in size as research develops. This was clearly another buffer area of unstable political centres, particularly during the Orientalising period in an area which has been subject to recent field research (Regoli & Terrenato 2000; Terrenato 1992).

In the inland area of Etruria, three political territories and one upland area from south to north, Acquarossa, Bisenzio, Monte Amiata and Murlo, formed a buffer zone between the coastal states and the inland states. Interestingly, this buffer strip converged and overlapped with the line of volcanic lakes – Bracciano, Vico, Bolsena – that straddled the political boundaries to the south and, at a smaller scale, were also associated with small boundary centres such as Grotte di Castro. Behind this screen of political centres threatened by larger neighbours, there was the final large-scale territory of Orvieto. Only this centre, straddling the river valley north, had the same scale of territory as some of the territories of its coastal rivals. This centre was crucial in providing the corresponding political pressure on Bisenzio and Acquarossa, which went into decline (see $k = 0.02$) and were replaced by the formal ritualisation of political boundaries (Riva & Stoddart 1996; Zifferero 2002b) once these centres have been absorbed into the larger territories.

Murlo to the north is a more controversial centre (Cristofani 1975; Phillips 1970; Stoddart 1995; Torelli 1983; Tuck et al. 2006), in part because of the particular methodology of its exploration, in part because of its smaller scale of

political operation. Recent work has shown that the centre, extensively explored as a source of material culture, did not operate in isolation (Campana 2001) and was part of a small-scale local network of sites. These issues are explored in more detail in the next chapter. This centre was also on a sensitive political boundary that stretched north to Castelnuovo di Berardenga (Bocci Pacini 1973; Mangani 1985a) and south to Poggio Civitella (Ceccarelli 2004; Donati & Cappuccini 2008; Donati & Ceccarelli 2002, 2004). The status of this boundary changed from a string of independent political entities (in the Orientalising/Archaic period) to series of fortified sites between major political states (in the Hellenistic period); this phenomenon is best indicated by the changed role of Poggio Civitella (from settlement to fortification) to the south, but also by the foundation of fortified sites in the north Chianti region (Becker 2002–3, 2008), which replaced sites such as Castelnuovo di Berardenga.

A series of sites – Chiusi, Cortona, Arezzo and Fiesole – occupied the communication route up the Chiana River and extended along the Arno River reaching, after a further phase of political expansion, to Fiesole which in turn guarded access through the Apennines to the Po valley by means of the Mugello. The newly discovered Etruscan site at Prato (Poggesi 2005; Poggesi et al. 2005) appears to be yet another short-lived ‘boundary’ site in succession to earlier centres at Artimino (Capecchi 1987) and Quinto Fiorentino on the western edge of Fiesole’s territory. Although there is some recent discussion over the size of Chiusi, which shows signs of expansion under the current reconstruction, all these centres are relatively small compared with the centres to the south and west. A combination of packing and size has led to a distinctively different arrangement of territories. To the east, a prominent landscape feature, Lake Trasimeno, again acted as a frontier. In this case, the lake was bisected by the boundaries of three states which underwent a comparable transition towards ritualisation in the later phases (Paolucci 2002a). Perugia, the frontier Etruscan city, supported by its greater demographic weight and facilitated by the morphology of the Valle Umbra, projected east with a slightly larger territory, surrounded by smaller ‘Umbrian’ neighbours. To the north and east, the Apennines provided a distinct physical boundary nicely emphasised by XTENT. In the south of Umbria, the shaded area indicates a political vacuum which would be occupied by Terni once included in the analysis. The inclusion of Terni and Amelia, as well as other smaller centres, would also block the advance of Veii into this area predicted by XTENT ($k=0.016$) without their inclusion. The political geography provided by this phase and following will guide the analysis of individual territories in the next chapter.

Phase 6 ($k = 0.02$) (Fig. 5.9A) This phase marks the destruction of all the southern buffer centres (Acquarossa and Bisenzio), the near absorption of

Monte Amiata, bar its very summit, the near destruction of Murlo and the retention of only the heights of the Chianti as independent territory. The predicted demise of Umbrian Todi to the advances of Etruscan Orvieto may be as much a product of an underestimate of its size; although the walls are claimed to enclose only 14 hectares (Fontaine 1990), the early topography may have defined as many as 42 hectares (measured from Tascio 1989). Otherwise, the territories of the major primate centres have now settled down into a near equilibrium often snugly fitting topographic niches, with formally defined boundaries. An interesting interplay between topography and political power was displayed. Tarquinia fitted even more securely within the Marta catchment, bounded to the south by the Tolfa mountains and to the north just short of the Val di Fiora. Vulci has expanded successfully north into the Albegna valley. Roselle was now the natural centre of the territory originally headed by Vetulonia, and we may see here the spatial logic of the move of prominent centre, as the Ombrone River valley was opened up and the frontier moved at a greater distance from powerful Populonia to the north. Very much further north, Gubbio and Città di Castello fitted very effectively into their respective valley basins with cultural-cum-topographical boundaries defining their limits. Arezzo's territory has advanced down the Arno valley to meet the boundary with Fiesole and up the Arno valley to occupy much of the Casentino, confirming the gradual incorporation of this area into the Etruscan orbit in fifth century BC (Bocci Pacini 1975, 1979; Stoddart 1979–80). Volterra has expanded almost without control towards the north-west, only resisted by Populonia seawards. As mentioned before, this raises the issue of the political

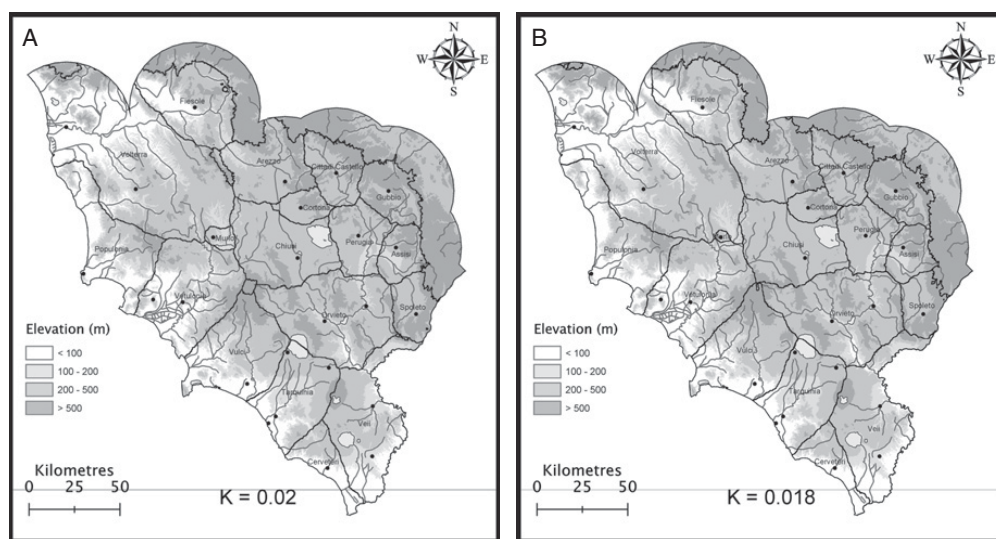


Figure 5.9 A. Plot of XTENT for value $K=0.02$. B. Plot of XTENT for value $K=0.018$.

independence of Pisa, which may simply have become Volterra's port or blocked its political access to the sea.

Phase 7 ($k = 0.018$) (Fig. 5.9B) There is remarkable equilibrium compared with previous political geography, except of the almost complete absorption of political space outside the territory of the major centres, with the exception of the immediate surroundings of Murlo and the very summit of Monte Amiata.

Phase 8 ($k = 0.016$) (Fig. 5.10A) Complete political absorption has now been achieved without yet disturbing the equilibrium of the major primate centres.

Phase 9 ($k = 0.014$) (Fig. 5.10B) Once again remarkable stability is shown by this diagram. Only Rome (not measured in the exercise) had a disruptive influence.

CONCLUSION

The employment of the XTENT technique has not been mechanistic, but judged as an aid to the detection of regional patterning in the settlement organisation of Archaic Central Italy. Clear regional differentiation can be detected at the broad structural level determined by the size and positioning of large urban centres. As the territories of the polities expanded, an administrative settlement structure was developed to supply and support an enlarging territory which could not be adequately controlled from a highly centralised

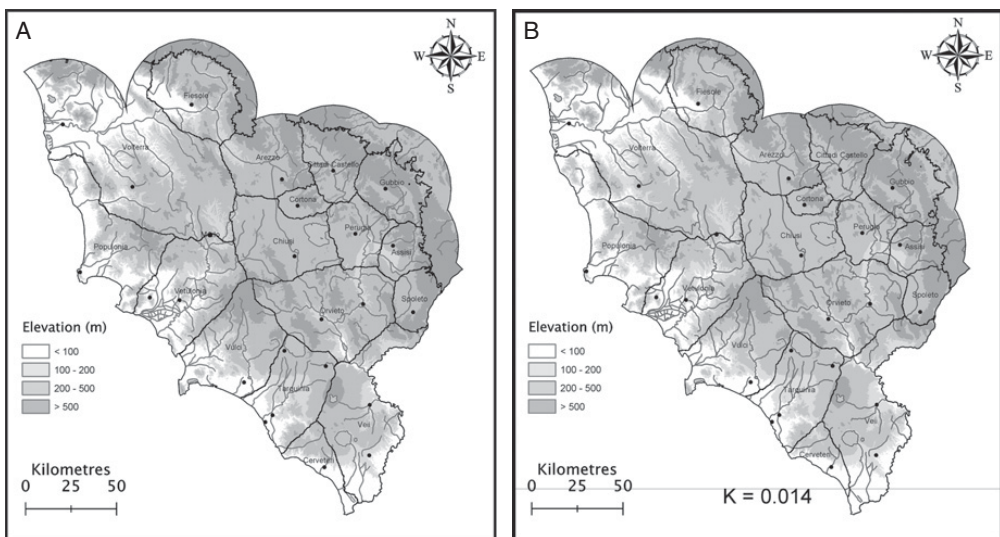


Figure 5.10 A. Plot of XTENT for value $K=0.016$. B. Plot of XTENT for value $K=0.014$.

primate centre. This administration followed a particular course because of the size of the centres. The concentration of political power in the primate centres appears to have precluded the existence of politically dependent centres of intermediate size, particularly in the immediate area of the primate centres themselves. Trade and other resources, which were monopolised through the primate centres, also had an important effect on settlement development. As a result of these two factors, the next lower rank of settlement was located at some distance from the primate centres. Size was, however, an inadequate substitute for a more carefully graded control hierarchy; the expansion and contraction of the power of the centres inevitably led to phases of instability. These effects will be explored centre by centre in Chapter 6. In an effort to maintain stability and power, attributes of that power (Chapter 7), in the form of trade products and ideological artefacts, were generally very carefully controlled. Only a relatively small number of luxury products have been found in lower positions in the settlement hierarchy.

CHAPTER SIX

FIVE REGIONS OF CONTRAST

THE POWERFUL PLACES HAVE BEEN IDENTIFIED AND THEIR TERRITORIES defined. What effect did these powerful places have on their territories? The chapter will trace the considerable variation of political impact across Etruria from south to north and into northern Umbria. The variability cannot be reduced to the simple typologies that have sometimes been attempted but reveals local contextual variation, albeit with some broad trends from north to south and from the coast towards the inland uplands.

1 SOUTH ETRURIA

Southern Etruria has been the most examined region in the history of research. It was the location of the seminal South Etruria Survey of the British School at Rome, and this work has been followed by the (still incomplete) reanalysis of the same survey, further work overlapping with the same region (e.g. the Ager Faliscus) and fresh work in the territory of Cerveteri and Tuscania. Now that each powerful place has been defined as the epicentre of a territory, a sample of these major centres will be examined in turn, focusing on interstices between their territories where appropriate. The main analysis will focus on the sixth century BC to show the contrasts of a fully mature urban landscape.

Veii

The study of Veii's territory was central to the work of Ward-Perkins (as mentioned in previous chapters) and is now central to the reanalysis of the same work. Unfortunately, most of the reanalysis in the public domain has centred on periods later than of interest here and is not yet open access, and thus the pre-Roman period has not received the same prioritisation in the important re-dating and publication programme. Whereas the early reassessment may have looked at the Veii in its own right (Patterson et al. 2004: 4), other articles have been substantially on Rome in all its aspects governed by historical questions, a city that was politically external to the system in the period of interest here when history had yet to arrive. Luckily, the dating programme inherent in the reanalysis has probably had a less drastic effect on the study of the sixth century BC, given that the dating criteria implemented by Ward-Perkins were largely based on *bucchero*, which had already been effectively studied (Rasmussen 1979). Reanalysis may have affected more drastically the following fifth and fourth century BC, which was accompanied by a radical reorganisation of socio-political space, which the expanding Rome may have exploited (Patterson et al. 2004: 7–13).

The territory of Veii was large and expansive (Chapter 5), so much so that XTENT suggests it would have reached nearly 3,000 square kilometres in size if it had not been checked by the historical presence of Rome. This expansive approach very probably led to political control of the cultural area of the Faliscan territory to the north, and, by that very inclusion, to a less drastic size separation between Veii itself and the next largest settlement of Falerii Veteres (Fig. 6.1A), since the Faliscan territory, although subordinate, retained some political authority. As a consequence, the rank-size indices were not as distant from lognormal as we will find in some other centres (Fig. 6.1B).

Rural settlement in the area of the South Etruria survey showed a steady increase, reaching a peak between the early sixth and the early fifth century BC before falling back in the course of the fifth century BC (Fig. 6.2). There was clearly a major colonisation of the territory as the power of the urban centre expanded, but retraction took place not only under the pressure of Rome but also as power was recaptured by the urban centre. The quantity of potsherds recovered from the territory and from the urban centre follows a very similar pattern (Fig. 6.2B). If taken at face value, this suggests that the city and its territory were following the same demographic rise and fall, but care needs to be taken that these data do not also reflect either pottery supply (relatively unlikely at this date), recognition of specific datable pottery (more probable) or some other taphonomic factor.

In spite of this new analysis, we are still to a certain extent dependent on the work of Potter (1979), reinterpreted by Rendeli (1993: 327) and corrected here

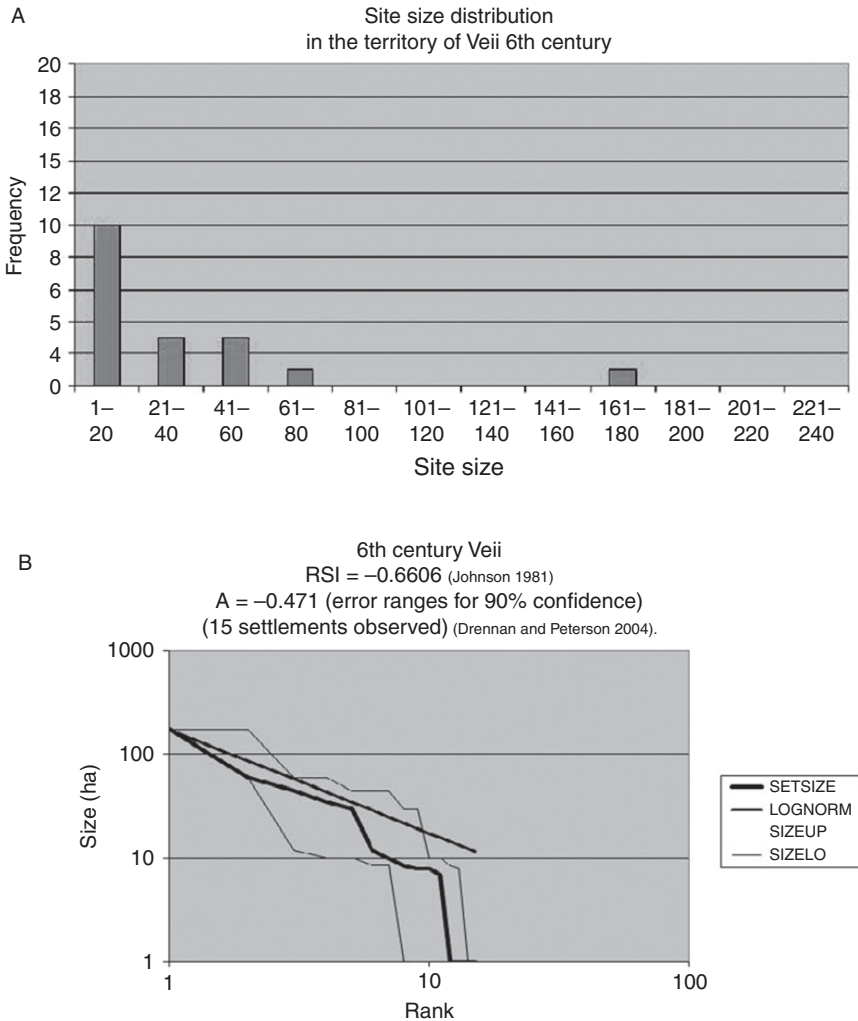


Figure 6.1 Territory of Veii in the 6th century BC. A. Site size. B. Rank size.

to show the density of settlement rather than the absolute numbers of rural sites (Fig. 6.3). This analysis shows that the early high densities of rural settlement in the seventh century BC in the shelter of the primate centre declined in the fifth century BC. This decline was accompanied by a slight diminution of density close to the city in the cemetery areas. Another feature was the lack of dramatic drop-off in density with distance; even at 10 km there was still an appreciable density of settlement suggesting that no political boundary had been encountered. The smaller published area of reanalysed material in the immediate area of Veii seems to show a similar pattern (Patterson et al. 2004). This trend might be interpreted as a more pronounced concentration of population within the primate centre, but reanalysis of the surface survey of Veii, although difficult to

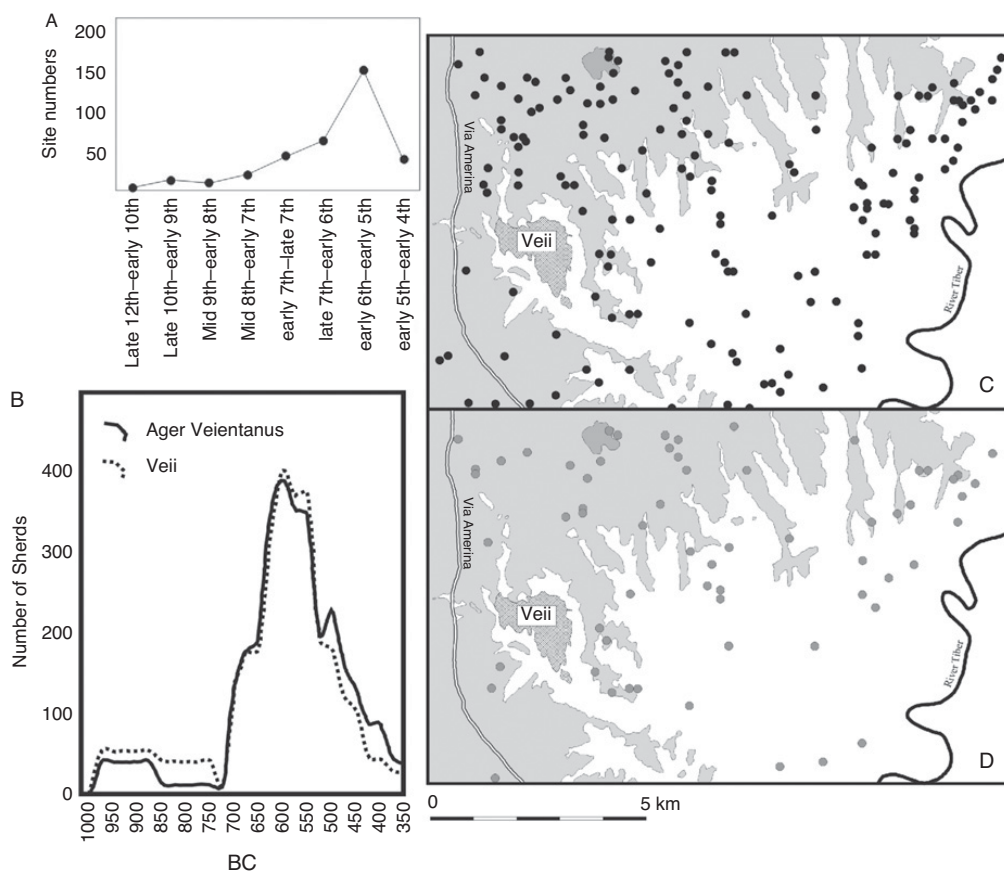


Figure 6.2 New analysis of the territory of Veii. A. Trends of site numbers in the South Etruria survey area (based on Di Giuseppe 2007: 436). B. Trends of sherd numbers in the Ager Veientanus and in the city of Veii (based on Witcher & Craven 2012). C/D. Seventh- and fifth-century site distributions in a sample area of the territory of Veii (based on Patterson et al. 2004: 12, Fig. 4).

interpret, suggests that the intensity of activity within the urban centre may have declined over the very same period.

Nepi

Nepi is a small urban settlement at the centre of a cultural frontier zone in the path of the expanding city of Veii, and almost certainly profoundly affected by political change in Veii itself, such that it became part of its territory. The region has been the subject of both urban excavation and regional survey (di Gennaro et al. 2002; di Gennaro et al. 2008; Rajala 2013, 2016), so it offers a useful opportunity to explore the impact of Veii on its hinterland. This fieldwork reveals a distinctive developmental pattern.

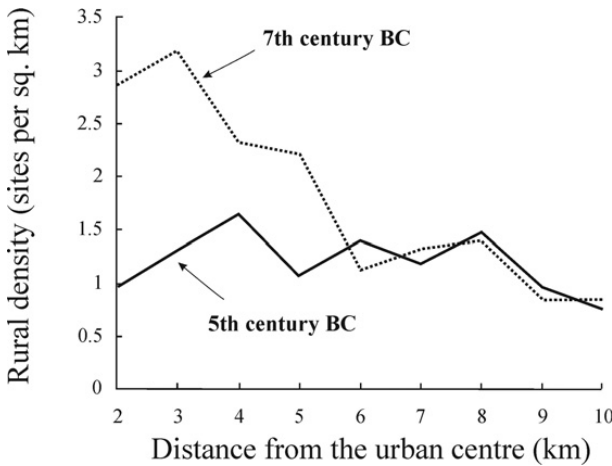


Figure 6.3 Territory of Veii. A. Density of settlement at increased distance from the urban centre (7th century and 5th century).

There is no current evidence for occupation of the site of modern Nepi (Fig. 6.4) in the late twelfth to early tenth century BC. Deep stratigraphic excavations, most notably in the area of the Vescovado, discovered no material dating earlier than the seventh century BC (Ceccarelli & Stoddart 2013). We have to turn to the adjacent smaller spur of Il Pizzo, located to the south, to find material of this early date eroding to the surface at various points on the spur. If we insert Nepi within the political orbit of the emerging Veii, then it makes absolute sense that this frontier region was deprived of population during this crucial phase, because that very population had been drawn into the main urban centre. This perspective is supported by the very limited evidence for any occupation during the late tenth to early ninth century BC. By contrast, by the eighth century BC, there is secure settlement evidence not only from the entrance area to the Pizzo spur but from the southern flanks of modern Nepi (both interpreted from limited surface material). It is also at this stage that two important cemeteries were founded: the first on the banks of the Fosso del Cerro and the second on the southern bank of the Fosso della Massa (Fig. 6.4). The first is placed on an important approach to the city from the north, while the latter has a fine prospect of the modern location of Nepi from the south. It was at this point in the eighth century that the topographic, and presumably political, identity of Nepi was forming, defined both by the first indications of a nucleated habitation and by at least two surrounding cemeteries, the locations of which appear to focus on and relate directly to the habitation, rather than other features of the landscape.

In the course of the following centuries (seventh to fifth centuries BC), these cemeteries developed and expanded in size, providing much of the evidence for the wealth of Nepi in the period. In the case of the Fosso del Cerro, the

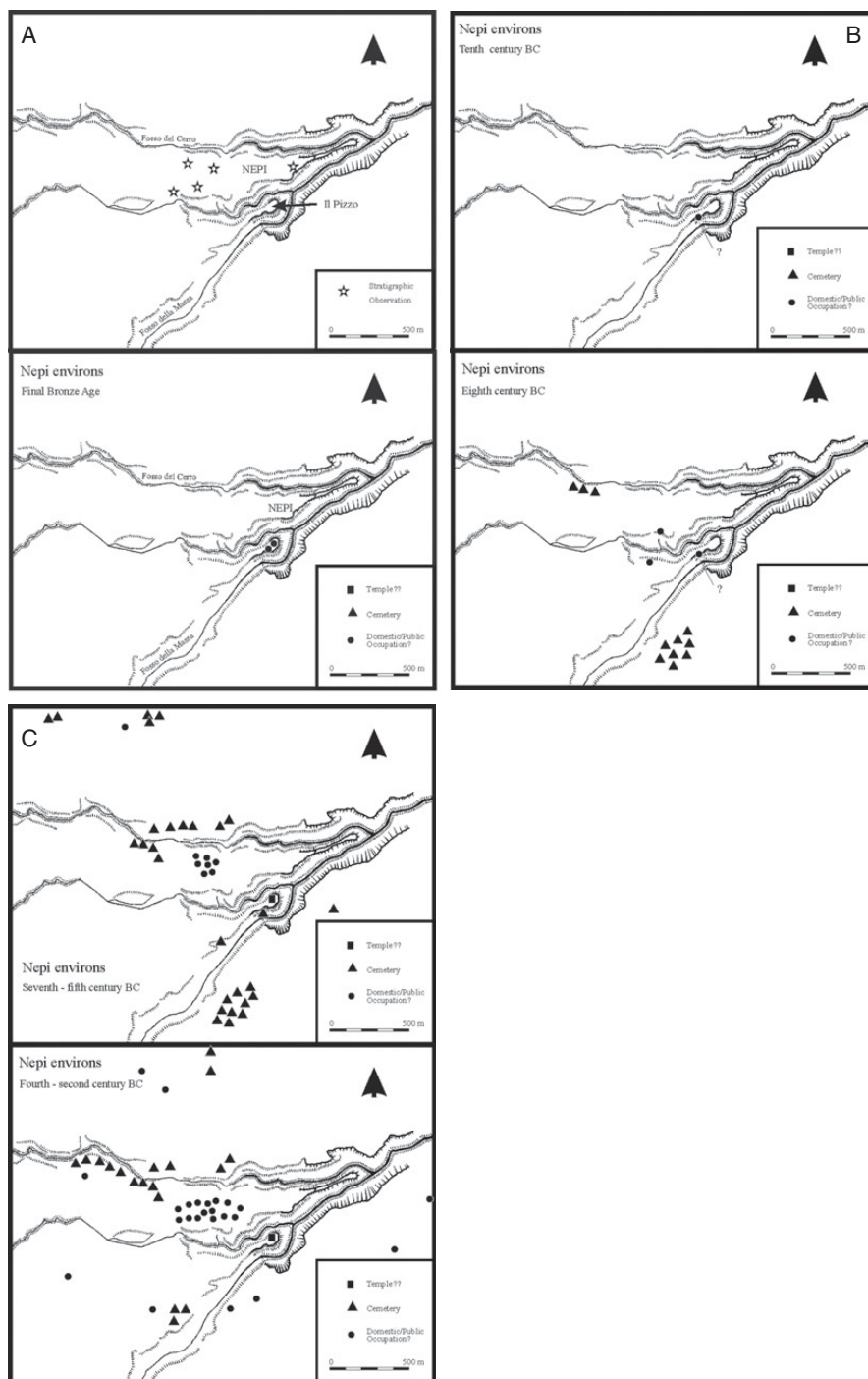


Figure 6.4 The changing Nepi landscape (based on di Gennaro et al. 2008). A. Areas sampled (above); Final Bronze Age (below). B. 10th century (above); 8th century (below). C. 7th–5th century (above); 4th–2nd century (below).

construction of tombs was extended to both sides of the river, switching as one moves eastwards from the south bank to the north bank to face the city to the south. Current evidence from Il Pizzo (to be confirmed by stratigraphic excavation) suggests that it was transformed definitively during this phase from a settlement area into both a burial area and, possibly, a sanctuary. A smaller nucleation of cemeteries of the same period is found to the north-west of the sampled territory of Nepi, perhaps in association with a rural settlement, although there remains the possibility that this was an outlying cemetery of Nepi itself.

It is on the modern site of Nepi that during the seventh century BC an important nucleation of settlement conclusively formed. The excavations in the Vescovado area have revealed secure evidence for rectilinear tuff foundations, supplementary wooden structures and subterranean drainage systems from this phase. There is, however, no evidence yet that the intense development of this core area on the higher ground at the middle of the entrance to the spur existed elsewhere on the spur. Between the fourth and the second centuries BC, by which time the urban area was certainly enclosed by defensive walls, the urban nucleus of the Nepi expanded to occupy, most probably, most of the topographic spur. The Fosso del Cerro cemeteries provide the main evidence of expansion and continuity, as it appears that the Fosso della Massa cemeteries declined in importance at this stage. During this same phase, the developing road network appears to have provided an alternative location for new tombs which were placed to the sides of the emerging Via Amerina both to the south and to the north as it approaches the city. This ribbon focus of the cemeteries along the roads, rather than specifically around the city, is a marked change from earlier periods, and shows the increasing connectivity of this urban centre to its neighbours.

Cerveteri

Cerveteri, to the west of Nepi and Veii, is another fortunate case of urban excavation (although limited in extent) (Bellelli et al. 2003; De Grummond & Pieraccini 2016; Izzet 1999–2000, 2000; Maggiani 2001; Maggiani & Rizzo 2001, 2005) and systematic regional survey (Enei 1993, 2001; Bellelli 2014). This gives another insight into the regional variation of these primate centres.

The geopolitical location of Cerveteri (Fig. 6.5), caught between the sea, the expansive centre of Veii to the east and substantial centre of Tarquinia (to the north), led to a very much smaller potential territorial area. This fact must have contributed to the strongly maritime perspective of the city (Musti 2008; Torelli 2016) that is visible not only in trade and the presence of Greeks (Bellelli 2004; Colonna 2004) but also in the ship-related iconography of the city (Cristofani 1983: 15–18; 29). At no point did the territory exceed 800

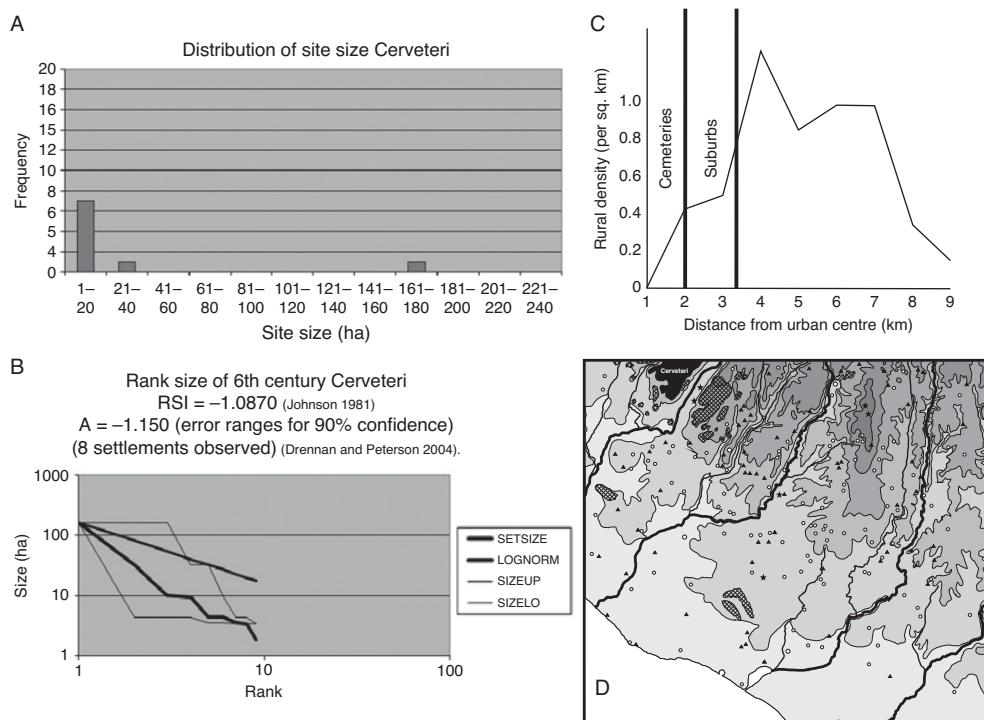


Figure 6.5 Territory of Cerveteri in the 6th century. A. Site size of Cerveteri. B. Rank size of Cerveteri. C. Density of settlement at increased distance from the urban centre (data corrected from Rendeli 1993). D. Distribution of settlement in the 6th century BC (providing the data for C) (data based on Enei 2001: 50, Fig. 38).

square kilometres, according to the XTENT analysis, and this led to a much more compact hierarchical territory whose political organisation tolerated relatively few, smaller political centres (such as Alsium, Ceri (Enei 2001) and Castellina del Marangone (Gran Aymerich 2011)) and a number of smaller centres on the Mignone river. As a direct consequence, Cerveteri had the most primate-orientated rank-size values of any Etruscan city (Fig. 6.5B). This domination of the countryside can also be seen in the distribution of at least 113 farmsteads from the survey (Enei 2001: 49) whose greatest density was between 4 and 7 kilometres from the city limits (Fig. 6.5C). Two other striking features of the density of rural settlement are that there was a halo of low density immediately surrounding the city in the area of the cemeteries and a dramatic drop-off in density beyond this point, suggesting a potential political boundary in the direction of Veii (where most of the survey evidence has been collected). These densities have led to an estimate of some 1,200 inhabitants occupying the immediate 85 square kilometres of countryside (Enei 2001: 50), which, even if highly approximate, shows a very low proportion of the population compared with the urban centre, containing as many as 10,000–20,000, provided we

follow the Swedish estimates of population drawn from Acquarossa, still the most widely excavated Etruscan settlement (see Chapter 4 and below). Some well-drained deep fertile soils appear to have had higher densities of occupation. In some areas, artificial drainage has been clearly identified, showing attempts to develop a more intensive productivity. Only two settlements in the survey area (Ceri and Alsium) were slightly nucleated, and only six other sites exceeded 0.1 hectares in size, and none of these reached a hectare in size. Of these rural settlements, only two yielded red or black figure pottery, suggesting a low access to luxury products outside the major centres. The inner limits were reserved to cemeteries and sanctuaries and the outer limits to a buffer zone between itself and the neighbouring city of Veii. The high levels of rural density seem to have declined by half (to only fifty-five sites) in the late Etruscan period, following the pattern also seen at Veii. In all periods, the principal cemeteries encircled the main urban centre, but smaller cemeteries were associated with rural settlement. In addition, there were some much larger rural cemeteries at three main locations (Colli di Vaccina, Monteroni and delle Fornaci). The first two overlooked the sea and were probably associated with settlements at the mouth of the more major streams (Vaccina and Cupo) in the first case and Alsium in the second. Delle Fornaci was probably associated with the small inland nucleated centre of Ceri. It is suggested that some of these recaptured the memory of earlier prehistoric settlements (Enei 2001: 57).

Tarquinius (Fig. 6.6)

Tarquinius, alongside Veii, is one of the best understood urban centres as a result of the systematic campaigns by the University of Milan over many years (Bonghi Jovino 2010) and an intensive survey of the urban limits (Mandolesi 1999). As a result, we have a relatively detailed picture of the early occupation of the plateau and the main monumental areas in the later phases. Unfortunately, this is not matched by a systematic survey of the hinterland. We are, however, fortunate to have the detailed study of subsidiary centre at Tuscania that gives a good idea of the variation of density around smaller centres (Barker & Rasmussen 1988).

Tarquinius had the geopolitical position to be much more territorially expansive than Cerveteri, but less opportunity than Veii, reaching 1,800 square kilometres by the XTENT estimate, facilitated by unchallenged access to the Marta drainage that led up to Lake Bolsena. This political strategy eventually incorporated the political territory of Bisenzio and perhaps even Acquarossa. The tract of territory contained a number of smaller subsidiary centres (including Tuscania), giving a much less primate profile to the rank-size analysis (Fig. 6.6B). The territory displays the classic pattern of a dendritic structure, with

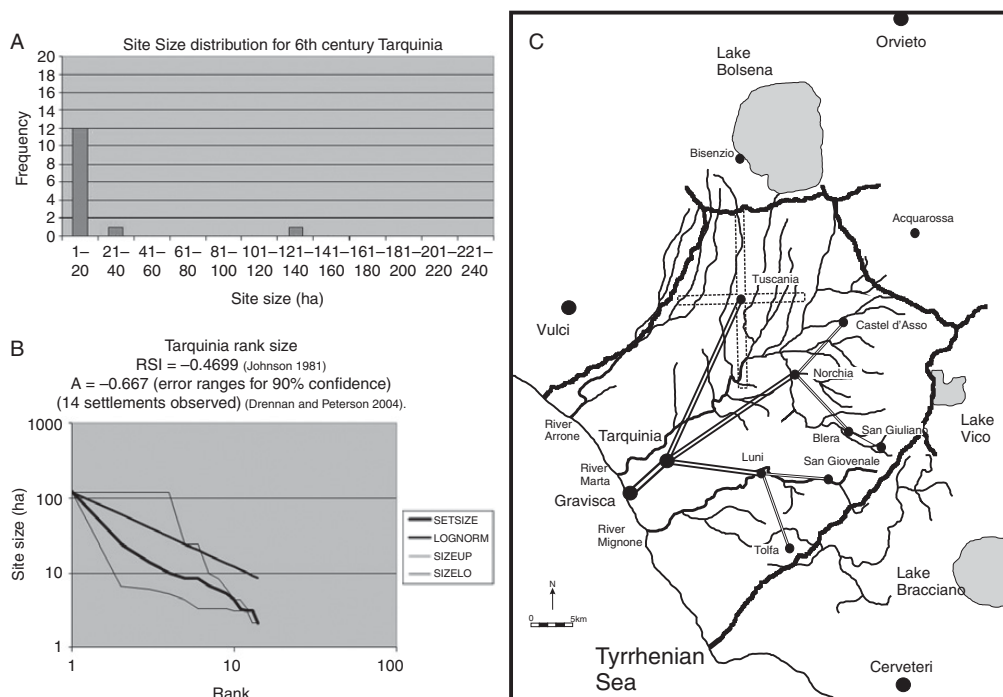


Figure 6.6 Territory of Tarquinia in the 6th century. A. Site size. B. Rank size. C. The territory of Tarquinia, showing the dendritic structure of the settlement system above 1 hectare (data drawn from Barker & Rasmussen 1988: 27, Fig. 1, with corrections overlain by XTENT boundary). Dotted lines show location of survey transects detailed in Figure 1.3B.

a port of trade (Gravisca) on the coast, the primate centre set inland (Tarquinia) and subsidiary centres set at some distance up the Marta drainage (Castel d'Asso, Norchia, San Giuliano, Tuscania, Blera, Musarna, etc.) (Fig. 6.6C).

Tuscania (Fig. 1.3B)

The Tuscania project, started in 1986, has looked at the hinterland of a small (8.4 ha), probably subsidiary, centre within the territory of Tarquinia. The partly published project (Barker & Rasmussen 1988) is particularly interesting, since the research objectives raise questions of the political allegiance of the centre. For this purpose, transects were devised which cross-cut the potential infra-structural territory of the centre. These results could also be combined with a more traditional *Forma Italiae* survey undertaken at an earlier date (Quilici Gigli 1970), giving a measure of how the survey record has changed over time (see Stoddart et al. in press). The overall results show similar patterns to those of Veii and Cerveteri, namely lower density close to the city, higher densities up to 6 kilometres (a lower figure than Cerveteri) and then a substantial decline in density. The surveyors interpret this in economic

terms, but the governing rule may have been more political, that is in terms of the control of the city of its countryside rather than the ergonomics of agricultural intensity. The numbers of sites appear to have proliferated considerably in the Etruscan period, and although difficult to interpret from the current published evidence, the expansion appears also to have continued in the late Etruscan period. This conclusion from the settlement evidence is corroborated by the evidence from the cemeteries, which reach a peak in the later Etruscan period of the fourth to first centuries BC. This differs dramatically from the situation in Veii (which was under political pressure from Rome) and Cerveteri, and suggests a relaxation of political control by the primate centre of Tarquinia in the late Etruscan period, with the rise of local families such as the Curunas and Vipinana (Colonna 1978; Moretti & Sgubini Moretti 1983; Morandi Tarabella 2004).

Bisenzio

Bisenzio is the most prominent site in the northern part of the internal lakes area between Cerveteri, Tarquinia and Vulci on the coast and Orvieto close to the Tiber. It occupied one of the more stable points in a distinctive buffer area that contained other settlements, such as Grotta di Castro (Cifani et al. 2012) to the north and Acquarossa (Wikander & Roos 1986) to the south.

The c. 400 metre a.s.l. hilltop and the surrounding area to the south-west of the Lake Bolsena at about 300 metres a.s.l. was most intensively occupied (Babbi 2016; Delpino 1994) between late tenth century BC and the very early fifth century BC. This interpretation is largely taken from the tomb sequence, although a current Italo-German project is likely to change this pattern by a renewed focus on the settlement distribution. Current evidence suggests that the Final Bronze Age site expanded from the hilltop into the lower slopes of the hill in the course of the Iron Age. The site underwent a political crisis between the sixth and fifth century BC in common with other sites in this buffer area.

Acquarossa

Acquarossa was the most important site in the southern part of the internal lakes area, a twin, in this respect, with Bisenzio. The hilltop of Colle San Francesco (Acquarossa) was first occupied from the eighth century BC (Romagnoli 2014: 119–21), reaching a peak in the sixth century BC before its abandonment as early as 550/525 BC. This plateau was extensively excavated by Swedish teams in the 1960s and still provides some of the best evidence for the distribution and density of an urban settlement. The settlement may have taken on a more polyfocal character than normally considered, and this interpretation is

strengthened by the discovery of eighteen smaller concentrations of broadly contemporary material that extends towards nearby Ferentum and beyond (Romagnoli 2014) (Fig. 4.7). Two of these, reaching 2.5 hectares in size, were more substantial than the others (Romagnoli 2014: 165). All these smaller concentrations seem to have shared the crisis of the larger nucleation of Colle San Francesco in the course of the sixth century BC (Romagnoli 2014: 165). Nearby Ferento was occupied from the final Bronze Age through the Iron Age and the full Etruscan period, continuing even after the decline of Acquarossa although on a much more restricted scale.

Orvieto (Fig. 6.7)

Orvieto was occupied as an important medieval city, so it is difficult to assess its internal layout, although it is clear from current evidence that it was occupied continuously at least from the Final Bronze Age (Babbi & Delpino 2004) and contained a number of important temples from the full Etruscan period.

The territory of Orvieto has been mainly subject to targeted, less systematic, survey methodologies (Cifani 2003), and thus we cannot undertake the analysis possible for Veii and Cerveteri. Some more detailed topographic studies have been undertaken, but they do not form a coherent picture (Wetter 1969).

The geopolitical position of Orvieto gave the city expansive opportunities not dissimilar to Veii, although control of eastern stretches may be exaggerated by an ungenerous estimate of size granted to Todi. Even allowing for a larger size of Todi, this had the consequence of giving Orvieto control over some centres of intermediate size and a less markedly primate rank-size profile (Fig. 6.7B), provided one concentrates analysis on the upper part of the size hierarchy (as measured by RSC). A more comprehensive analysis of the full settlement system (as measured by RSI) suggests a much more primate organisation. An examination of the distribution of site sizes suggests that the beginning of a stepped hierarchical settlement system was emerging at the upper part of the hierarchy, but its implementation was yet to be completed in the lower levels. Once again regional variation can be identified.

Vulci (Fig. 6.8)

Vulci was the most northerly of the large coastal cities of South Etruria. It is famous for the early excavation of many cemeteries and the dispersal of many of their contents into the great classical museums of the world. The very immediate territory of Vulci is also lacking in survey although there has been systematic survey further to the west projecting from the Albegna valley (Stoddart et al. in press); for the purpose of this volume analysis must remain at the more than 1 hectare level. The geopolitical position of Vulci was in one of the more

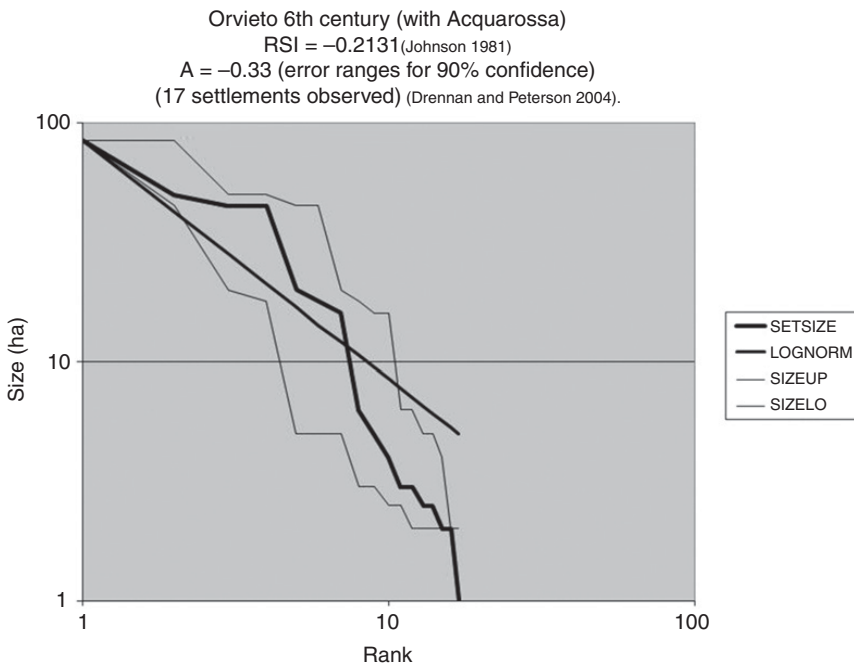
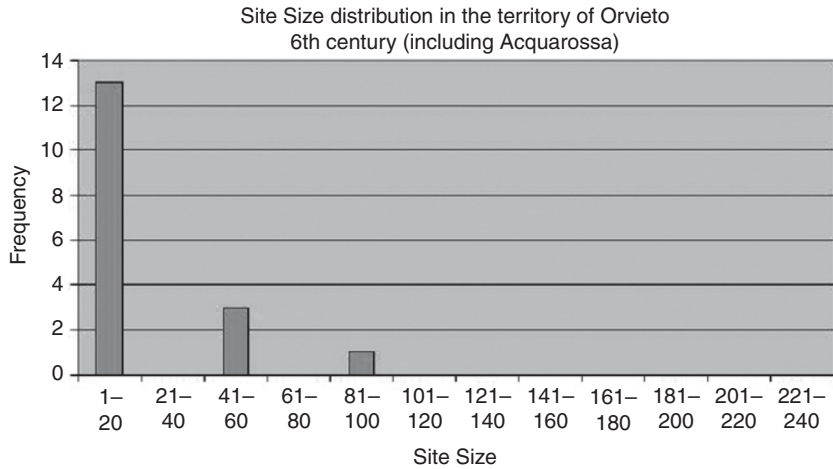


Figure 6.7 Territory of Orvieto in the 6th century. A. Site size. B. Rank size.

expansive categories of city territories, although not as marked as that of Veii or Orvieto. This situation was most probably somewhat dependent on the level of penetration into the Albegna valley, and the political relationship between Vulci and Marsiliana d'Albegna in the early Etruscan period and the much larger Doganella in the later Etruscan period. The result was a strongly primate profile (Fig. 6.8B), although not as marked as Cerveteri.

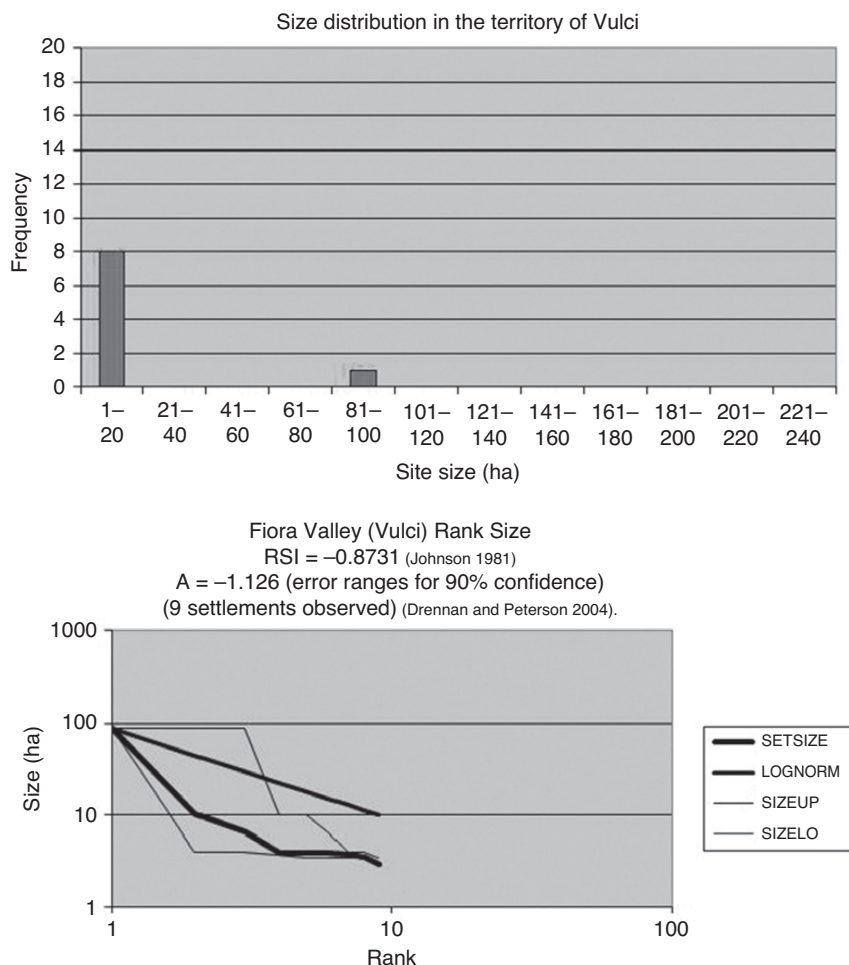


Figure 6.8 Territory of Vulci in the 6th century. A. Site size. B. Rank size.

2 THE ALBEGNA VALLEY

The neighbouring Albegna valley to the west, by contrast, is one of the most surveyed regions in Central Italy (Carandini & Cambi 2002), followed by some of the most sophisticated analysis for any region in the Etruscan period (Perkins 1999a, 1999b), and subject to advanced interrogation at the more detailed level of micro-survey (Perkins & Walker 1990) and excavation (Camilli et al. 2003; Camilli et al. 2008). If this buffer region is taken independently, it has a very highly primate character (Fig. 6.9) (although merging the data with that of the territory of Vulci leads to a much more moderate although still primate-orientated RSI of -0.85). This supports the conclusion that much of the population was concentrated in the urban centres (Perkins 1999a: 168) after the period of population growth in the sixth century. However, because of recent fieldwork at Marsiliana d'Albegna (Camilli et al. 2008), the same urban

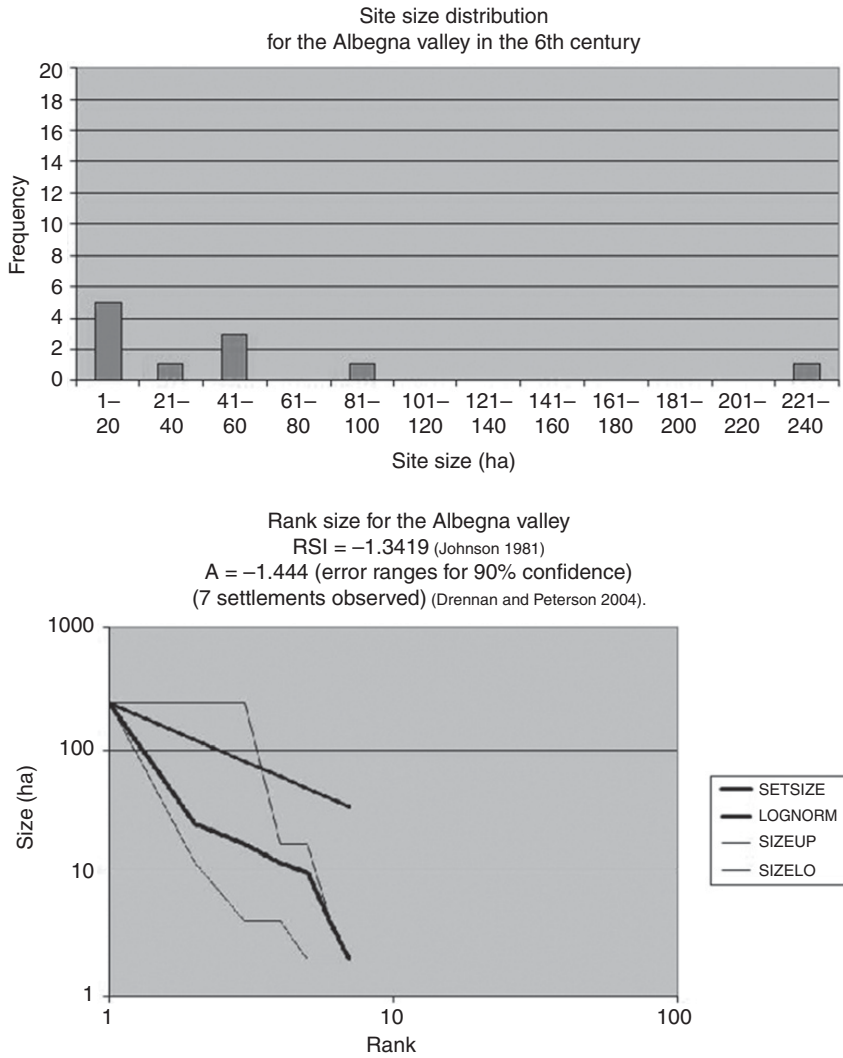


Figure 6.9 Albegna valley in the 6th century. A. Site size. B. Rank size.

(or at least nucleated) concentration may now also apply to the seventh century BC; Marsiliana has been transformed from an early cemetery showing conspicuous consumption into a nucleated centre of some 47 hectares based on the area between Uliveto di Banditella and Poggio di Macchiabuia. This same adjustment makes the considerable increase in population between the seventh and sixth century BC (Perkins 1999a: 168–9) more understandable in terms of natural growth. Population in this area of Etruria appears to have continued to grow, reaching a peak in the fifth century before dropping back in the fourth century and apparently collapsing substantially in the third century BC (perhaps as a consequence of the later Roman action in this region). Many of these patterns have similarities with the region of Veii, where some measure of urban

and rural population can be measured. The major differences are that the geopolitical position of the area made it: (1) a largely vacant buffer zone in the late tenth to eighth century BC; (2) the location of the internal emporium of Doganella once the power of Vulci developed; and (3) more distant from the advance of Rome. The first gave opportunity to centres such as Marsiliana to develop independent political strategies from the major primate centres to the north and south. The second produced a very distinctive difference in terms of the size of the enclosed urban area. The third, the later advance of Rome, led to a later collapse of population levels. The developments in the Albegna valley appear to form a variation on the theme that can be seen throughout the buffer corridor that extends through Monte Amiata up to the Chianti region.

3 THE MAREMMA AND ITS HINTERLAND

To the north of the boundary area of the Albegna valley, we move into North Etruria, where the western area (Roselle, Vetulonia, Populonia, Volterra and Pisa) was divided from the eastern area (Chiusi, Cortona, Arezzo and Perugia) by a political corridor defined by river valleys and upland landscapes. We will survey this area from west to east, focusing on a transect that takes us from the coastal cities of Populonia, Vetulonia and Roselle to Chiusi, attempting to draw together a more disparate array of information from different sources. The density of coverage that is generally available for the analysis of South Etruria is not yet available for North Etruria and Umbria. Carafa (1994), in his analysis of the north-western part of this region, suggested that the lack of rural settlement was a real political feature of the landscape, but Acconcia (2012: 188) points out the major impact of multi-period field survey, although there is some evidence that small farmsteads may be denser on the ground outside the political clutches of the major cities, where some of the most systematic surveys have been conducted. The fact remains that in the case of the four northerly coastal city-states the different approaches of survey make comparison and updating difficult. Apparent densities of settlement are critically dependent on the type of research undertaken. Fortunately, for certain key areas, fairly intensive field survey is now being undertaken, although invariably only the lowland areas are examined. The immediate environs of Populonia (Fedeli 1983; Fedeli et al. 1993), the environs of Scarlino (Cucini 1985), some of the upper river valleys (Cucini 1986, 1990) and, to a lesser extent, the territories of Vetulonia (Curri 1978) and Roselle (Bergonzi 1973) have been studied in relatively recent times. One inland sample area has also been investigated around the medieval site of Montarrenti (Barker & Symonds 1984), forming an artificial concentration of Archaic settlement in that area when presented on the distribution maps (Fig. 1.3A). There is, however, an unfortunate lack of investigation of other areas; sporadic funerary finds suggest that a proper investigation of the Cecina, Cornia

and Ombrone valleys would greatly change the present impression of these areas, although incompletely published work in Val di Cecina (Terrenato & Saggin 1994: 471; Carafa 1994) has identified relatively little, perhaps because the main preoccupation was with the full Roman period, even if the lack of diagnostic pottery has also been given as a reason (Terrenato 1998: 95). The University of Siena is currently surveying many of these areas, and preliminary results are now available (Cucini 1986, 1990; Campana 2015) even if the main thrust of their work is on the Roman to Medieval period (Vaccaro et al. 2009). The impact of their work is much more visible in the more internal areas of Etruria closer to Siena as part of the *Carta Archaeologica della Provincia di Siena* project, where sites of all dates have been systematically reported (Valenti 1995; Cambi 1996; Valenti 1999; Campana 2001; Nardini 2001; Paolucci & Francovich 2007; Felici 2012; Campana & Felici 2012; Campana 2013).

One general problem is that certain periods, particularly the Final Bronze Age, do not have the diagnostic pottery that is available in most other parts of Central Italy. Consequently, dating, even of excavated sites such as Scarlino (Bartoloni 1988; Bartoloni & Rossetti 1984), is extremely difficult. Some upland sites are also difficult to date. Many sites can only be considered protohistoric, which effectively means the date can lie anywhere between the Later Bronze Age and at least the Early Iron Age; and in some cases, if there is particularly little material (and only drystone structures in the case of *castellieri*), into the Archaic period. There are, nevertheless, some common elements for the area: good necropolis sequences for two of the principal centres (Populonia and Vetulonia), the beginnings of multi-period survey for restricted areas and a degree of well-conducted settlement excavation in all three major centres (particularly Roselle (Bocci Pacini 1985; Bocci Pacini et al. 1975)) and in some of the subsidiary centres (e.g. Lago dell'Accesa (Camporeale 1997) and Scarlino (Francovich 1985)).

Unlike some of the other major centres of Central Italy, Populonia does not have the same long tradition of detailed research even though recognition of the existence of the centre was never lost. Some mention was made of Populonia as early as 1498, and the first description of the ruins of Populonia was made in 1550, but these accounts are not of great scientific value. Other early attention was restricted to the discovery of coins, which were first published in reasonable detail in 1775 (Eckhel 1775). The first discussion of the centre was, therefore, based on inadequate data taken at face value. The earliest balanced topographical discussion of Populonia was by Dennis (1848).

The study of Populonia took on a new life at the end of the nineteenth century. Populonia received initial attention from Falchi (1903) during his research of the nearby centre of Vetulonia. In 1897, he discovered the first substantial evidence for cemeteries at Populonia, although later research has made a correction to his dating of the *letti funebri* to the Orientalising period.

The first official research was that of Pasqui published by Milani (1905, 1908). An important achievement of these excavations was the discovery of Villanovan tombs, thus identifying formative processes similar to other centres of more southern Etruria. A renewal of activity, indeed one of the most important phases of activity at Populonia, was directed by Minto. Minto was also responsible for the first major works of synthesis (Minto 1922, 1943). Thus the most fundamental phase of research was concentrated in the period 1900–40 and focused on the extensive necropolises, often overlapping with the uncovering of necropolises during the reworking of old Etruscan slag heaps. The work was not from the antiquarian period, as in some other centres, but nevertheless has lacked some of the accuracy of later work. A further problem is that many of the finer aspects of the data were lost as a result of the 1966 Florence flood.

Since then, work has been complementary. From 1957, underwater archaeology has made an important contribution, particularly in the presumed port area of the city. Aerial photography has been used to establish the extent of the walls of the city (De Agostino 1962). However, the most fundamental work has been the field survey investigations of the local archaeological group (Giroladini 2015: 535) and of the University of Siena, principally since 1970. This has made the territory relatively well studied (Cucini 1985; Di Paola 2018; Fedeli 1983) compared with many other centres. Previously undetected Late Bronze Age settlement has been found as a result of this research. Until the 1980s, excavation declined as an activity, although some work tackled non-funerary areas, in particular some research on the metallurgical processes that formed the basis of the city's economy (Cristofani & Cristofani Martelli 1979; Voss 1988) and, to a limited extent, following up survey work. An extremely important contribution has been the updating of Minto's work by Fedeli (1983), now enhanced by Giroladini (2012a, 2015) and Di Paola (2018), who has combined his precise knowledge of the terrain, gained through leadership of the local archaeological group, with a formal training in archaeology under Cristofani, one of the leading Etruscologists. Since the millennium, there has been much more activity through a collaboration of a key group of Italian universities, including Siena, Rome and Pisa, in collaboration with the Superintendency, focused on the urban centre and making important inroads into an understanding of the nucleated area and a substantial contribution to the study of the surrounding countryside (Cambi & Manacorda 2002; Mascione & Patera 2003; Camilli & Gualandi 2005; Aproso & Mascione 2006; Botarelli et al. 2007; Acconcia & Rizzitelli 2008; Ghizzani Marcia & Megale 2009; Baratti & Fabiani 2010; Facchin & Milletti 2011; Di Cola & Pitzalis 2015).

The city of Vetulonia received only vague references before the nineteenth century; the very status of the centre was in dispute and the nature of its development has only gradually become apparent. The compendium of

Repetti (1835) made the earliest important topographical reference to the centre. The first major period of research was, though, at the end of the century under the guidance of Isidoro Falchi. He was the inspiration behind the work on the necropolises of the immediate area of the city and on a number of late Etruscan buildings within the city itself and published the first serious accounts (Falchi 1891). It was, though, only Levi (1931) who published a systematic topographical account of the necropolises that had in most cases been discovered much earlier, drawing on the notes of Falchi and others, and the memory of Falchi's last-surviving workman. This systematic account clarified the sequence of mortuary monuments for the period before the sixth century BC. Renzetti (1953) has more recently carried out a similar service for the inhabited areas of the city. There remains a relative lack of knowledge for the period between the sixth and the fourth century; this lack of information can only partly be attributed to the decline of the centre, given the lack of appropriate research. Recent research has added details in a more systematic manner without overcoming the lack of balance in the evidence (Talocchini 1981), which remains substantially funerary (Cygielman 2002; Rafanelli 2013).

Gaining an understanding of the territory has taken longer than for the city itself. The work of Levi (1933) in the area of Lago dell'Accesa in the 1930s has only been added to more recently by the work of Curri in the 1970s (Curri 1978) and Cucini (1985). In addition, the site of Lago dell'Accesa has been excavated in recent years (Camporeale 1985). Elsewhere work appears to be largely concentrated on the study of funerary evidence (Cappuccini 2008a), with only small attempts to look at settlement (Dallai 1999).

The result is a reasonable appreciation of the development of the city of Vetulonia through a funerary sequence from both the city itself and, to a lesser extent, in its territory. Development has to be understood at one remove through a mortuary sequence, which may not be a fair reflection of the development of the centre. In the territory, only the work of Cucini can be reliably trusted to have recovered a fair balance of settlement and funerary evidence. As a result, interpretation has to be based on the short-term acceptance of negative evidence.

Roselle as a centre is better understood, but its immediate territory had had only one systematic investigation (Bergonzi 1973) until the very much more recent work of Campana (2015). Until the post-war period, work on the city had been limited (Bianchi Bandinelli 1970); the insubstantial necropolises had attracted little interest and the site itself was protected by *macchia* and malaria. Pasqui and Milani chose to investigate the site of Moscona to the south of Roselle, rather than the city itself. However, from 1957, there has been an almost continuous, if traditional, excavation in the city itself, first by Germans and then by Italians (Bocci Pacini 1985; Bocci Pacini et al. 1975). This work has benefited from the fact that although the site was also occupied in

the Roman period, there is no modern occupation. An important stratigraphy has been uncovered from the Orientalising period onwards, potentially revealing much of the early organisation of the Etruscan city. Work by Bergonzi (1973) has given some impression of the preceding Late Bronze Age and Iron Age settlement organisation, and this will now be transformed by the sophisticated, systematic work of Campana (2015). A major Roman rural project has been undertaken in the middle reaches of the Ombrone River; even allowing for the focus of the project on later periods, the lack of an Etruscan (or earlier presence) is striking (Ghisleni 2010; Ghisleni et al. 2011; Vaccaro et al. 2013).

The site of Murlo was first recognised by Bianchi Bandinelli (1926), although a longer tradition certainly exists that antiquities existed on the hill of Poggio Civitate (Rowland 1994). Sporadic finds were made from the area of the hill up to the time of the recent excavations, particularly in the cultivated areas near a modern farmhouse. It is, however, the recent American excavations that have established its significance. Unfortunately, there are a number of outstanding problems which could have been solved more quickly by a differently organised research project. The excavation originally concentrated almost exclusively on the area of the rich architectural complexes (Nielsen & Phillips 1976, 1985; Nielsen 1991; De Puma & Small 1994), which have subsequently provided the data for numerous detailed studies of material culture as well as broader, controversial, interpretations. Very little was known until quite recently about the occupation of the remaining part of the hill, much of it under woodland, although visual inspection by the current author suggested that wider settlement was likely to exist and that understanding of the site would be much improved by placing it within a regional survey (Stoddart 1995: 413). Originally, in 1966, three days were taken by the American team walking over the hill in order to decide where to place the trenches (Nielsen & Phillips 1976). Two areas were eventually decided upon: the first near the one modern farmhouse on the hill produced tile and pottery; the second on the site of the monumental complex was, however, deemed to be more interesting and remained the sole focus of interest. In 2012, a more systematic approach to the hilltop was adopted with immediate results that have uncovered the supporting population (Shipley 2017). The survey of the hinterland of Murlo by medieval archaeologists with a multi-period approach has been equally significant, since the surrounding countryside can now be shown to have its own density (Campana 2001; Acconcia 2012: 184), placing Murlo in a radically different perspective, as suggested might be the case (Stoddart 1995).

Volterra, Pisa and the Val d'Arno, Including Fiesole

The main analysis below refers to the transect (Figure 1.1) from the Maremma through to Chiusi, but it is worth outlining the main situation to the north and

the connection into the Mugello also to the north and the Val di Chiana to the south through Arezzo and Cortona. Here we take both the *Quellenkritik* and the synthesis together before returning to the detailed analysis of the transect.

The city of Volterra continues to be occupied, so it has been difficult to disentangle the various phases, but by degrees a reasonable understanding of the layout of the city has been achieved (Galluccio 1999; Maggiani 2007) albeit still very much focused on funerary remains (Fig. 6.10). The heights of the city have produced evidence of both the Middle and Final Bronze Age (Catani 2007a) on a number of closely related hilltops (Maggiani 2007), suggesting a polyfocal cluster. However, in the Villanovan, a more secure nucleated centre does appear to have developed, although secure evidence is more difficult to trace in the Archaic period because of a traditional dependence on funerary evidence. Urban excavation of settlement is now beginning to show the continued importance of the city (Catani 2007b) and a major phase of city wall construction in the Archaic period.

Attention to its surrounding territory has been largely Roman in perspective after early collections of material. In spite of this difficulty, some general patterns can be elucidated (Acconcia 2012; 152, 160–1; 172–4; 213;

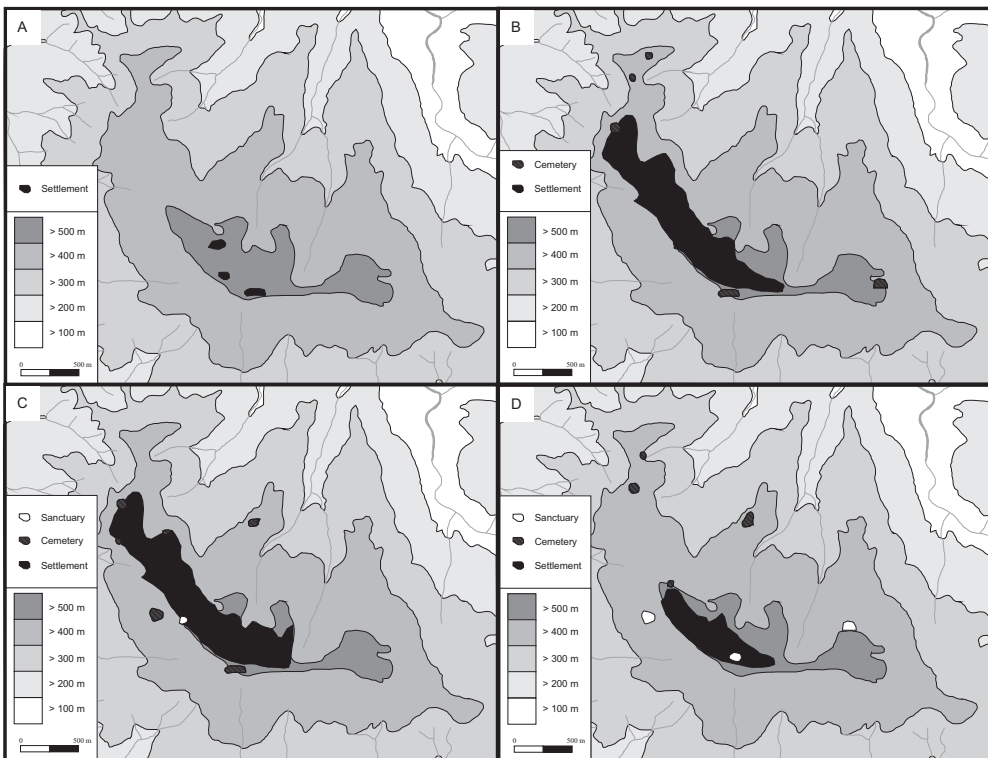


Figure 6.10 Volterra. A. Bronze Age. B. Iron Age. C. Orientalising. D. Archaic (based on Maggiani 2010).

Cianferoni 2002; Esposito 2007a; Maggiani 2007). For much of the period of development, Volterra does appear to be an isolated nucleated centre within its surrounding territory, at least within a distance of 10 kilometres. Over the course of time, smaller nucleated centres do appear to have developed at respectful distance from the main centre of power. Three such centres where settlement (as opposed to conspicuous tumuli and accompanying sculpture) has been detected are Casaglia, Casalgiusti, Casalvecchio (Casale Marittimo) (Esposito 2007a) to the west, at the confluence of the Cecina with smaller tributaries. It may be significant (of an unstable boundary area) that the political centre of Casalvecchio was destroyed in a fire and abandoned in the early sixth century BC (Esposito 2007b). Another more recent discovery to the north is the nucleated centre of Ortaglia, where the main research has so far been executed on the ritual focus of the site (Bruni 2007), but its geopolitical placement is also suggestive of some independence from Volterra. There is some indication that a number, but not all of these centres may have been under pressure after the Orientalising period, or changed their political relationship to Volterra, which began issuing coinage at the end of the fourth century BC. The presence of steles conspicuously declaring the prominence of individuals at Volterra, Pomerance, Laiatico and Montaione may indicate the instability of changing authority in the late Archaic period. A different, more dispersed, settlement system seems to have developed in the course of the fourth century BC (Cateni 2007a). Another interesting observation is the distribution of ritual foci. These appear only to have taken on any significance in the Orientalising period (Bonamici 2007), increasing in number in the Archaic period.

An understanding of the relative importance of Pisa to the north has been one of the revelations of recent research. The alluvial complexity of the area and the presence of a Roman, Medieval and modern city have hindered the easy recognition of subsurface structures. Most recently, a sophisticated approach has been applied to estimate the density and location of the nucleated centre in the Etruscan period (Bini et al. 2013: 18–19; Dubbini 2013: 109; Fabiani et al. 2013: 51–9). The result of the analysis estimates a small nucleation principally to the north of the main river (Fig. 6.11).

The Arno valley was an important location of smaller nucleated centres, such as Comeana, Artimino and Quinto Fiorentino, that have been known for a long time, but the regional context remains relatively under-researched (Bruni 2002: 271). The Artimino polyfocal complex, located at the confluence of the Arno and Ombrone tributary, appears to have been first occupied in the middle of the eighth century BC. It seems to be one of those characteristically independent small-scale political entities associated with conspicuous funerary consumption, found nearby at Prato Rosello and especially slightly later in the first half and middle of the seventh century BC at Comeana and Boschetti.

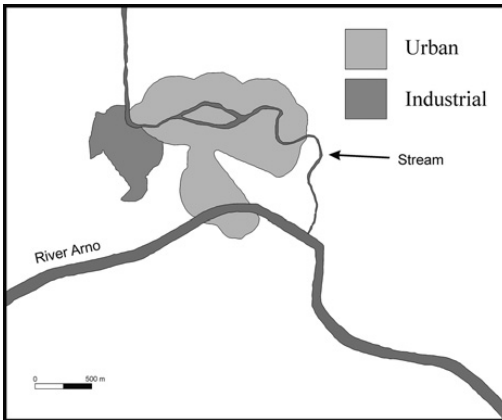


Figure 6.11 Etruscan Pisa (based on Bini et al. 2013).

A similar political development appears also to have taken place in the Quinto Fiorentino area at a very similar date, although the evidence is mainly funerary. The great novelty is the discovery of Gonfienti near Prato (Poggesi 2005; Poggesi et al. 2005), a substantial (of at least 17 ha in size) short-lived (sixth–fifth-century BC) planned settlement. This site seems to have a geopolitical similarity to Doganella to the south of North Etruria, since both are located in large river valleys and serve a temporary nodal function among the longer established centres.

The development of Fiesole further east has been very difficult to establish because of its continuing urban occupation (Bruni 2002: 294). These difficulties have been overcome, and by inference from urban excavation opportunities, it does seem the area was first occupied in the Final Bronze Age, although continuity of occupation cannot be proved. Colle San Francesco and its northern slopes were occupied in the ninth century BC and the twin hill of Sant'Apollinare by the eighth century BC, and most probably the saddle in between, with likely continuity into the subsequent centuries, and evidence of ritual activity. The distinctive *pietre fiesolane* of the late sixth century, now forty-one in number, have been deployed to define the territory of the city outlining an area from Pistoia and Artimino in the west to the Mugello in the north-east (Capeccchi 1997).

Settlement Development in the Transect from Populonia to Murlo (Fig. 6.12)

The biases in research made clear above must be recognised in the interpretation of the distribution of settlement as it is known today. First, the regional patterns will be investigated; these can be tentatively divided into four phases of settlement: the Later Bronze Age (1200–1000 BC with a possible merging, for

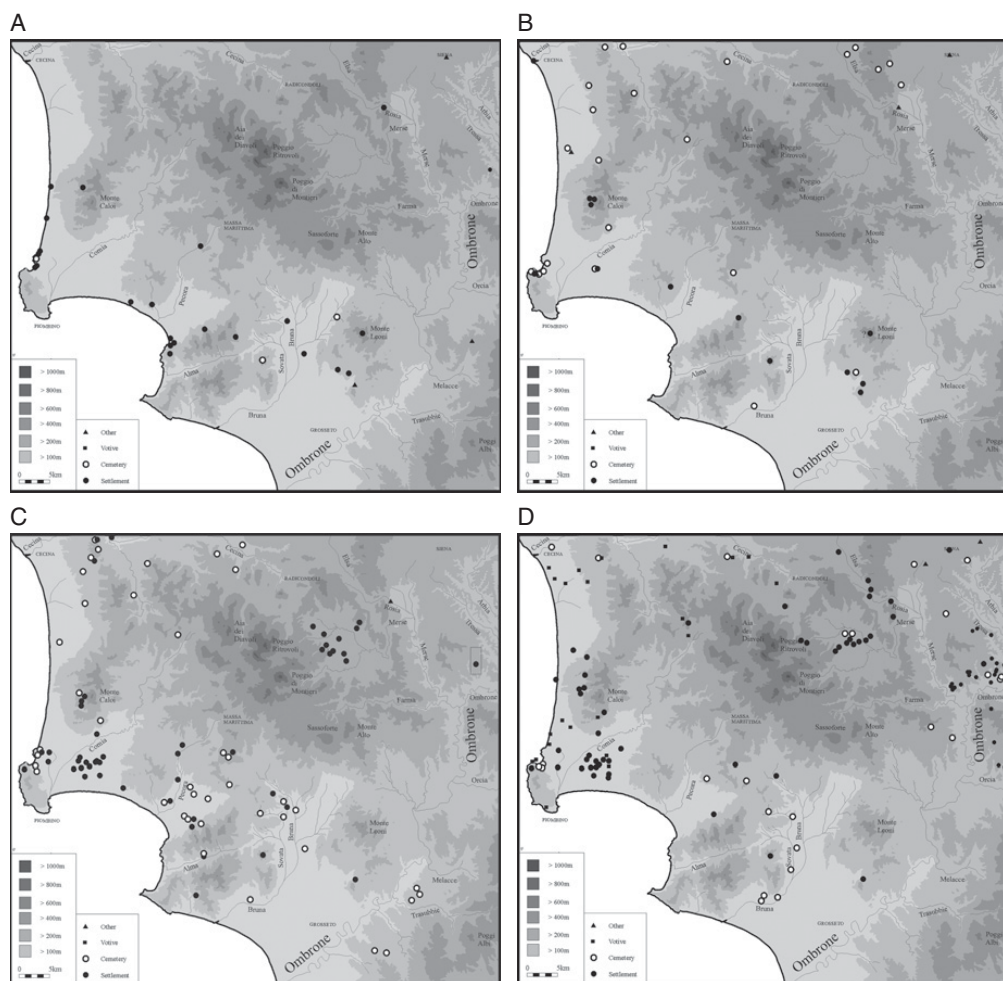


Figure 6.12 The chronological development of the Populonia/Vetulonia/Roselle area and their hinterlands. A. Bronze Age. B. Iron Age. C. Orientalising Box shows inset of Figure 6.15B. D. Archaic.

the typological reasons mentioned above, with the Middle Bronze Age back to 1500 BC), the first Iron Age (*c.* 1000–750 BC), the Orientalising (*c.* 750–600 BC), the Archaic (*c.* 600–500 BC). Secondly, the more precisely calibrated development of the primary centres can be inserted into these stages.

A The Final Bronze Age In the region as a whole, there was a clear coastal distribution during this phase. Only a few sporadic finds have been made from the internal more upland areas. The sites are concentrated on the coast itself, or on the margins of what would previously have been marshy lowland. The result was principally a linear distribution along the marine and lacustrine margins. Marine and lacustrine/lagoonal zones were also occupied further down the coast in the

Bronze Age where survey has taken place on more lowland areas near Monte Argentario (Bronson & Uggeri 1970) and Civitavecchia. This linear distribution is, however, interrupted by clear clusters in two or (probably) three locations. Only three sites break this general pattern, a cave site, and two more upland sites that are only tentatively dated to the Latest Bronze Age.

On the Piombino promontory (within the territory of later Populonia), the focus of the cluster of sites was not the same as the later Villanovan and Archaic site. The central point of this cluster, the well-dated site of Poggio del Molino, was placed on a small hill. Excavations (Fedeli 1983: 187) have revealed domestic levels including hearths, bones, distinctive Final Bronze Age pottery, and some bronze fragments. A cemetery appears to have been closely associated with this settlement. Four other settlements, of less precise date, are placed down close to sea level under modern sand dunes. One radiocarbon date suggests that part of the occupation may belong to an earlier phase of the Bronze Age. Two of these sites (La Torraccia and Fosso di Valgranita) are placed close to the focal settlement and after excavation have been interpreted as salt production sites (Baratti 2010, 2011). The other two (Riva degli Etruschi and Torre Mozza) are placed several kilometres up the coast. The second of these, Torre Mozza, was separated by several more kilometres from another cluster of four coastal sites (Portiglione, Puntone Nuovo, Puntone Nuovo – Fosso del Fico and Merleta). These are all of a type less easy to date but appear to be generally of the Later Bronze Age. The excavated site of Scarlino (Bartoloni & Rossetti 1984) may have formed an upland refuge for these coastal sites, following the pattern of the Piombino peninsula with occupation of both coastal and elevated foothill positions (Arungeren 2008). On the fringes of the former lake in the plain of Grosseto, both the later centres of Vetulonia and Roselle show signs of occupation in the Late Bronze Age. In the case of Vetulonia, only burial evidence has been found, but this is a measure of the state of settlement research. In the case of Roselle, the evidence is much more substantial; typologically clearly recognisable sites (settlement and cemetery) of the Final Bronze Age have been recognised from the local area (Bergonzi 1973; Zanini 1995; Bartolini & Bocci Pacini 2002). The majority of these sites may have been occupied early in the Late Bronze Age with an early tendency towards nucleation in the immediately pre-Iron Age period (Bartoloni 1988).

B The Iron Age Two important changes took place with the transition to the Iron Age. Firstly, on the coast, for the first time, the centres of Populonia, Vetulonia and Roselle became the principal foci of population within the small poorly developed territories that would have surrounded them at this undeveloped stage of political development. Secondly, in the hinterland, on the coast towards the Cecina valley and into the interior, there was a relatively dense occupation for the first time, even if measured almost exclusively in burials,

supplemented by recent site survey. This occupation of the hinterland, nevertheless, left large tracts unoccupied, particularly of the uplands, although this impression may be reduced by further investigation of the Cornia and other valleys.

In the case of Populonia, the settlement focus moved to higher ground occupied by the acropolis of the Etruscan city where clear evidence of Villanovan domestic occupation has been discovered (Fedeli 1983: 338; Biancofiori 2010; Miletto et al. 2010), contemporary to the encircling necropolises (Poggio del Molino – Telegrafo, Poggio della Porcareccia, Podere S. Cerbone – Podere Casone, Piano/Poggio delle Granate) (Fig. 6.13B). These necropolises were no longer clustered where the Late Bronze Age settlement was located on the other side of the Bay of Baratti, but the shift of the focus of population was not very marked. The more drastic change was the lack of population between the centres of Populonia and Vetulonia. Two of the three exceptions are necropolises (Monte Pitti and Lago dell'Accesa) of which the precisely contemporary settlement has not yet been found. The date of Lago dell'Accesa has also proved difficult to establish; it perhaps belonged to the later part of the period, that is 800–700 BC. The third, La Pievaccia, was a settlement that is even more difficult to date, but which, from the limited ceramic remains, has been considered Early Iron Age. Vetulonia (Fig. 6.14) with its presumably tight settlement nucleation and encircling necropolises (not marked except for one possible outlying example at Poggetti di Badia) makes a complete contrast with the intervening buffer zone (Fig. 6.12B). A further buffer zone lay between Vetulonia and Roselle. This last centre probably developed somewhat later than Vetulonia and Populonia, and appears to have been less sharply nucleated and even unoccupied during much of the Early Iron Age with definite occupation in the second half of the eighth century BC with accompanying burials (Bartoloni & Bocci Pacini 2002: 188–90). Apart from the site of Roselle itself, there were the defended positions of Moscona to the south, the settlement of Colle delle Macinaie to the west and the upland position of Monte Leoni (which is less accurately dated) to the north. In this coastal area, population has clearly been drawn into the two principal centres, leaving well-defined political vacuums in between. Roselle and the neighbouring settlements formed a zone of resistance to this political pressure; the associated settlements appeared to have occupied a chain of defensive positions behind what would have been a flooded lagoon area.

The interpretation of the hinterland in this period rests exclusively on the interpretation of funerary evidence. It does, however, seem reasonable to suppose that the dispersed necropolises of Donoratico, Castagneto, Bolgheri, Bibbona, La Sassa and Lustignano were attached to an equally dispersed settlement system. These settlements are usually interpreted in terms of exploitation of metallurgical resources and communication routes along river valleys.

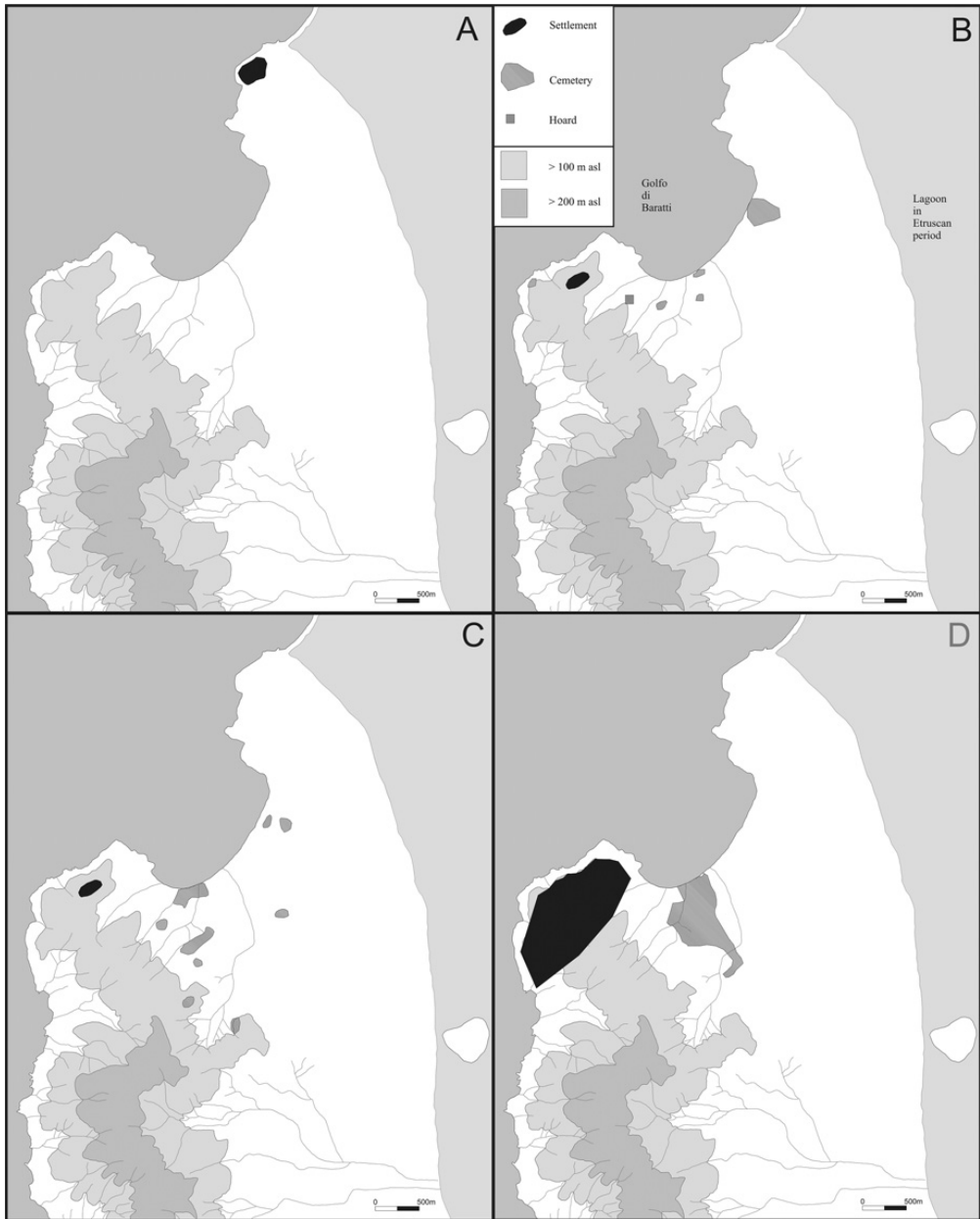


Figure 6.13 Populonia. A. Bronze Age. B. Iron Age. C. Orientalising. D. Archaic (based on Fedeli 1983).

However, they must also be seen in terms of their spatial relationship to the developing Villanovan centres on the coast. These settlements most probably lay beyond the territories of the coastal Villanovan centres in unallocated political space that was also out of the political reach of the centre of Volterra in the interior. In addition to the formative political landscape, the constraints

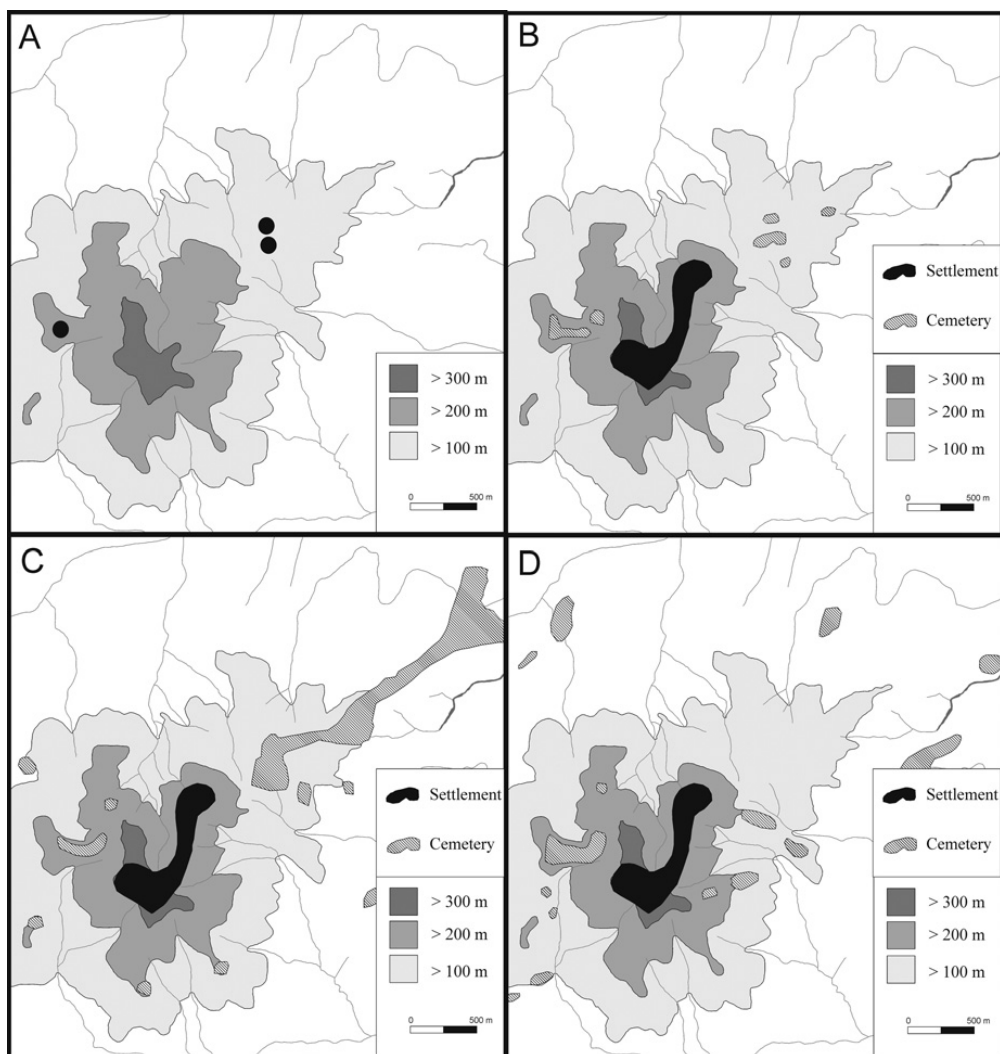


Figure 6.14 Vetulonia A. Bronze Age. B. Iron Age. C. Orientalising. D. Archaic.

of the physical landscape must also be considered. Some of the political boundaries probably formed along physical boundaries such as the Val di Cecina; settlement along these and adjacent river valleys appears to have intensified over this period; at the beginning there are the necropolises of Pomarance, L'Incrociati and Cetinaie; at the end, perhaps extending into the Orientalising period, there are also Montescudaio, Il Gabbro, Podere Casette and Fondo Capitane. The lack of accompanying settlement in the heavily surveyed area around Montarrenti is a problem, until one notes that the survey strategy has concentrated almost exclusively on the lowland arable areas, given the heavy vegetation cover on the upper slopes. It is possible, for instance, that

the *castellieri* of Monte Acuto and Poggio di Siena Vecchia were occupied at this early date.

C The Orientalising Period Striking changes occurred in the Orientalising period. On the coast, a temporary phase of dispersed settlement occurred in the immediate territory of the two principal primate centres of Populonia and Vetulonia. Beyond this immediate territory, there appears to have been an intermediate, empty, buffer zone: although caution has to be employed in this interpretation given the relative lack of research of the hinterland and the greater difficulty in detecting typologically rare Orientalising elements in surface deposits, the pattern is confirmed by more recent research in the Upper Cornia valley (Cucini 1990). However, it appears probable that the small centres on the margin marked by the cemeteries of Donoratico and Castagneto may have disappeared before or during this period. In the hinterland, with one exception at the end of the period, there was relative continuity in settlement development, although a finer chronology would probably detect changes. Further inland, the one exception was the foundation of Murlo and, probably, associated settlements at the head of the Ombrone sheltered by unoccupied political territory.

Recent excavations show continuity in the heart of urban Populonia (Biancofiore 2010; Miletti et al. 2010). The cemeteries at Populonia changed both in their spatial distribution and form in this period (Fedeli 1983). The tombs showed an increasing expression of monumentality, in common with many other areas of Etruria. The burials were concentrated in the Gulf area, initially in the same cemeteries as before. However, from the second quarter of the seventh century, there was a clear expansion into new cemetery areas, suggesting the extension of the number of individuals with access to the elaborate ritual of death. The prominence of very elaborate tombs also seemed to decline at the same period. The cemeteries seem to have had two foci, one around the principal settlement, the other around a subsidiary settlement of much smaller dimensions near Fattoria Alba. At the same time, the four Orientalising settlements found outside the immediate area of the city at Podere Sant'Antonio, Casa Franciana and Cafaggio, and known in the time of Fedeli's work, have now been greatly increased in the non-lagoonal part of the plain (Giroladini 2012b) inland from Piombino (Giroladini 2015) during the Middle Orientalising period.

After the recent survey activity on both flanks of the Punta Ala promontory, a similar settlement dispersal can be detected in the environs of Vetulonia. In this case, both settlements and cemeteries have been found in association with one another. Each of the lowland inlets was occupied by a dense covering of settlement. The Follonica plain, the largest inlet, was the most intensely occupied; settlements have been found at Pecora Vecchia, Podere Poggetti

Vecchi, Scarlino and Casa Campo di Chiara; and the last three have burials, often of some richness, close by. A similar concentration of burials has been found at the head of the basin north of modern Grosseto, but the associated settlement is missing, probably as a result of the less-intensive survey technique employed here. A single settlement dominated each of two minor inlets of the Punta Ala promontory. Casa Val Molina stood at the head of the Pian d'Alma and Val Berretta at the head of the smaller valley of the same name. The latter settlement has a rich and extensive tumulus cemetery that parallels very closely the contemporary necropolises of Vetulonia itself. The Vetulonia necropolises, principally of a distinctive *Circolo* form, reached their most impressive during this period. Roselle itself appears somewhat isolated at this stage, but little inference should be drawn from this given the lack of research on the environs by scholars interested in this period. However, rich domestic Orientalising levels (Bocci Pacini 1985, 1998; Bartolini & Bocci Pacini 2002: 196) have been reached in the excavation of the city; results from these excavations may soon provide the complementary information to that of Populonia and Vetulonia.

The immediate hinterland during this period showed relative continuity, emphasised, as suggested above, by the lack of a fine chronology. The foundation of Murlo was, however, highly significant. The discovery of the necropolis at Castelnuovo Tancredi to the south-east, as well as other less certain finds, anticipated what has now been shown with systematic survey, namely that Murlo was not an isolated phenomenon. Political authority of the coastal polities was restricted very much to the coastal strip at this time and did not penetrate far inland. This left a considerable internal area without external political dominance; the significance of this will be explored further in Chapters 7 and 8. During the period, there was a great availability of rich exotic goods, which were adopted by local leaders of varying levels of political independence. There appears to have been a certain degree of decentralisation of control even within the political territories of Populonia and Vetulonia.

The new evidence from Murlo and its hinterland confirms the interpretation that independent authority was established for a short period in this buffer zone. Furthermore, this buffer zone continued north towards Castelnuovo di Berardenga (Maggiani 1985; Stoddart 1987) at Piano Tondo (for the settlement) and Poggione (for the tombs). The importance of the exceptional stratigraphy of Murlo in the Orientalising and Archaic periods, with sealed destruction layers dated by Greek imports, has been known for some time. Two main phases have been uncovered. The first phase was a relatively modest (but poorly preserved) structure dating to about 650 BC. This structure can now be confirmed to be part of a small Orientalising settlement, nevertheless vested with some considerable political authority given the rich but portable finds (Chapter 8) that have been found. Cremation tombs on the far end of the hill may be connected with this phase. The settlement was destroyed by fire in

the period 610–600 BC. The modest building was replaced and in part destroyed by a much more substantial planned structure (that belongs more strictly to the Archaic period) based on a central courtyard surrounded by numerous rooms (Fig. 6.15A). The whole complex was surrounded by a bank and ditch. This complex also had a complex architectonic iconography which is considered later (Chapter 7). This ritual focus is now known to be part of a small nucleated settlement that covered a substantial part of the hill, concealed by the lack of investigation and the low-key status of the other buildings, but now convincingly revealed (Shipley 2017).

Until the very beginning of this millennium, there had been no survey of the surrounding area. Bianchi Bandinelli (1926) mentioned broadly contemporary finds from Vescovado, Castelnuovo Tancredi, San Pietro a Paterno and Bucciano. Nielsen and Phillips (1985: 64) also recall that finds of a similar period (although less intensively investigated) have been found in the band of territory to the immediate north and south: Castelnuovo Tancredi, Pari, Camigliano, Montalcino, Asciano, Castelnuovo Berardenga, Rosia, Siena and further afield Monteriggioni and Arcidosso. Only Castelnuovo Berardenga and Murlo have been investigated, and only Murlo has been preserved under the *macchia* of an uncultivated hilltop. The Montarrenti survey enters into this band of territory, but, as already mentioned, the sampling strategy has so far largely avoided the hilltops where a contemporary

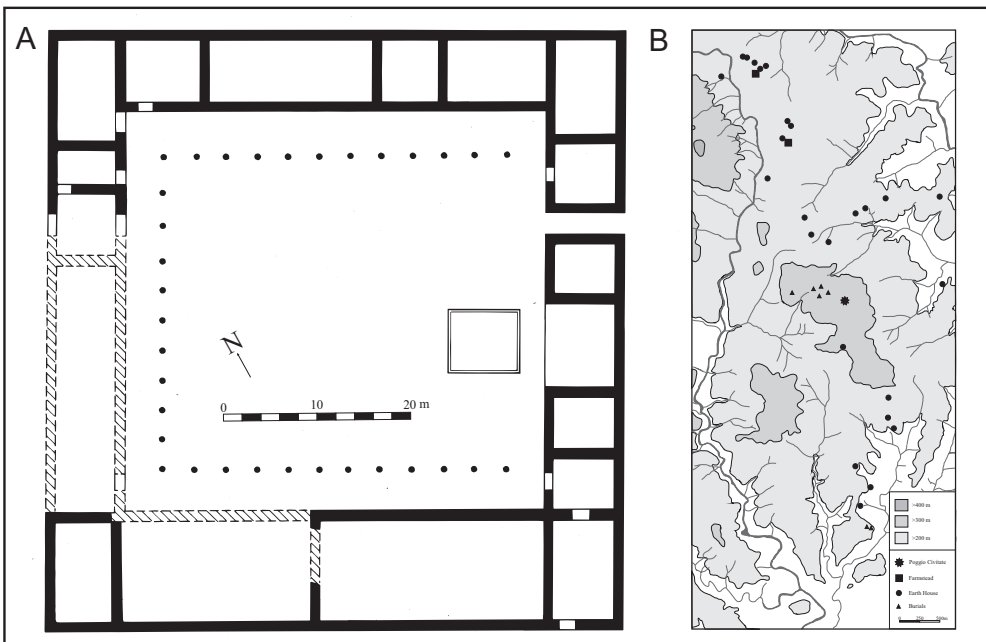


Figure 6.15 Poggio Civitate. A. Archaic structure. B. The Poggio Civitate hinterland (based on Campana 2001). Archaic period. Asterisk – Poggio Civitate; Square – Farmstead; Circle – earth house; triangle – briar

centre might be expected to be found. The fieldwork of Campana (2001) has now demonstrated that Murlo lay at the centre of a cluster of rural settlements that bridged the Orientalising and Archaic periods (Fig. 6.15B).

The two phases of Poggio Civitate are, therefore, from a period for which little domestic architecture is known. Consequently, the discovery of such a complex in a peripheral area of North Etruria has given rise to intense speculation about its function. A series of important questions arise that will be treated in turn in the following chapters. The first is its political allegiance. The site is completely without literary sources, since it did not survive into the Classical period when such records were collected. Cristofani invariably includes this site in the territory of Chiusi (Cristofani 1977), presumably since it can possibly be included in a later territory of Chiusi. Colonna (1973) suggested that this centre was the location of a league, formed by the cities of Volterra, Arezzo, Chiusi, Roselle and Vetulonia. Nielsen and Phillips (1985), after various interpretations, have now been influenced by Cristofani (1975b) into considering the site an independent political league centre. The question of political allegiance will be reserved until Chapter 7, where the spatial dynamics of expanding city-states can be taken into account. The spatial position must be considered in conjunction with (1) its multiple and short-lived occupation, (2) its double destruction, (3) its exaggerated status as the best researched of a number of contemporary sites, (4) its insertion within a cluster of rural settlement. A final crucial question is art historical. The richness of the art historical record at Murlo and its uncharacteristic originality have received considerable attention from the American team and these will be considered in Chapter 8.

D The Archaic Period At first, in the early part of the Archaic period, there was remarkable continuity with the late Orientalising in the territory inland from Populonia (Giroldini 2015). The now excavated site of Lago dell'Accesa (Camporeale 1997) on the probable boundary between the territories of Vetulonia and Populonia is one of the best-researched larger examples. A reversal of the trend towards decentralisation in the coastal polities appears to have occurred in the late Archaic period. After 600 BC, in the coastal strip, little evidence of settlement is found outside the primate centres. Part of the empty space appears to have been occupied by ritual sites, particularly in the environs of Populonia and in liminal space within its territory (Zifferero 2006). Other ritual sites were located within the primate centres. This pattern of centralisation contrasts with the hinterland which was probably only now colonised intensively for the first time, although chronological definition remains a problem for absolute comparison.

At Populonia the cemeteries close to the city expanded, concentrating in the Porcareccia (Fedeli 1983: 79, 80–1, Fig. 51, n. 153, 275)/Cerbone (Fedeli 1983:

249–74)/Casone (Fedeli 1983: 220–49) area, extending to Sughera della Capra (Fedeli 1983: 298–300). The Granate area (Fedeli 1983: 362–73), popular in the Orientalising period, declined. Settlement activity seems to be concentrated within a fairly large (150 ha) but clearly demarcated area. In the subsequent Hellenistic period, there was a more complete development of the city area, surrounded by an extensive city wall. An important problem is the nature of the port at Populonia. However, maritime technology before the Hellenistic period probably did not require the type of port organisation that would leave major structural traces. Certainly, underwater research has not uncovered major evidence. Boats would have been grounded in the well-protected bay of Baratti. In spite of extensive research by the Fedeli group, no evidence for settlement has been found outside the city area. The only evidence is for bronze figurines from antiquarian collections, said to have been found at Piombino, Campiglia Marittima and much further to the north at Bibbona (Fiumi 1961: 268, 273, n. 60; Richardson 1983; Romualdi 1985), an area previously occupied in the Iron Age.

The centralisation of settlement at Vetulonia was not quite so marked. The marginal site of Lago dell'Accesa (Camporeale 1985, 1997; Rasmussen 1985–6: 118–19) and the possible Archaic cemetery at Poggio Avvoltore (Levi 1931) were probably within its orbit. Furthermore, there were many Archaic cemeteries beyond the main cemetery areas directly connected with the primate centre: at San Germano (Curri et al. 1971; Curri 1978: 68–76), Poggio Pelliccia (Curri 1978: 65–6), Stagnaccio (Curri 1978: 106–12), Porto a Colle (Curri 1978: 131–2) and Fattoria Le Mortelle (Curri 1978: 151–3). Some of these, notably Poggio Pelliccia and Val Berretta, were also occupied in the previous period, but only Val Berretta (Curri 1977, 1978: 183–94) was potentially located somewhat beyond the direct political control of the primate centre and may have had independent trade relations with Vulci. Recent work at Pian d'Alma has also uncovered a rare excavated rural settlement (Mariotti Lippi et al. 2002; Paribeni 2009) from the later part of this period (Fig. 6.16).

The problem of the relationship of Vetulonia to Roselle is an important line of research that has been little investigated. It is clear that these two city-states were much more closely packed than elsewhere in Central Italy but separated by a major ancient lagoon. Traditionally, the relationship has been seen as determined by the early prominence of Vetulonia, followed by its decline and the supremacy of Roselle in the later Archaic, Hellenistic and Roman periods. Certainly recent excavation shows a much more consolidated nucleated and thus urban form of Roselle from the middle of the sixth century BC (Bartolini & Bocci Pacini 2002: 203–8; Donati 1994). However, excavation in Vetulonia (Talocchini 1981) has shown that the decline of the cemeteries in the sixth century was not exactly paralleled by the decline of the settlement itself. The problem of the presumably competitive

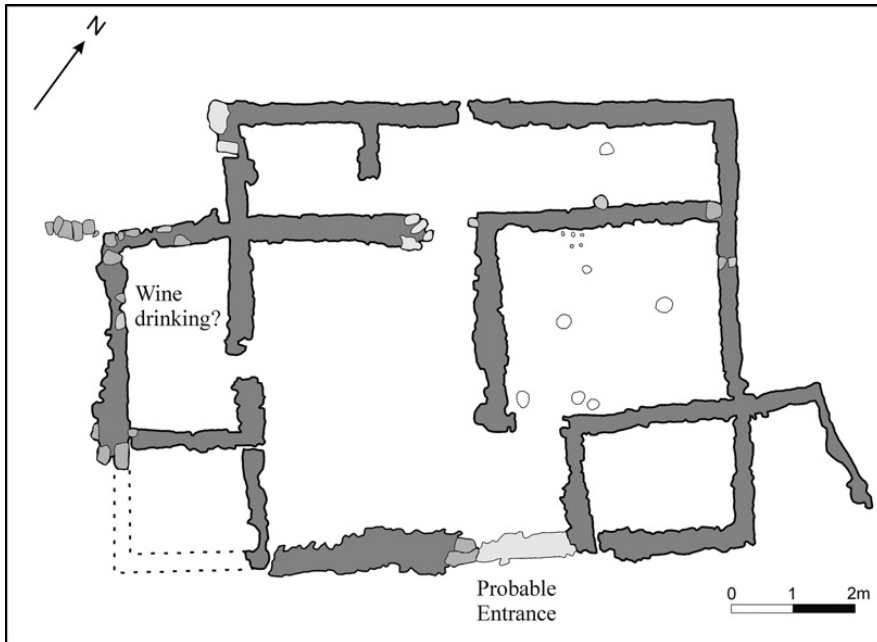


Figure 6.16 Pian d'Alma farmhouse (based on Morandini 2011).

relationship between these two city-states and their respective economic roles can only be solved by a combination of settlement survey and excavation. At present, Roselle lacks the settlement survey (until the work of Campana (2015) is published) and Vetulonia the excavation of the relevant periods of settlement. The problem will, however, be returned to briefly in the context of wider spatial relationships in Chapter 7.

The political impact of the primate centres extended right up to the Cecina valley; consequently, no indication of settlement is known between Populonia and the Archaic burial sites at Cecina (Mingazzini 1934a) itself, Casale Marittimo (Fiumi 1961: 260, n. 21, 266, n. 41, 273, n. 60; Minto 1930) and Pomarance (Fiumi 1961: 262, n. 24, 266, n. 44, 273, n. 57). The cemetery at Lustignano (Fiumi 1961: 262–3, n. 27, 268, n. 46, 273, n. 58) also seems to have survived in this intermediate territory. The fieldwork of Terrenato, which is not yet completely published (Terrenato & Saggin 1994; Terrenato 1998), has only found three villages of this period (in contrast to the later Roman phases), two on the coast and one inland to add to previous burial evidence. The same phenomenon seems to have occurred up the Ombrone valley, where, admittedly, research has been less intense. No burial or other settlement evidence is known between Roselle/Vetulonia and the sites of Casal di Pari (Ciacci 1981: 133) and Casenovole (Ciacci 1981: 131), and significantly recent studies of the Roman period have not had a significant effect on the density of Etruscan evidence (Ghisleni 2010; Ghisleni et al. 2011; Vaccaro et al. 2013).

Beyond this, provisionally empty, buffer zone, the settlement pattern changed completely. Burials of varying degrees of richness have been known for some time. These occupied a stretch of territory between Pompana (Mazzeschi 1979a: 209) and Castelnuovo Tancredi (Bianchi Bandinelli 1926; Ciacci 1981: 131) to the south and Santa Colomba (Mazzeschi 1979b: 59; Cimino (1979a: 59–67) and Siena (Cimino 1979b: 194) in the north. The second phase of occupation of the site of Murlo was a focal point for the southern end of this stretch of territory, until its destruction by 530 BC, and, as reported above, is now known to be a small nucleated centre surrounded by rural settlement.

To the north, in the catchment of the Upper Cecina and Elsa valleys, intensive survey has uncovered the first evidence for a relatively intensive lowland occupation of the area in this period (Barker 1983; Barker & Symonds 1984; Cucini 1990). This work suggests a distinctive model of settlement for this internal area of northern Etruria, bounded by the larger Etruscan cities. The majority of Archaic sites appear to cover small areas of 500–600 metres on terraces at an altitude just below the average for the local landscape (250–300 m a.s.l.) (Cucini 1990: 234–5). These are easily accessible locations close to cultivable land. The buildings must have been modest, constructed of local building stone as foundations for pisé, with locally produced tile roofs with no decorative features. A minority of settlements were located at a greater altitude (c. 400–450 m) in naturally defensive positions. The best-dated example (Mollerata) appears to have had a short occupation from the sixth to the fifth century BC. The density of tombs was considerably less than in the lower reaches of the Val di Cecina. Further east there is a similar upland site at Monte Acuto which has a similar sequence to the excavated site of Poggio Civitella (see below). In these intermediate buffer areas, there appears to have been a network of upland defended sites associated with more lowland rural sites. Their geopolitical context (Becker 2002–3) appears fundamental, but they could also be connected with metallurgical production (Acconcia 2012: 185–8).

4 THE CHIUSI REGION FURTHER EAST IN THE TRANSECT

The History of Research

In common with other areas of Etruria, the two phases of protohistoric and Etruscan development fall into two distinct camps of study. Monte Cetona with its rich quantity of Bronze Age material has been studied by a succession of important prehistorians/protohistorians up to the present day (Calzoni 1933, 1954a, 1962; Cipolloni 1971), and much of the material has been transported to the Museum of Perugia. Chiusi, with its rich quantity of Iron Age and Etruscan burial material, has been studied by a longer-lasting tradition of cemetery

excavation, and the work of Bianchi Bandinelli (1925) has only very recently been bettered (Rastrelli 1986, 1990; Paolucci 1988; Minetti 2004; Zanini 2000); much of the material has unfortunately been dispersed to Florence (subject to floodwater), Palermo and beyond Italy.

The cave and open settlements of Belverde and Casa Carletti were studied by two renowned prehistorians: U. Calzoni and U. Rellini (Calzoni 1936; Rellini 1938; Calzoni & Rellini 1939; Calzoni 1933; Sestini 1954; Negri 1954; Calzoni 1954b; Calzoni 1962). However, the standard of excavation was not good, lacking most aspects of stratigraphic control, although an attempt at interdisciplinary research was made by bringing in a geologist and botanical experts to write certain parts of the report. More recent work has been carried out on the summit of the mountain; this was unfortunately only a rapid excavation and has only been summarily published (Cipolloni 1971). More recently work has been conducted by the University of Siena outside the caves of Belverde and elsewhere on Monte Cetona as part of an ambitious programme to organise an archaeological park. This work is only partly published (Martini 1990; Martini & Sarti 1990a). It is clear that only a small part of the area of Monte Cetona has been adequately investigated; a casual glance at the area shows that many more areas of occupation exist than have been properly reported. Investigation of the remaining part of the southern Val di Chiana was totally unsystematic until the setting up of the *Progetto Carta Archeologica della Val di Chiana* in the mid-1980s. Even the successful use of aerial photography in the discovery of sites has not been adequately followed by excavation except perhaps in the case of Città di Fallera (Schmiedt 1970a). Excavation has taken place in the caves of Tana del Diavolo (Calzoni 1938) and Tana del Faggio (Zei 1967; Borzatti von Lowenstern 1968), but most other finds are the result of chance discovery.

In the study of the centre of Chiusi, the early 1800s mark the watershed of research. Prior to this watershed, Chiusi was typical in being subject to a mania of *collezionismo*, but not systematic research (della Fina 1983). After this watershed, considerable excavation took place that was reported in the 1830–4 volume on the new museum, in the proceedings of its bulletin and, after 1876, in *Notizie degli Scavi* at a national level. However, after 1892, except for a brief explosion of activity fired by Doro Levi in the period 1926–36, work at Chiusi was for a long time infrequent. The volume by Bianchi Bandinelli (1925) on Chiusi and its territory and his 1:100,000 *Carta Archeologica* (Bianchi Bandinelli 1927b) were for some time the most authoritative documents, summarised in a manner that provided only a catalogue of antiquities in the gardens of modern Chiusi (della Fina 1983). That pattern has, however, now been transformed by the application of urban archaeology, piecing together the different elements to produce a very distinctive polyfocal model (Rastrelli 2002; Cappuccini 2008b, 2010). Other recent survey work strongly influenced by the University of Siena started showing great promise in the 1980s (Cambi &

De Tommaso 1988; Paolucci 1988, 2002b; Rastrelli 1986) and came to fruition in the early part of this millennium with the publication of the *Carta Archeologica della Provincia di Siena* (Botarelli 2004; Felici 2004; Cenni 2007; Paolucci & Francovich 2007; Campana 2013). Activity further afield, in the Val di Chiana, is largely the cumulative result of antiquarian activity and chance finds. In the case of Cortona, some attempts have been made to systematise the finds that have been made (Neppi Modona 1977; Bruschetti 1979), more recently based around rescue excavations (Masseria 2001) and the museum collections (Fortunelli 2005).

The Development of Settlement (Fig. 6.17)

The same periods can also be examined for this area. In this case, particular attention will be paid to Monte Cetona for the earliest period and Chiusi for the later period in the context of the wider area of the Val di Chiana. The typology of the Bronze Age material is much more distinctive and, therefore, presents fewer dating problems. Only the Orientalising period perhaps lacks the chronologically refined imports to make a decisive distinction between the preceding Early Iron Age and the succeeding Archaic period. Evidence for settlement, except in the Bronze Age, was until recently based almost exclusively on considered inference from the distribution of burials and cemeteries (with some indicative exceptions (Cambi & De Tommaso 1988)), and this is still largely the case for the Val di Chiana rather than areas further west.

A The Final Bronze Age The nature of the excavations and the lack of detailed survey call for restraint in the interpretation of the settlement evidence from Monte Cetona. However, the general pattern is clear. The occupation of many caves goes back into the Early Bronze Age (Antro del Poggetto (Moroni 1990a), Grotta del Gosto (Andreoni 1990b) and Santa Maria in Belverde (Martini & Sarti 1990d)), and in at least three cases into the Chalcolithic (Antro del Poggetto (Moroni 1990a) and Grotta del Gosto (Andreoni 1990a)) and even earlier into the Neolithic (e.g. Grotta della Lattaia (Andreoni 1990a; Calzoni 1940) and Grotta della Noce (Moroni 1990c)). The maximum extent of occupation of the caves was in the Middle Bronze Age (Grotta di San Francesco (Moroni 1990e), Grotta della Noce, Antro del Poggetto, Grotta della Carbonaia (Moroni 1990b), Grotta delle Tre Tombe (Moroni 1990d), Riparo del Capriolo (Martini & Sarti 1990b) and Santa Maria in Belverde. This early occupation was ritual in scope and included votive deposits within the caves and burials both within and without (Tombetta della Strada (Moroni 1990f)). Exotic pottery (Malone 1985) was deposited in the natural caves of this limestone outcrop as part of a ritual practice interlinking with a far-ranging exchange system. This ritual tradition certainly continued into the Bronze Age.

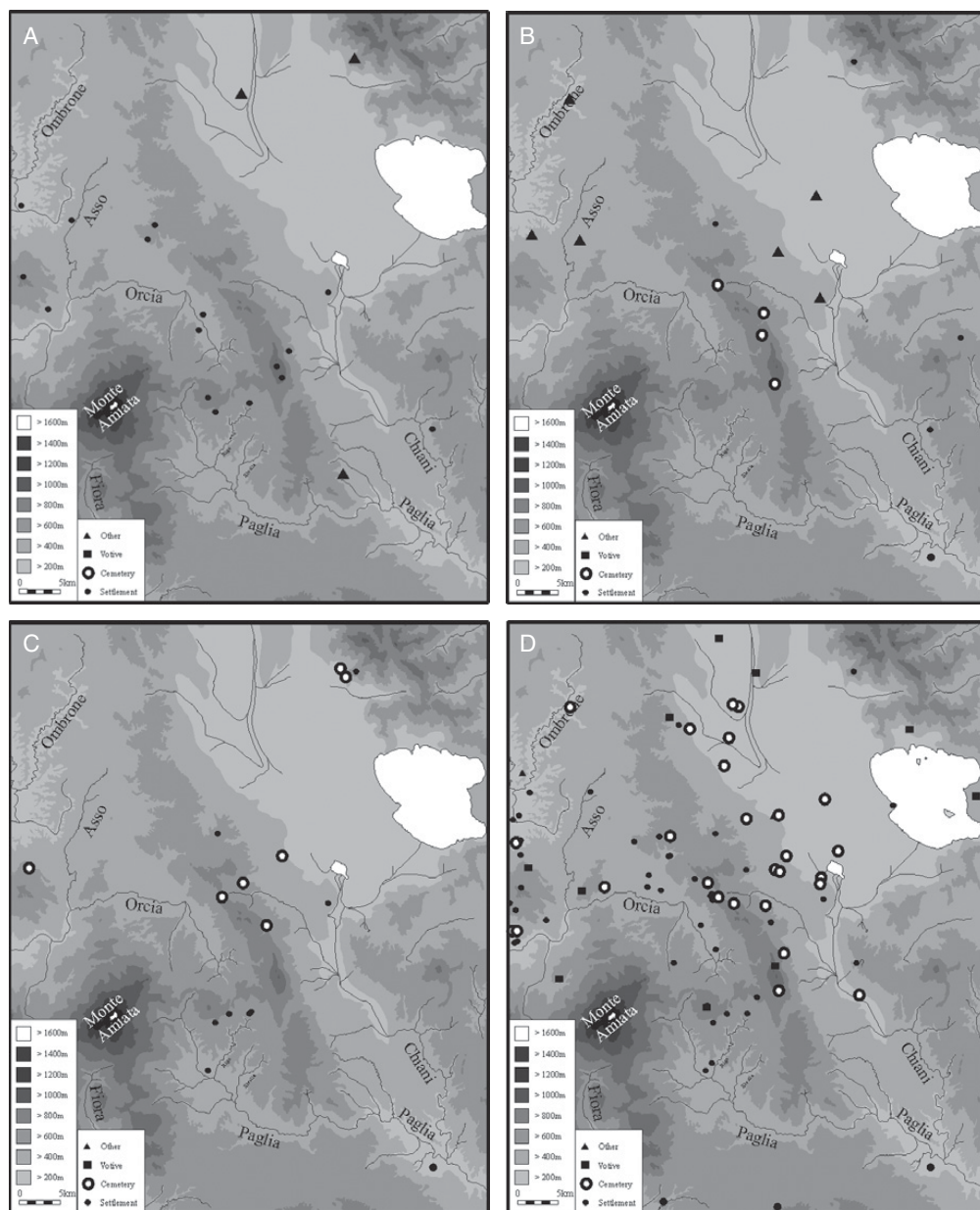


Figure 6.17 The chronological development of the Chiusi area and its hinterlands. A. Bronze Age. B. Iron Age. C. Orientalising. D. Archaic.

However, by the Middle Bronze Age, occupation was almost certainly more permanent (Barker 1981). The Monte Cetona area formed the focus of an interlinked settlement system, even if strengthened by a continuing ritual focus. There is clear evidence for economic intensification from this set of sites,

although this impression may be exaggerated by the conspicuous consumption probably involved in the ritual component.

By the Final Bronze Age (1200 BC), settlement spread to form small nucleations of population over much of the mountain: clear evidence is known from the Belverde area, Casa Carletti (Calzoni 1936; Calzoni & Rellini 1939; De Angelis 1979, 1990; Rellini 1938) and the very summit (Cipolloni 1971; Martini & Sarti 1990c). The spread of surface material over much of the mountain suggests that these are but remnants of the original occupation of this upland area. At one level this confirms the more intensive exploitation of the landscape suggested by Peroni (1969) and worked out in a more sophisticated manner as the culmination of the three-stage development of the human landscape by Barker (1981: 155). On the other hand, a political component must be recognised. A polyfocal nucleation of population of this nature must have involved some socio-political changes, even if these are not clearly manifested in the nearby cemeteries of Cetona (Montelius 1895, Vol. II, Fig. 131, n. 21, p. 638) and Panicarola (Feruglio 1968, 1969, 1973; Soffredi 1970: 358).

Most significantly, Final Bronze Age settlement material has been found, first within the town of Chiusi (Fig. 6.18), in two locations (Forti (Sarti 1990, 56; Bettini 1988) and La Rocca) under the post-medieval fortifications, and then more recently at Petriolo, Monte San Paolo and Montevenere (Acconcia 2012: 154; Cappuccini 2008b), forming a cluster at an altitude lower than that of Monte Cetona. This brings one significant aspect of this town's development into line with developments in South Etruria, namely a Final Bronze Age origin, but presents currently a distinctive polyfocal appearance by way of contrast.

Evidence for occupation of the rest of the southern Val di Chiana in the Final Bronze Age was until very recently extremely scanty. In addition, there are fairly considerable quantities of isolated finds from Alleronia (Bianco Peroni 1970) to the south of Chiusi, from Chiusi itself, Chianciano (Sarti 1990: 56) from Lake Trasimeno (Bianco Peroni 1970), Cortona (Bruschetti 1979) and Foiano (Bietti Sestieri 1973: 399, 420, n. 106). From these, it is clear that the Val di Chiana was a frequented area, but the only known settlements are from Monte Cetona, Chiusi and the peripheral cave site of Tana del Diavolo. It is highly probable that sites such as Cortona and Castiglione del Lago were occupied during the Final Bronze Age, but evidence is only tentative. In the case of the first, there is the evidence of sporadic finds, and in the case of the second, the cemetery of Panicarola was placed close by. What is very clear is that in the areas west of Chiusi, regional survey has detected a reasonable density of small sites. Furthermore, when some later sites are excavated Final Bronze Age deposits have been found in the lower levels. A prominent case is the naturally defended site of Poggio Civitella (Donati 2010), suggesting a lower key pattern of upland locations surrounded by dispersed settlement in this period, when systematic work has been undertaken.

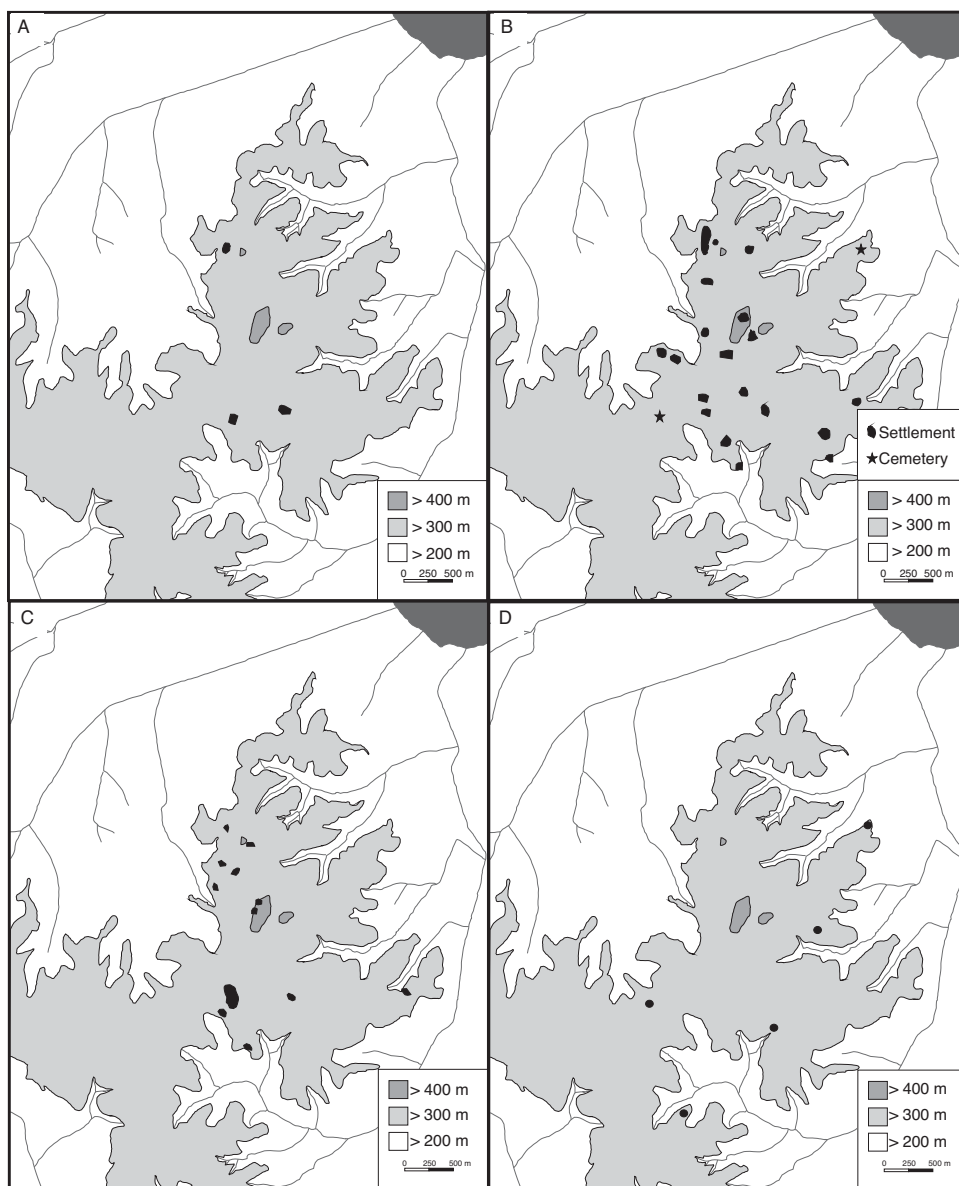


Figure 6.18 The chronological development of the immediate Chiusi area. A. Bronze Age. B. Iron Age. C. Archaic settlement D. early Archaic burials (based on Cappuccini 2010).

The Iron Age

With the start of the Iron Age, there was a marked change in settlement distribution. The settlement pattern is dominated by the two nucleations of Chiusi and Orvieto. The rest of the settlement picture is more uncertain. Some smaller settlements, such as Montepulciano, Tolle and Sarteano, are

principally indicated by funerary remains but hint at the dispersed hierarchy of later periods. A cave site (Tane del Diavolo) has relevant deposits. A *castelliere* at Città di Fallera (Schmiedt 1970b: Tav. XIII, Fig. 3) has been excavated, and the limited results appear to confirm an Iron Age date. Hoards at Laviano (Bianchi Bandinelli 1927b: 9, n. 9) and Podere Gelli (Bianchi Bandinelli 1927b: 11, n. 9) as well as some isolated finds indicate the intensive occupation of this area at the foot of the Val di Chiana. A hoard has been found at Collodi (Bianchi Bandinelli 1927b: 28, n. 4) and other isolated material at Celamonti (Bianchi Bandinelli 1927b: 22, n. 9), suggesting a similar intensity of activity in the more distant valleys. To the north, Cortona was also occupied in this period; preliminary evidence from Villanovan burials, found in the sixteenth century but subsequently lost, has been strengthened by finds of settlement material (Trotta 1990). The contextual evidence for a hoard found in 1715 is difficult to establish, although some of the constituent elements do survive (five flanged axes and a spearhead of transitional Late Bronze Age/Early Iron Age date).

Chiusi was clearly the most prominent centre at the foot of the Val di Chiana. Three major cemeteries have been found encircling the modern city. The most prominent and probably earliest Villanovan evidence is from Poggio Renzo (Bianchi Bandinelli 1925: 290–302; 1927b: 13, n. 26). Smaller numbers of tombs have been found at Marcianella (Bianchi Bandinelli 1925: 326–30; Bianchi Bandinelli 1927b: 16, n. 50–1, 57) and Fonte all'Aia (Bianchi Bandinelli 1925: 245–6). As a rule, the tombs are clustered together in urnfield tradition, with each urn inserted in a *pozzetto*. These cemeteries are usually considered, on typological grounds, the earliest Iron Age occupation in the area. Knowledge of settlement has also been revolutionised in recent times, although it is very difficult to translate the urban deposits arrayed on a series of hills into anything more than a polyfocal distribution (Cappuccini 2010). Moreover, population was not controlled to the extent that it was restricted to the hills of Chiusi. Other centres, perhaps after some lapse of time, developed at Sarteano (Bianchi Bandinelli 1925: 383–8, 440), Tolle/Castelluccio di Pienza (Bianchi Bandinelli 1927b: 20, n. 9; Cimino 1986) and Montepulciano (Bianchi Bandinelli 1925: 404–8; Tarugi 1979; Secchi Tarugi 1960). The evidence is again from the distribution of cemeteries. In this case, the cemeteries are restricted to one for each centre, and, with the exception of the cemetery of Sferracavallo at Sarteano, are of smaller dimensions. These cemeteries appear to have employed a similar funerary ideology to those of the more numerous burials around Chiusi and are distributed in a small area to the north and west of Chiusi itself, away from the developing centre of Orvieto to the south. The settlements have not always been definitively identified, but elsewhere sizes of these settlements have been hazarded on the basis of topography (Stoddart et al. in press).

The Orientalising Period

The Orientalising period does not stand out as a distinctive change as reported for the coastal area, although the density of sites in the period depends on the precise articulation of dating (Acconcia 2012: 174–60), so the contrast with the subsequent Archaic period should not be taken literally. The distribution of sites for the Chiusi area, as far as dating based on the available typological distinctions allows, remained largely constant. The only detectable addition is a cemetery at Podere Poggio alla Sala (Bianchi Bandinelli 1927b: 10, nn. 1–2) on the fringes of the Val di Chiana; this may be connected with the nearby centre of Chianciano. In this area, the Orientalising phase brought changes predominantly on the fringes of the developing polities. The development of Murlo has already been mentioned above. In the Southern Val di Chiana, there is evidence from two areas: Montalcino (Rathje 1979) related to the Murlo development and Cortona further north. At Montalcino, decorated ostrich shell has been found in a funerary context. At Camucia and Sodo, at the foot of the hill on which Cortona was placed, monumental tombs called *meloni* were erected in this period (Neppi Modona 1977). Although there is no clear evidence for contemporary settlement related to this type of burial, except some distance away at Murlo, these peripheral burials appear to reflect short-lived socio-political units, on the fringes of the more complex societies in the primate centres. In the case of Murlo, the social fabric collapsed under the pressure of the centralised polities. In the case of Cortona, a stable long-lived community developed.

The Archaic Period

A more major change in settlement organisation was visible in this period. The landscape of the Val di Chiana was for the first time intensively occupied by settlement; the disproportionate number of burials is a reflection of the type of research so far undertaken. This expansion of settlement was not restricted to the Chiusi area. To the south, two settlements appear that have penetrated up the river valleys that divide North and South Etruria; as explored later, the geographical boundary of the Albegna and Fiora seems to have been adopted politically. To the north up the Val di Chiana, in the area most probably dominated politically by Cortona, settlement appears to have been equally dense.

In the immediate Chiusi area, there was a process of infilling and expansion on the basis of the pre-existing settlement system. The pre-existing centres of Chiusi itself, Sarteano, Montepulciano and Castelluccio di Pienza, continued to flourish. However, these were added to by at least three, and probably many more, smaller centres. Chianciano (Fig. 6.19) (Bianchi Bandinelli 1925:

392–404; Paolucci 1986; Rastrelli 1986) may, as mentioned above, have been the first of these new centres to develop. Beyond this central area, Città della Pieve (Bianchi Bandinelli 1925: 421–6) developed on the southern fringes and Castiglione del Lago (Bianchi Bandinelli 1925) on the eastern fringes. Less conclusive evidence suggests that this expansion may have extended as far as Castello di Vignoni (Bianchi Bandinelli 1927b: 24, n. 16) to the west. The area of modern Sinalunga is a much more certain small settlement nucleation since the Colle dei Cappuccini at Le Carceri near Sinalunga has structures, datable deposits, a probable ritual deposit and associated cemeteries (Acconcia 2012: 132). At ten other locations, including Cetona (Rastrelli 1990), Acquaviva (Pellegrini 1897: 386; Bianchi Bandinelli 1925: 406; Bianchi Bandinelli 1927b: 9, n. 8) and Borghetto (Bianchi Bandinelli 1927b: 20, n. 7), further archaic burials have been found which suggest a whole set of hierarchically lower-level settlements.

The political force behind this development was to be found at Chiusi. Here the expansion of the necropolises (Fig. 6.18), now accompanied by settlement evidence, shows the prosperity of the centre in this period. In the early period, the burial rite remained incineration, but the ashes were inserted in jars of invariably anthropomorphic form. These burials were more dispersed in the area around Chiusi and less clearly located in bounded cemeteries than in the Villanovan period. Villanovan cemeteries often continued with the slightly changed form of this rite (at Poggio Renzo, Marcianella (Bianchi Bandinelli 1925: 326–30; 1927b: 16, n. 50–1, 57) and Fonte all’Aia (Bianchi Bandinelli 1925: 245–6)). New locations for burial were now established at Pellegrina

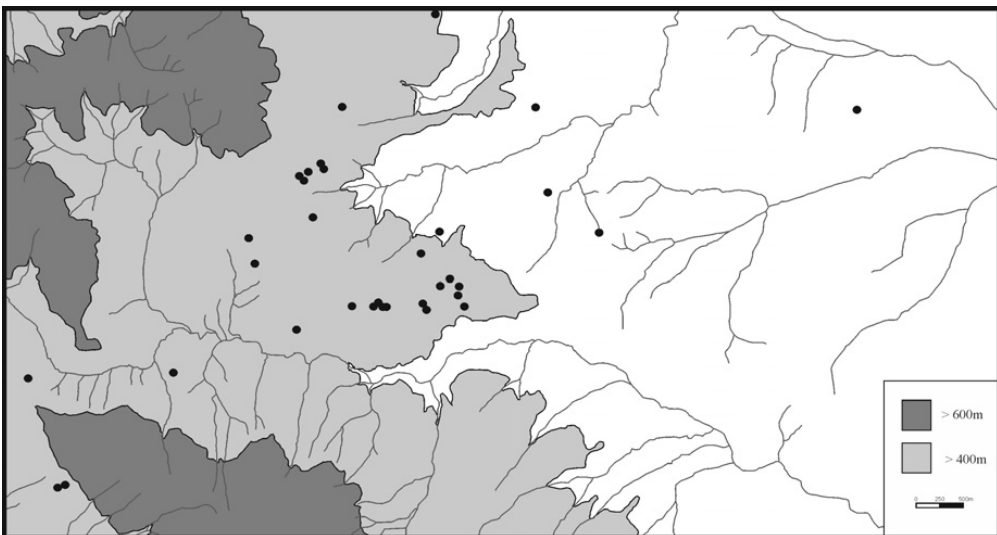


Figure 6.19 Palimpsest of Etruscan burial (and one ritual) sites in the Chianciano Terme area. Settlement has to be largely inferred (based on Paolucci & Francovich 2007).

(Bianchi Bandinelli 1925: 288; 1927b: 13, 30), Montebello (Bianchi Bandinelli 1925, 284–5; 1927b: 14, n. 33; Levi 1935; Minto 1938), Martinella (Bianchi Bandinelli 1925: 302–10; 1927b: 14, n. 36), Dolciano (Bianchi Bandinelli 1925: 360–9; 1927b: 11–12, n. 15), on the Via Cassia (Bianchi Bandinelli 1925: 243–4; 1927b: 52) and at San Giovanni (Bianchi Bandinelli 1925: 348–9). Chambered tombs followed from the sixth century. At first these were simple forms, but those belonging to the upper levels of the hierarchy grew in complexity, developing into multi-chambered structures and in the prosperous fifth century, these were also painted and contained important grave goods. Certain necropolises showed a great continuity of development: the most prominent was Poggio Renzo which continued to be a major focus.

Chiusi was not, though, a markedly primate centre. Settlement was consistently dispersed. This also applied to symbols of ideological authority. The distribution of inscriptions will be explored on a wider scale below (Chapter 8). The distinctive anthropomorphic cinerary urns were also distributed beyond the immediate area of Chiusi (e.g. Monte Cetona (Bianchi Bandinelli 1925: 379), Sarteano (Sferracavallo), Castelluccio di Pienza and Castiglione del Lago). The same impression also appears from the study of rich artefacts at this period (Camporeale 1974). In the case of Chiusi, there was the closest approximation to a classic stepped hierarchy of administrative and redistributive control that is suggested elsewhere to be strongly lognormal (Stoddart et al. in press). Chiusi did not flourish on the basis of the control of an easily centralised resource, such as trade or minerals, but on the basis of the extraction of largely agricultural resources from the landscape. In the Archaic period, this had already reached a high level of intensification.

A closely linked problem, which applies as much to the Villanovan period, is the extent of territorial control. This has been explored independently, using the XTENT technique, in Chapter 5, but it is worth reviewing the local conditions separately. The debate about the territorial extension of Chiusi is not new: Bianchi Bandinelli (1925) based his conclusions on a combination of distribution of cultural attributes, the relationship to neighbouring centres and geographical constraints. A maximal extension of the political territory of Chiusi is based on the prominence of Chiusi in some of the literary sources, particularly with reference to fertility (Dionysius of Halicarnassus, XIII, 10, 11) and membership of the Dodecapolis (Livy, IV, 23, 5; V, 33, 9; Dionysius of Halicarnassus, VI, 75, 3; Diodorus, XIV, 113, 2). The nature of the settlement system rests on an elucidation of the extent of the territory. However, even if a relatively minimal approach is taken that is closer to the predictions of XTENT above, the primacy of the centre of Chiusi appears less marked than was the case with other Etruscan centres. Bianchi Bandinelli suggests that the use of inscriptions was restricted to only a few families (1925: 500). However, this must be viewed in the light of the much more restricted use of inscriptions

in the more southern centres (Chapter 8). The difference was partly one of scale. Power was relatively concentrated in the hands of a few who used classic ideological methods, such as foundation myths (Bianchi Bandinelli 1925: 503), to legitimise their rule, particularly in the later Etruscan period. It was, though, a concentration of power that was less concentrated than in the coastal cities of Populonia and Vetulonia.

In the areas to the north almost certainly beyond the political control of Chiusi, the process of intensified occupation of the landscape is most visible, but probably slightly retarded with respect to the immediate area of Chiusi itself. With the exception of Cortona, this area was virtually unoccupied in the earlier period. In the Archaic period, at least four major centres were prominent. Asciano (Mangani 1983) controlled the western side of the Val di Chiana, Foiano (Bianchi Bandinelli 1927b: 7–8; Maetzke 1982: 315) and Bettolle (Bianchi Bandinelli 1927b: 6, nn. 5–6; Camporeale 1974) the central area, and Cortona the eastern side. Lower levels in the local hierarchy are suggested by smaller, and generally less rich, cemeteries at Marciano (Maetzke 1982: 315; Camporeale 1974) to the north and Poggio Saraggio (Bianchi Bandinelli 1927b: 20, n. 1) and Sinalunga (Rastrelli 1985) to the south. The results of recent surveys further west suggest that a greater density of rural settlement would be found, if intensive survey was systematically practised. These centres continued to flourish into the Hellenistic period.

On the flanks of this distribution of sites, there are potential hilltop sites (*castellieri*) that may belong to this period but are poorly dated. These are fortified drystone bank and ditch structures on naturally defended hilltops, easily identifiable from the air, but with little surface material. The best studied is at Poggio Civitella (Bianchi Bandinelli 1927b: 27, n. 6), which has now been systematically excavated (Donati 2010) and provides a potential model for others that are only known from the surface. Poggio Civitella was a small settlement in the Archaic period that was transformed into a small fortress in the Hellenistic period. If the dating of all these sites is confirmed, and their dating may vary according to their geopolitical position, they appear to have been placed on the boundaries of the expanding political entity of Chiusi, a position that only became significant in the Hellenistic period (Becker 2002–3). The political affiliation of these centres is, however, open to interpretation.

An important find of a different nature is the ritual deposit at Brolio (Bianchi Bandinelli 1927b: 5, n. 71.3, 44.4, 170.2; Romualdi 1981). This ritual deposit of the sixth-century consisted of the famous bronzes, arms, agricultural instruments, pottery, placed on a clay layer in some form of wooden structure. This find is significant on a number of counts. Firstly, it shows that ritual activity was not confined to the primate centres but took place in various sectors of the landscape. This impression is increased by the finds in the more northerly areas of the Val di Chiana and the Casentino (Cristofani 1985; Fortuna &

Giovannoni 1989; Colonna 1970a: 31, n. 15; Richardson 1983; Stoddart 1979–80) (Chapter 8). Secondly, ritual was not of a formalised centralised form, strongly associated with political authority as in South Etruria (Chapter 8). The temple concept only entered North Etruria in the fifth century. The rituals involved are a development of Bronze Age traditions in conjunction with a more intense utilisation of the landscape. It is probable that certain cave sites (such as Grotta di Lattaia (Calzoni 1940, 301–2)), used in the Bronze Age for ritual practices, may have been used similarly in the Archaic period.

The area towards Monte Amiata, such as the upper reaches of the Paglia valley have little settlement. Monte Amiata was probably a sacred liminal mountain, although the earliest ritual discoveries are the on the western flank near Seggiano where a terracotta and some bronze figurines have been found which probably date to the fifth century BC.

5 COMPLETING THE TRANSECT: PERUGIA AND GUBBIO (FIG. 6.20)

The trajectory of Monte Cetona shares something with that of Umbria in the Middle to Final Bronze Age although it has an intensity not seen in the inner fastnesses of Umbria. The area of the Upper Tiber provides a fluid zone of contestation between the more-developed Etruscan groups on the right bank of the Tiber and the less-developed Umbrian groups on the left bank. In the course of time, in the very late Etruscan period, Etruscan impact crossed the Tiber, and thus we take the analysis slightly later here to cover comparable phases of development.

The History of Research

The sporadic finds of the Etruscanised Perugia area were collected together by Banti (1936) and until very recently had not been substantially augmented for the pre-Hellenistic period, even in much more recent accounts (Della Fina 2002). Urban excavation has, however, begun to have an impact. One important addition has been a Final Bronze Age phase to the sequence at Perugia (Cenciaioli 1992b; Bonomi Ponzi 2002b; Cenciaioli 1990), which, like recent finds at Chiusi, brings the general settlement development into line with other Etruscan cities, although in the case of Perugia it is not precisely in the future urban area. The collation of data from urban archaeology has also shown the presence of a Villanovan phase, which, like at Chiusi, was much more polyfocal than centres further to the west or south. Recent work in the necropolises of Perugia, most prominently by the Superintendency, has been most successful in the study of the Hellenistic (including the now celebrated discoveries of Cai Cutu) (Feruglio 2002), producing striking genealogies of the later Etruscan descent groups. Work on the territory has been much less systematic, and,

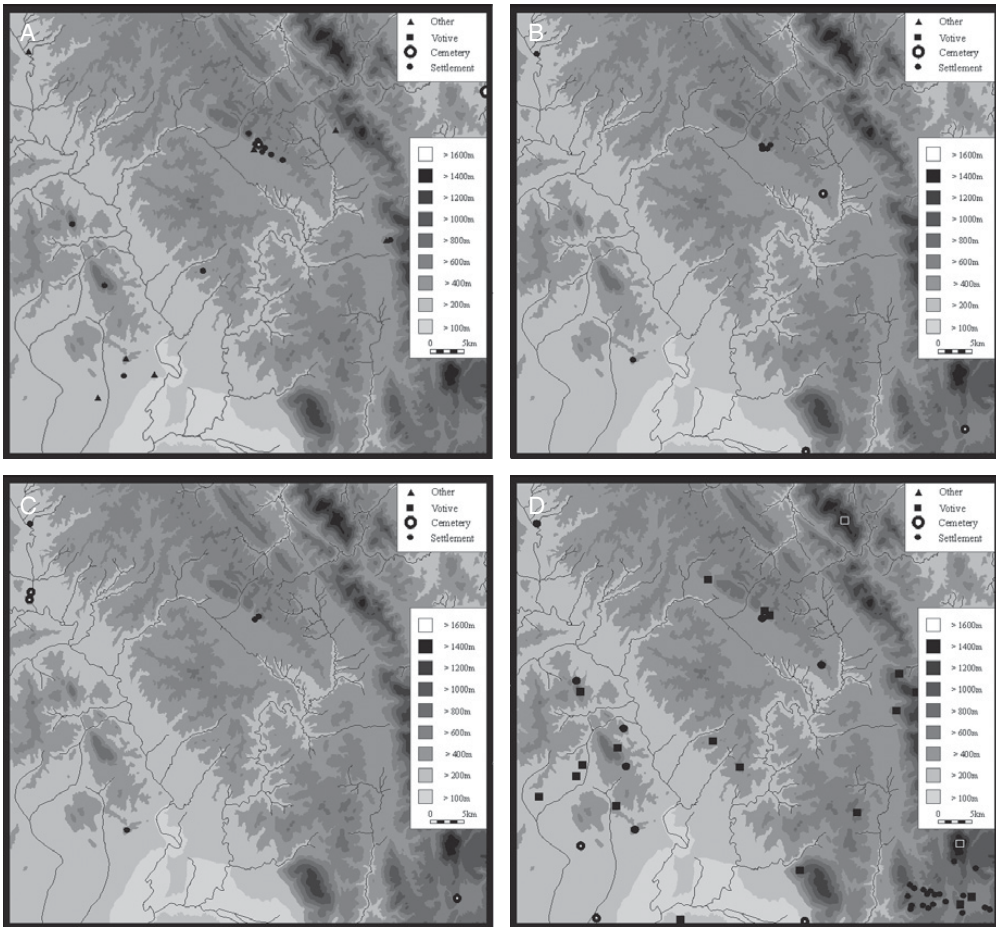


Figure 6.20 The chronological development of the Perugia area and its hinterlands. A. Bronze Age. B. Iron Age. C. Orientalizing. D. Archaic.

indeed, there are only two systematic surveys around Civitella Benazzone (Stoddart et al. 2012) and Civitella d'Arna (Donnini & Rossi Bonci 2008) that can add information on rural settlement to the collation of antiquarian evidence (e.g. Bonomi Ponzi 2002b) and responses addressed by the local Superintendency.

Work was limited in the valley of Gubbio until the 1980s. The Iguvine Tables were discovered in 1444 and have given rise to much speculation about their significance, until recently based on almost no archaeological evidence (Costantini 1970). The main work of the last century was that of a local priest, Pagliari, who encouraged his flock to collect artefacts, particularly flint tools, and of Bellucci who operated on a wider scale within Umbria (Barocelli 1939). Both of these collections are, in part, preserved in the Perugia museum with relatively little evidence of provenance. The work

of Pagliari (n.d, 1920) was, furthermore, of little importance for any period later than the Neolithic. More important were the unpublished Bellucci collections in the Perugia museum and the more recently published materials preserved in the Museo Civico of Gubbio (Matteini Chiari 1995), which can perhaps be assumed to be of local origin. Evidence for occupation of the Gubbio area in the first millennium BC was first systematically recognised in the 1970s when Late Bronze Age material was located under a medieval castle (Flavell et al. 1987). Matteini Chiari (1979–80) also carried out some extensive survey work of the mountain peaks surrounding the basin of Gubbio and surrounding mountain peaks in 1980, with the aim of defining the territorial boundaries of the pre-Roman city state. The resulting work considers the territorial boundaries of Gubbio and provides invaluable surface observation of some sites (in spite of poor dating evidence). In the early 1980s, more material was discovered during the restoration of the Bishop's Palace (Manconi et al. 1991). Other sporadic material has been discovered in the rescue excavations of the Superintendency (Manconi & Schippa 1985). In 1983, the Gubbio project was started to look specifically at the settlement development of the Gubbio valley from *c.* 1200 to *c.* 500 BC, and it provides the basis for much of the analysis below (Malone & Stoddart 1994). In the intervening years, rescue excavations by the Superintendency have continued to uncover further evidence for the development of the area (Bonomi Ponzi 1990, 1996; Cipollone 2002; Manconi 1991).

Outside the Gubbio valley work, two main comparable areas – Gualdo Tadino and Monte Acuto – have been systematically investigated in the last decade by the Superintendency. The work at Gualdo Tadino has added detail to the important Final Bronze Age hoard (Peroni 1963b) and the picture of a sanctuary and cemeteries already put in place by Stefani earlier in the century (Stefani 1922, 1924, 1926, 1935a, 1935b, 1935c, 1935d, 1935e, 1955–6). The discovery of a substantial habitation area and a more developed understanding of the chronology of material culture have been the most important contributions (Bonomi Ponzi 2002a, 2002b; Germini 2002; Germini & Occhilupo 2002; Occhilupo 2002). A similar enhancement of antiquarian discoveries (Diringer 1930; Pellegrini 1902) based on systematic excavation has taken place in the Monte Acuto area (Cenciaioli 1991, 1992a, 1992c, 1996, 1998, 1998b, 1998c, 1998d, Cenciaioli 2002). A strongly positive development is the work carried out on the rather different Colfiorito plateau to the south-east. This is an important regional study working around a known Umbrian centre, employing aerial photography, environmental reconstruction, excavation and surface survey (Bonomi Ponzi 1985, 1992, 1996, 1997, 2002a). To the east, in the valleys leading into the Marche, the local Superintendency has carried out considerable research, particularly into the Late Bronze Age, and this is beginning to be published (Lollini 1979; Pacciarelli 1997). Progress elsewhere in

north-east Umbria has been more sporadic, determined more by the constraints of rescue excavations.

The Latest Bronze Age

In spite of recent discoveries, the evidence for the Final Bronze Age remains low key in the Perugia area. It is restricted to an established presence in the neighbourhood of the later city that seems to be associated with one of the spring lines that emerge from the lower hills around the city. We have to turn to the Gubbio area to identify a clear model of settlement development.

A maximal and a minimal view must be presented simultaneously at this stage of research. The maximal view is the broader spatial picture covering the tectonic basins of the north-east of Umbria and including all protohistoric sites, even if as yet insecurely dated to a pre-Archaic period. The minimal view is that provided by the more certain excavation and survey information from excavated areas (Malone & Stoddart 1994; Germini 2002; Occhilupo 2002; Cencioli 1998d) which is more detailed, but this covers a more restricted area, excluding some potentially contemporary sites because their date has not been so accurately established.

The maximal view shows a dense Late Bronze Age occupation of the limestone escarpment to the north of the Gubbio valley and a more limited occupation of the colluvial foot slopes of the same escarpment. This linear system appears to have repeated itself across the aligned tectonic valleys of north-eastern Umbria. To the north of Perugia, a similar system to that of the Gubbio valley seems to have existed: the upland sites of Monte Tezio and Monte Acuto were linked to a set of sites at a lower altitude at Monte Corona, Santa Croce, Monte Elceto di Murlo and Civitelle (Matteini Chiari 1979–80, 1996). In the Perugia valley to the south, the lower hills to the south-west of Perugia were occupied (Cencioli 1990) with surrounding fairly intensive land use indicated by sporadic metal finds from Perugia itself (Fugazzola Delpino 1976) and nearby Ponte San Giovanni and Boschi (Bietti Sestieri 1973). In the morphologically less well defined area between the Tiber and the Gubbio valley facing the Monte Tezio–Monte Acuto system, there is a less well defined pair of sites (Matteini Chiari 1975, 1979–80). The mountains above Assisi appear to have had a similar upland occupation, although only one site has been found so far (Monacchi 1986). To the east, the limestone escarpment leading up to the Gualdo Tadino basin again appears to have been occupied by upland sites, although generally not on the highest peaks. Gualdo Tadino is also the find spot of one of the most famous Late Bronze Age hoards of Central Italy (Peroni 1963b), and a sporadic metal find has been found to the north at Costacciaro (Bianco Peroni 1970). The same pattern was also present in the Upper Tiber where excavation at Monte Acuto has shown Recent and Final

Bronze Age occupation dominating the valley where similar sporadic evidence has been found (Bietti Sestieri 1973) as well as some Early and Middle Bronze Age settlement sites (Guidi Moroni & Lanfredini 2001). Lastly, to the east there are the famous sites controlling the gorges through the Apennines, including the settlement and cemetery of Pianello di Genga (Colini 1914, 1916; Peroni 1963a; Bianco Peroni et al. 2010). The overall pattern of integrated systems of limited upland (900–1,200 m a.s.l.) and more densely organised middle-level (500–700 m a.s.l.), but not valley bottom, sites were located across this upland landscape. The valleys were utilised (as indicated by the sporadic finds), but not generally physically occupied by settlement. Some of the north Umbrian settlement systems took the form of clusters of related sites, others appear to have been more linearly strung across the landscape. This provides a contrast to the lake basins located at between 300 and 500 metres a.s.l. of southern Umbria which still contained nutrient-rich soils and residual lakes that directly attracted settlement (Carancini et al. 1986a; Carancini et al. 1986b; Carancini et al. 1990).

The elucidation of this pattern requires an examination of the minimal distribution of sites in the Gubbio valley, but undertaken in a detailed, maximising fashion (Malone & Stoddart 1994). At about 1400 BC settlement began to shift from the dispersed lowland occupation of light alluvial fan soils to the occupation of a single, strategically placed, upland site at 900 metres, Monte Ingino. Site-catchment analysis (Finke et al. 1994) emphasises the upland focus of the site location. Access is possible to the valley floor, but the site was probably chosen because of its naturally defended position, good visibility of surrounding terrain and access to surrounding pasture. Faunal analysis has emphasised the seasonal nature of the site, a status which was probably maintained throughout its occupation but with increasing intensity. This intensity is probably linked to the embedded ritual undoubtedly practised on the site. There has been much discussion of the nature of this ritual ranging from a formal precursor of the Iguvine Tables (Ancilotti & Cerri 1996; Bruni 2014) to the embedded ritual favoured by the current author (Malone & Stoddart 1994; Stoddart et al. 2012). In particular, a large quantity of pottery (both for storage and for consumption), bronze pins and animal bone has been found in a midden deposit. We can hypothesise on the basis of the material culture found there that a restricted age set was engaged in rituals of consumption while placed in this outpost above the territory over which they had to maintain control. In the later period of occupation (1200–1100 BC), settlement was extended to the neighbouring hilltop of Monte Ansciano and the foot slopes of the mountain. On Monte Ansciano, a less emphatic embedded ritual took place within a specially prepared drystone walled and ditched enclosure. The rest of the relatively flat mountain summit may have been occupied by settlement, and the traces of one oval hut were found next to the enclosure. A great question hangs over the occupation of the other prominent peaks above

Gubbio, most particularly Monte Foce – future work there may change the configuration of what is presented here. What is currently certain is that occupation of the more spacious Monte Ansciano continued until about 950 BC when all the population concentrated on the lower hillslopes. Site-catchment analysis stresses the enlargement of the land easily accessible to this system of Final Bronze Age sites: there was a substantial expansion of the territory to encompass a great extent of the valley floor as well as the surrounding uplands. From this, a multifaceted exploitation strategy can be suggested. Political forces probably drew the population together and created a need for increased local production, accomplished through the exploitation of a number of niches distributed vertically as well as horizontally on the limestone escarpment and the colluvial slopes.

This detailed study shows the balance of economic and political forces that were at work. Population congregated around the original foundation site of Monte Ingino in a polyfocal distribution. This foundation site may have been transformed into an embedded ritual location as early as the Late Bronze Age, since the large quantities of food refuse may be evidence of a conspicuous consumption of food, similar to the practices on Monte Cetona (Cipolloni 1971; Martini & Sarti 1990a), Monte Acuto and Colle dei Mori. Monte Ingino was a site with limited space for habitation, and embedded ritual may have been focused there for this practical reason. The other upland sites and the colluvial sites had a more extensive surface area for the increased population concentrated in the area, as well as easier access to the valley floor.

The progress of this increasing research has tended to show an increasing diversity within broad similarities. The concentrated work in the three areas of Monte Acuto-Cerchiaia, Gubbio and Colle dei Mori (Gualdo Tadino) has produced a comparative model. On the basis of the Gubbio evidence (Malone & Stoddart 1994), single sites were founded in the Middle Bronze Age and Recent Bronze Age in upland locations (with very limited evidence for dispersed valley settlement). These single sites became the foci of agglomeration of population in the Final Bronze Age, with distinct variations according to topography and the local socio-political context. The detailed excavations of Monte Acuto-Cerchiaia (Fig. 6.22A), Monte Ingino-Monte Ansciano, Colle dei Mori (Gualdo Tadino) show the increasingly apparent complexity of different trajectories within broad common trends. All show nucleation in the Final Bronze Age, and all show re-occupation at the time of the sixth/fifth century with a sanctuary. All are surrounded by defended enclosures of uncertain date. Beyond these similarities there are differences. Gubbio dominates its own internal valley. Monte Acuto and Colle dei Mori dominate communication valleys that may also have served as fluid political boundaries of groups without fixed political identities.

The Early Iron Age and Orientalising Periods

The distinction of the Late Bronze Age from the Early Iron Age is only possible where there has been detailed research, where antiquarian collections have some provenance or where extensive cemeteries indicate human occupation.

The relative lack of research in the Perugia area restricts interpretation, but a pattern of increasing consolidation of political power differentiating the zone from the Umbrian 'fringe' begins to be detectable, although not demonstrable before the subsequent Archaic period. In particular, there is clear evidence of the extensive Villanovan domestic occupation of Perugia (Fig. 6.21), related to nearby cemeteries within 500 to 1000 metres, and linked to a series of satellite villages (based only on chance finds, probably of graves) extending towards Orvieto, Chiusi and Cortona (Bonomi Ponzi 2002b; Bruschetti 2002), allowing comparisons to be made with Terni to the south of Umbria. The situation in Perugia itself can be reconstructed from a series of discoveries within and near the limits of the historic centre of the city (Piaggia Colombata, Viale Pellini, Porta S. Susanna and Via del Verzaro) (Ciotti 1974; Feruglio 1990). To this we can add the indirect evidence read from the generalised provenances of the Bellucci collection, which show a fairly intense occupation of the local landscape (Bonomi Ponzi 2002b). Thus the processes affecting other parts of Etruria also appear to have had their effect on Perugia, although not so dramatically, and in this respect the development of Perugia is more similar to the southern Umbrian centre of Terni (Bonomi Ponzi 2002b: 588): an increasingly nucleated centre, surrounded by cemeteries with smaller nucleated centres at a greater distance along the main communication routes. However, this model is generally difficult to establish even in the subsequent Archaic period.

Outside the Perugia area, the system of upland/lowland defensive systems may have continued into this period, but in the case of Gubbio, it is clear that some of these upland sites were abandoned, while, terraced, colluvial hillslope sites continued to be occupied, with some evidence of subsistence intensification (McVicar et al. 1994). Site catchment underscores the transfer of accessible territory from upland to lowland (Finke et al. 1994), but this control is restricted to the very centre of the valley, imposing a situation where agriculture was practised from a small nucleated centre. It is possible that some early tombs at San Biagio on the outskirts of Gubbio may date to the very end of this phase, but the precision of this information awaits further analysis and publication (Bonomi Ponzi 1996).

On this basis it is probable that not only some Etruscan centres but also small Umbrian centres were occupied by this stage in places such as Gubbio (Fig. 6.22B), in a population movement to less-elevated positions which could retain socio-political control (Bonomi Ponzi 1991a). However, not all locations had the relative continuity of occupation from within the Bronze Age found at Gubbio and Perugia.

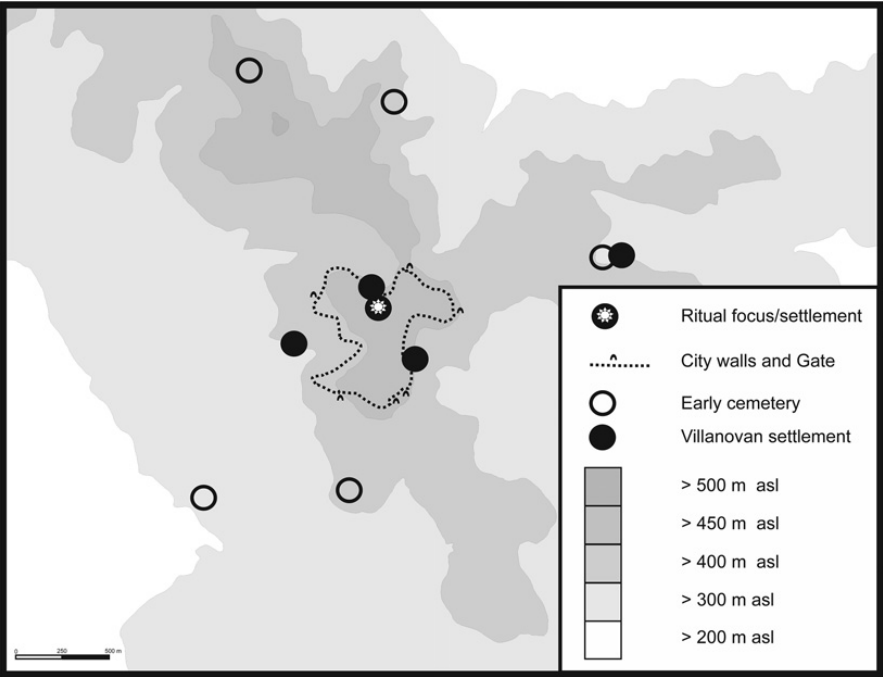


Figure 6.21 Villanovan and Etruscan Perugia.

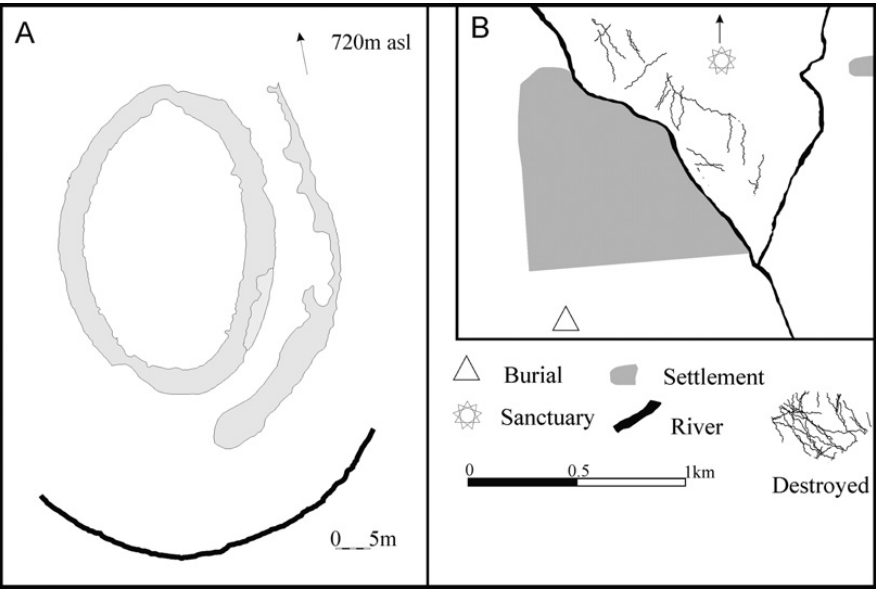


Figure 6.22 A. Cima Cerchiaia (based on Cencioli 1998). B. Gubbio.

The pattern for the Upper Tiber Valley is now becoming clear. The rich burials in the Upper Tiber Valley at Fabbrecce and Trestina (Pellegrini 1902; Sensi 1985: 58–60; Alberti & Laurenzi 2001) show that the Orientalising trade network extended even into the more peripheral areas of Central Italy, into political contexts where centralised political authority had not yet been established. The settlements associated with these rich burials are now gradually beginning to be uncovered including, most importantly, the lowland settlement near Sansepolcro at Trebbio (Gennusa et al. 2008).

The Archaic Period

A major break in settlement development occurred. The upland settlement systems were definitively replaced by upland ritual systems in the northern part of the area. At Colfiorito, an important defensive settlement system developed around the major communication route into the Apennines. In the Perugia area, there was the beginning of a more intensive utilisation of the landscape and a more complex ritual system similar to the Val di Chiana.

The archaeological evidence for the city-state of Ikuvium itself will only be uncovered when there is a major excavation within the bounds of the modern city in an area that was not cleared in the Medieval and Renaissance period, but some evidence is now being uncovered on the outskirts (Manconi 2008). By the sixth century, many of the upland areas, previously occupied about four centuries earlier, became a focus of renewed interest. On Monte Ansciano (Stoddart & Whitley 1988a, 1994), clear evidence of a simple sanctuary has been found stratified above the Latest Bronze Age deposits. The sanctuary was made up of simple retaining drystone walls, perhaps acting as a platform to level the hilltop artificially. On this platform, there was a small scatter of sixty-five small bronze figurines, mainly related to the Esquilline group (Colonna 1970a).

Other probable locations of ritual activity, of less precisely established date, have been found nearby on Monte Ingino, Monte Foce and Monte Loreto. Further afield, ritual locations of broadly similar type, in many cases also re-occupying protohistoric sites, have been found north of Perugia at Monte Acuto (Matteini Chiari 1979–80: 216; Cencioli 1991) (Fig. 6.23B), along the Gualdo Tadino basin at Monte Catria (Vernarecci 1901), Fossato di Vico (Colonna 1970a: 43, n. 61), Gualdo Tadino (Colonna 1970a: 99, n. 280, 104, n. 316, III, n. 338; Stefani 1935d) (Fig. 6.23C), Bettona (Scarpignato 1989), Magione (Bruschetti 1989) (Fig. 6.23A), at Col di Marzo and above Assisi on Monte Subasio (Colonna 1970a: 115, n. IV; Monacchi 1986). The Umbrian area remained an underdeveloped zone with a few regularly spaced sites, linked to a nexus of ritual sites controlling the uplands. Ritual sites marked the natural limits of the landscape set within important pastoral resources. A series of

relatively small nucleated centres developed in locations such as Gubbio, Assisi and Gualdo Tadino (Stoddart & Redhouse 2014)

The Etruscan enclave of Perugia was relatively much more developed, but by no means to the extent of the Val di Chiana to the west. This is, nevertheless, the beginning of a trend that accelerated in the Hellenistic period. The major cemeteries of Perugia were already in use (e.g. Palazzone, Monteluca and Sperandio), and one Archaic inscription has now been found (Feruglio 1973: 293–5, n. 40); Pallottino et al. (1978: 410, n. 32). Furthermore, at several locations, Villanova (Sensi 1985), San Valentino di Marsciano and Castel San Mariano (Caputo 1961: 401; Höckmann 1982; Richardson 1983), rich burials have been found that show the beginnings of occupation of the lowland areas of the Perugia basin. Survey on the west bank of the Tiber has so far shown no rural settlement in this period, although several very small nucleated centres may have existed by the fifth century BC at Civitella Benazzone, Col di Marzo and Civitella d'Arna.

This settlement expansion was accompanied by a relatively complex upland/lowland ritual occupation of the landscape; bronze figurine deposits of various dates, but almost certainly dating back to the Archaic period, have been found at Colle Arsiccio (Calzoni 1947; Richardson 1983), Monte Torazzo (Matteini Chiari 1979–80), S. Orfeto di San Marco (Matteini Chiari 1979–80), Bettona (Colonna 1970a: 115, n. III; Scarpignato 1989) and Magione (Bruschetti 1989) (Fig. 6.23A).

Early scholars examined Perugia from the perspective of the core area of Etruria. Banti (1936: 109) denied the presence of the Etruscans at this date because of the lack of Etruscan characteristics: painted tombs, chambered

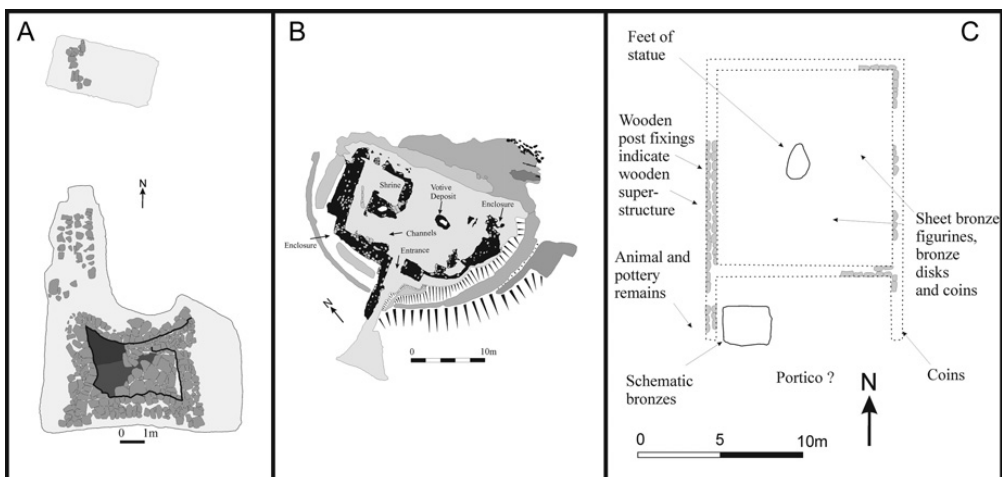


Figure 6.23 Sanctuaries. A. Pasticetto di Magione (based on Bruschetti 1989). B. Monte Acuto (based on Cencioli 1996). C. Colle dei Mori (based on Stefani 1935).

tombs of a complex format and Archaic inscriptions. An alternative approach to is to analyse the landscape in terms of political development. Perugia was at the frontier of urban development (Stoddart 1990) and crossed the threshold to urbanism definitively in the sixth century BC. This can be demonstrated now that excavations within the Archaic nucleated settlement have discovered centralised ritual structures (under the medieval cathedral) and established literacy from the presence of an alphabet (Ceccarelli & Stoddart in press).

The final distinctive area is the Colfiorito plateau (with similar areas near Amelia and Camerino). In this area, recent research (Bonomi Ponzi 1985, 1991b) has discovered several systems of defensive hilltop settlements, located around several upland plateaux, dominating all access points. The dating of these sites is difficult, since it is limited to some undistinctive coarse ware pottery (usually storage forms) and Archaic-type tile, but it appears that an Archaic occupation is the most likely. These *castellieri* are defended, not only by their position but also by circular/ovoid drystone banks and ditches. Necropolises were located close to most of these fortified positions. The separate systems of *castellieri* were probably interlinked under one political authority based on the principal settlement at Plestia and its associated sanctuary. The Colfiorito plateau was a point of control which highlights the interconnected nature of Central Italy. Beyond the Apennines, the increasing prosperity of the Picene world was dramatically increasing the importance of communication routes to the east coast.

The Hellenistic Period

The Perugia area consolidated its urban status in the Hellenistic period. Three factors underline the situation: the construction of city walls, the development of elaborate genealogies in the tombs of the elite and the first hints that some rural settlement may have been founded that then continued into the Roman period.

CONCLUSION

The layout of the political geography of Etruria can be rewritten in terms of different zones separated by frontiers (Fig. 8.2), often with geographic points of reference. To the south, and the southeast, there is the Tiber River. The Tiber valley was a frontier between two mega cities, Veii and Rome, where Rome, through more inclusive political strategies, became the dominant force. In the centre there was the unstable frontier of the Albegna valley, running north-east to east and then north into the Chianti corridor. The area between these geographical markers was filled with powerful places and substantial rural settlement. In the Albegna valley itself, there was an unstable settlement system

compared with the powerful places that had long occupations from the Final Bronze Age. Firstly, Marsiliana (at 47 ha) (675 BC–475 BC) and then Doganella (at 230 ha) (625 BC) competed for this buffer space and were joined in 570 BC by Fonteblanda, a smaller settlement to the north-west on the coast, which was itself succeeded by Talamone in the fourth century (Ciampoltrini 2016) (Fig. 8.3). To the north there was the Arno valley, running approximately east and connecting with the Sieve, giving access to the Po Valley. Between this valley and the Albegna, the westerly centres, such as Populonia and Vetulonia, were highly nucleated in the style of the southern centres but had more instability in terms of their relations to the rural hinterland. Further east, another unstable corridor penetrated north into the Chianti occupied by temporary centres such as Murlo and Castelnovo Berardenga with their own supporting rural settlement that appeared and disappeared with them. Further east, the cities of Chiusi and Perugia were much more polyfocal in terms of their organisation. However, whereas Chiusi had all the settlement genealogy of the southern centres – a Bronze Age foundation and a closely connected Villanovan Iron Age – the city of Perugia remained polyfocal until the sixth century BC. Perugia was placed on a complex and fuzzy boundary with the ‘Umbrian’ world, where a few small nucleated settlements were the only occupants of the surrounding territory. Dispersed rural settlement only appeared at the very transition into the Roman world. In the Umbrian areas, an upland network of ritual sites appears to have been layered above a series of small nucleated centres whose inhabitants left the competition of the frontier to their more expansive Etruscan neighbours.

CHAPTER SEVEN

NETWORKING AND CONNECTIVITY

THE MAIN INTENT OF THIS VOLUME HAS BEEN TO EXAMINE THE organisation of settlement. This concluding part of the volume faces that organisation of settlement with the implications of the position of Etruria within a focal position of connectivity within the Mediterranean. The first part of this chapter examines and rejects external influence as the underlying cause of the formative socio-political transformation of *c.* 1200–800 BC in Central Italy, already explored through changes in settlement organisation in Chapter 6, by critiquing the available evidence. The evidence for connectivity at many scales in the Latest Bronze Age (1200–1000 BC) is rich, but essentially repetitive. The evidence for the succeeding earliest Iron Age (1000–800 BC) is much less comprehensive although, when examined against the background of contemporary radical settlement change, one of the most important periods to consider. The evidence for the Archaic period is very rich; the review has, therefore, necessarily been selective, taking those elements for which there is the best available spatial evidence.

The second part of the chapter is more than a review; in particular, it presents an analysis of the distribution of inscriptions through space and time. This section of the chapter illustrates that it is necessary to accept some important external influence on the development of Etruria from the moment of the re-expansion of contact with the Mediterranean world in the eighth century. This expansion arrived too late to have transformed the settlement structure of Central Italy into the Villanovan Etruria (Chapters 4, 5, 6 & 7). On the other

hand, the pre-existing settlement structure was certainly modified (Chapter 6) to incorporate this expansion in contact by the founding of the ritually legitimised emporia of Pyrgi, Gravisca and Regisvilla for the three principal coastal centres. North Etruria and Umbria remained effectively at one remove from the direct contact with the Greek world of the coast, and the response of this area was to the developments in the core area of southern Etruria. A balance of local development and interaction, as well as external contact, is required in a satisfactory explanation of socio-political development in Etruria. The distribution of inscriptions over time and space illustrates this clearly; there is a strong element of emulation of the early centres, where literacy was initially adopted, but the acceptance of literacy was moulded to the Etruscan context (Chapter 1), and a local equilibrium was established once the emulation of the concept of literacy had been completed. In the fields of literacy, myth and art, Etruria borrowed concepts but radically transformed them to fit a socio-political organisation and a cultural milieu that was fundamentally different from that of Greece or Phoenicia.

THE PERIPHERAL STATUS OF ETRURIA?

The geographical position of Etruria, in a maritime communication network between certain key resources (Chapter 3), had made it a natural focus of interaction. However, Etruria has too frequently been relegated to the position of periphery in research on the ancient world. A distinguished group of scholars has seen the Final Bronze Age (c. 1200 BC) as intrusive (Pigorini 1903; Randall McIver 1924, 1927; Boardman 1964; Barfield 1971). These views, regardless of their origin, share a common emphasis; they have focused on the similarities of material culture with central Europe and/or the Aegean, in the same way as varying degrees of similarity/dissimilarity with the Greek and Phoenician world have been emphasised for the Etruscan period. The peripheral status of Etruria has an even longer history. The ancient historians, with the exception of Dionysius of Halicarnassus, have tended to emphasise the exotic external nature of the Etruscans. Pallottino (1961) had for some time presented a much more balanced approach, but the tendency has remained (Chapter 1), particularly among scholars examining Etruria from outside, to reduce the independent role of Central Italy in its socio-political development.

THE LATE BRONZE AGE KOINÉ

The Latest Bronze Age is noted for a similarity of metallurgical bronze forms over at least the peninsula of Italy (Bietti Sestieri 1973; Peroni 1980). Typologists have attempted to carve a series of sub-assemblages out of this general uniformity, by refining the criteria on which chronological and

regional distinctions can be made. Many scholars (in particular Carancini 1979) have created their own individual frameworks into which new finds are placed. The work is very impressive until results are compared and it is found that similar premises have produced strikingly different chronologies and regional associations for the same artefacts. For instance, the Piano di Tallone hoard is dated by Peroni (1961) to the tenth century BC and by Bietti-Sestieri (1973) to the twelfth century, and discussion is ongoing (Pellegrini 1992; Bietti Sestieri 1998). Furthermore, the distinction between regional and chronological variation is never fully established. No attempt will be made to enter these complex debates, unresolvable without an independent chronology at this point. Instead, some broad generalisations about the distribution of the better-defined aspects of material culture will be presented.

The analysis of the material culture of most sites of the period 1200–900 BC from Central Italy establishes two levels of interaction that grade into each other: the strongest extensive intra-peninsular contact and the more poorly defined locally based identity. This phenomenon has been analysed in most detail by Peroni (1969), Bietti Sestieri (1976, 1984a) and, in the English-speaking world, by Blake (2014) on a more selected range of material. What is clear is that, over time, the local component of identity became more important and visible with much greater clarity.

This network of interaction had as great an impact on sites in the upland mountain basins of the Apennines as on more coastally placed sites. It is interesting to compare the finds from Sorgenti della Nova, an extensively excavated site near the Tyrrhenian coast, not far from Etruscan Vulci, with the finds from Gubbio, high up in the Apennines at the eastern edge of the transect across Central Italy (Chapter 6). Sorgenti della Nova had pottery distinctive of South Etruria, showing a regional identity, but the metal material, including a winged axe, a ‘shepherd’ pin, a crossbar, a needle, a point, a chisel, rings, fibula fragments, a disc and other fragments of metal, had more distant connections (Negroni Catacchio 1981). Gubbio had exceptional conditions of preservation in extensive middens (Malone & Stoddart 1994). Some of the domestic refuse in the midden of Monte Ingino and from the settlement of Monte Ansciano equally suggests scales of identity, including an exchange network, with more distant regions of Central Italy. The well-defined winged palstave (*ascia ad alette*) form has been found extensively over Central Italy (Bietti Sestieri 1973). Amber beads have an even more extensive distribution during the same period. On the other hand, the pottery belonged to a network that was centred on western Tuscany and the Umbrian region, with other links into the Marche (Malone & Stoddart 1994; Zanini 1994, 1999; Bietti Sestieri 2012). Certain decorative features of the locally produced pottery, such as the axe-shaped handles, are also found exclusively at Gubbio and mountain valleys to the east. Other items of material culture also had a much more restricted

distribution. Highly stylised bone combs have been found at Pianello and Gubbio. Distinctive pins of Casa Carletti type are restricted to the intermontane basins of eastern Tuscany and Umbria (Carancini 1975), including the site of Casa Carletti on Monte Cetona and the necropolis of Pianello as well as Gubbio. The glass beads seem to belong to a similar exchange network localised to inland Central Italy, since their colour is distinct from a northern distribution centred on Frattesina (Angelini et al. 2004; Henderson 1988; pers. comm.). It is difficult to distinguish the physical exchange of objects from stylistic emulation, but it is clear that, whatever the mechanism, the whole peninsula forms a complex social network where peripheral zones are difficult to detect so that Gubbio is as connected as Frattesina, according to some analyses based on a sample of the data (Blake 2014: 107, 173), although one suspects the exceptional taphonomy of the middens of Gubbio may have contributed to this impression. In this respect, only north-western Etruria stands out as having a rather less well defined pottery sequence and does not appear to be so clearly linked to the social network that covered the remainder of Central Italy.

The economic and socio-political trends of the Late Bronze Age (Chapter 3 & 4) extend well beyond the few areas where Mycenaean finds or finds of possibly Mycenaean/ Cypriot influence have been made. One of the paradoxes for those appealing to external influence is that some of the areas with the highest density of material of Mycenaean origin in the central Mediterranean contain less-marked evidence for later indigenous social evolution. In this respect, much future work needs to be carried out to establish the nature of Mycenaean contact with such areas as southern Italy and eastern Sicily. By contrast, Luni Sul Mignone, Monte Rovello and San Giovenale are renowned because they are the few north-central Italian sites that show the presence of Mycenaean material, not for the quantity of material located (Vagnetti 1982; Jones et al. 2014). The intensity and duration of contact were not great; Central Italy was at the end of a Mycenaean exchange network (Marazzi & Tusa 1976). Consequently, any fluctuation in Mycenaean contact would not have had a significant effect on the development of Central Italy, where an independently vibrant economy was already developing. The later existence of an extensive metallurgical koiné suggests that the relationship with the rest of the Mediterranean was not one-sided. Common processes of metallurgical development were in progress.

Another approach adopted implicitly by Peroni (1969) and explicitly by Blake (2014: 19) is to suggest that high interaction in the Recent Bronze/Final Bronze Age laid the foundations for the areas of Villanovan and Etruscan intensity that followed. A number of scholars have built on the work of Peroni and his followers using metal (Peroni 1980) to produce regional groupings for the Middle Bronze Age (Macchiarola 1987) and Recent Bronze Age

(Damiani 2010) based on pottery, and more comprehensively for the Bronze Age as a whole (Bietti Sestieri 2010). Different approaches using both pottery (Bietti Sestieri 2010; Zanini 1999) and metalwork (Blake 2014) point to a Tolfa Allumiere group and a Cetona Umbria group, as well as a clearly empty area in the western Tuscan area. The Tolfa Allumiere group may have been economically formative for the powerful developments of nucleation in the succeeding Iron Age, but the Cetona Umbria group (and its links to the Fiora region) bifurcated in subsequent periods. Blake tries to address this problem for her theory of deep Bronze Age origins by appealing to special circumstances of mobility in the mountains (Blake 2014: 203ff.).

THE VILLANOVAN

The period 1050–850 BC is a fundamental phase of socio-political transformation measured in settlement change (Chapters 4 & 5). This change is not, however, associated with a major period of trading contact with the remainder of the Mediterranean. The pre-existing networks collapsed. This period appears rather to be associated with localised contact, in particular between the Villanovan centres themselves, and to a certain extent with the island of Sardinia (Delpino 1986; Usai & Lo Schiavo 2009). Trade expansion is a product of political stability not necessarily associated with phases of major structural change in political organisation.

Items of material culture of various types have a wide distribution in this period. Ceramic styles, including hut urns (Bartoloni et al. 1987), are very distinctive, but other items are more clear indications of exchange contact. In particular, metal jug forms (*orcioli a lamelle metalliche*) have been found at Populonia, Vetulonia, Tarquinia, Cerveteri, Veii and possibly Bisenzio (Bartoloni & Delpino 1975; Delpino 1981: 282). A metal cup of similar technique *Tazza a lamelle* is also known from Vulci (Delpino 1977). The distribution of fibulae, stressed as important by some authors (Delpino 1981: 283), seems somewhat less significant as an indication of contact, and in fact seems to have a much more diffuse and extensive distribution over northern Italy, over a relatively long time period (300 years).

Considerable attention has recently been directed towards the collection of data on the contact between the island of Sardinia and the Italian peninsula. (Giardino 1995: Fig. 26; Bernadini & Perra 2012) Although the dating of material based on such contact is imprecise in traditional terms, the timing of such contact seems to fill a gap in the pattern of contact of peninsular Italy with the outside world. There is a wide range of objects involved that covers a considerable part of the metallurgical spectrum and is not restricted to a few ritual objects: not only small bronzes and askoid form jugs (*brochette askoidi*) (Bartoloni & Delpino 1975), but also daggers, swords, axes, razors (*rasoi*),

fibulae and an amber necklace (Lo Schiavo 1981). One set of ritual objects (*faretrine votive*) is restricted to northern Etruria (Delpino 1981). The distribution of finds when viewed in the context of the socio-political relationship between exchange partners does not suggest a one-sided dominance relationship. Instead, a localised interaction sphere can be proposed that fills a vacuum following the 'collapse' of the Mycenaean exchange system.

CONTACT AS A CAUSE OF STATE FORMATION?

The important transformation of settlement organisation in Central Italy cannot be linked to a peripheral response to the positive impact of a Mediterranean system. The period of the late eleventh, tenth and ninth centuries seems to be a period of breakdown of widespread material contacts (the Aegean *koiné*) in the Mediterranean (Macnamara 1984) that was at least in part a response to the collapse of the Mycenaean system. A few apparent exceptions can be readily explained. The possible Cypriot objects from the hoard of Piediluco-Contigliano appear to date to at least the early eleventh century, although the context in which they are found may be tenth–ninth century (Bonomi Ponzi 1970). Other objects in the same hoard show more localised interaction with Sardinia (Lo Schiavo 1981). The earliest possible evidence for renewed intensive contact in the form of imports from the eastern Mediterranean is from the eighth century: the Cycladic cups of *c.* 800–760 BC (Close-Brooks 1965) or 780–730 BC (Descœudres & Kearsley 1983) or somewhat in between (Toms pers. comm.) from Quattro Fontanili and Grotta Gramiccia at Veii (Ridgway 1967); a Phoenician bronze vessel of the mid-eighth century from Tomb VII of the Poggio della Guardia cemetery at Vetulonia (Maggiani 1973) and other objects from Vulci, Tarquinia, Cerveteri and Praeneste.

Furthermore, once contact is re-established, the Villanovan world did not adopt a passive role with respect to the Greeks and Phoenicians; evidence is accumulating for prestigious objects of late Villanovan origin in Greek contexts, particularly sanctuaries (Close-Brooks 1967; Kilian 1973, 1977; Von Hase 1979; Naso 2000): horse bit at Olympia, helmet fragments at Olympia and Delphi, a belt from Euboaea and fragments of bronze sheeting from shields from Dodona, Olympia and Samos. These are clear indications of exchange processes between societies of similar levels of socio-political development. Italian fibulae have also been found in the sanctuaries of Olympia, Perachora, Aegina, Rhodes (Rodi) and Samos.

The removal of external stimulus as the causation of evolution towards complexity in Central Italy, however, appeals for a new cause of that change. The economic conditions for change can be fairly readily described (Chapter 3): an environment with a ready facility for intensification, and previously under-exploited in the Neolithic. The causes of the important changes in

settlement must be sought in the socio-economic momentum and interaction of the Late Bronze Age, processes that can only be studied in more detail by settlement excavation. These changes may, to some extent, have been enabled by the vacuum created on the collapse of the Mycenaean system, even if Etruria was only very loosely connected with this system, but this in itself suggests an indigenous development. It is the localised interactions of the early ninth century that probably formed an important stimulus towards the new socio-political system, although caution is required before developing this into a more elaborate model (cf. Cherry 1986). Ultimately, it was a new political agenda that underwrote the nucleations of the early first millennium BC (Chapter 8), where the certainties of nucleation (including defence (Chapter 4)) compensated for the costs (food supply and even disease).

THE ORIENTALISING EXCHANGE SYSTEM

In the second half of the eighth century, there was an expansion of the early contacts mentioned above into an Orientalising network: for instance, in the case of gold work stretching from Cumae in the south to Vetulonia in the north (Buchner 1975; Riva & Vella 2006). This represented a common ‘chiefly’ ideology given material form through distinctive sumptuary items. The source and manufacturing centre of these sumptuary items are a separate, if complementary, problem (see argument of Strøm (1971) against Buchner (1975) and Ridgway (1974)) that focuses on external relationships, using the methodology of art historical exegesis. It is improbable that there was administered trade at this stage: many small political units were competing on relatively equal terms in an exchange network. Access to this exchange network was restricted to a ‘chiefly’ elite, but not centralised; the products exchanged, therefore, reached a relatively high proportion of Central Italy even if generally concentrated on the coast.

The importance here is the common manipulation (if with different meaning) of motifs by both eastern and early Etruscan societies. The controversy over the precise production centre is an illustration of the nature of the process involved. In the art historical tradition, style and density of finds are the only clues to production centres. The Orientalising style was extensive and had a poor regional definition; hence the problems of the art historians. Ostrich shell is one of the few products that escapes this problem (Rathje 1979); its source was certainly outside Central Italy (Hodos et al. 2020). This sharing of some sumptuary elements of material culture does not imply a peripheral status on the part of the Etruscans, but rather a development more akin to Flannery’s (1968) study of the Olmec phenomenon. The participant societies are of very comparable levels of social development, again pointing to the fundamental nature of the preceding and independent Late Bronze Age and Early Iron Age

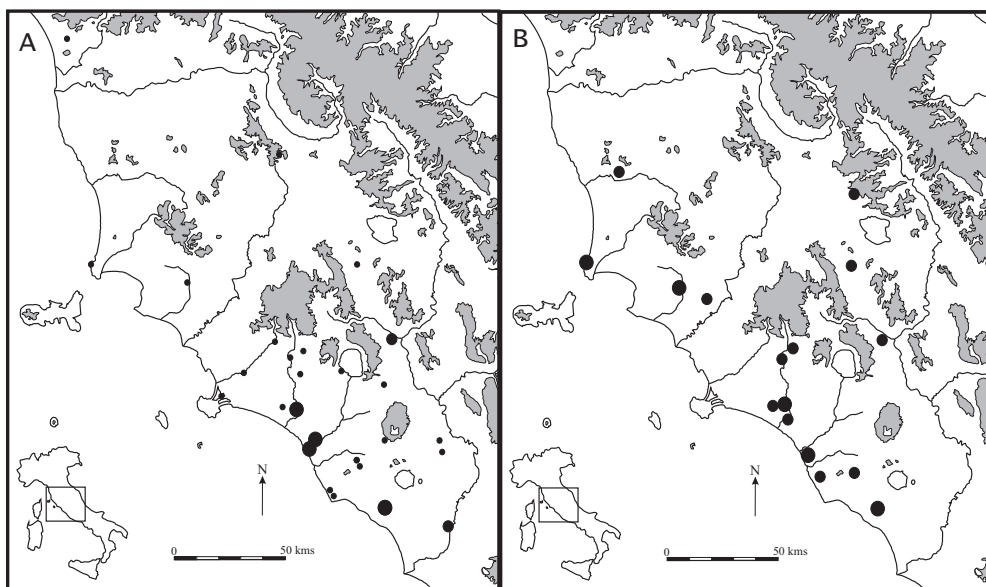


Figure 7.1 A. Distribution of *coppe ioniche*. B. Distribution of *balsamari plastici* (based on Spivey & Stoddart 1990).

developments. This interaction was more intense with the coastal areas, as best illustrated by the distribution of exotic items (Fig. 7.1A; 7.1B) and earliest inscriptions (Fig. 7.2A; 7.2B).

THE ETRUSCAN MARKET: AN ARBITER OF GREEK PRODUCTION AND TASTE?

The good statistics that now exist for the distribution of Greek luxury imports show clearly the cycles of contact with the different regions of the Greek world (Martelli Cristofani 1978, 1979, 1985; Rendeli 1989). The early contacts (625–550 BC) are with Eastern Greek and Corinthian centres. This is succeeded by the later Athenian domination of trade contact (550–475 BC). There is also a shorter, much less intense, period of contact with Sparta (550–525 BC). In addition, Phoenician imports were important in the early sixth century at Gravisca.

The distribution of these imports within the Etruscan centres conforms to a pattern that repeats itself for many imported items of material culture, and for many locally produced ideological artefacts. A clear contrast is visible between the three principal coastal centres and the inland zones of Central Italy. Attic pottery, one of the best calibrated imports, shows this most clearly. The peak for Cerveteri, Tarquinia and Vulci is between 500 and 475 BC, followed by a relatively sharp decline, in part, as local production replaces the imported

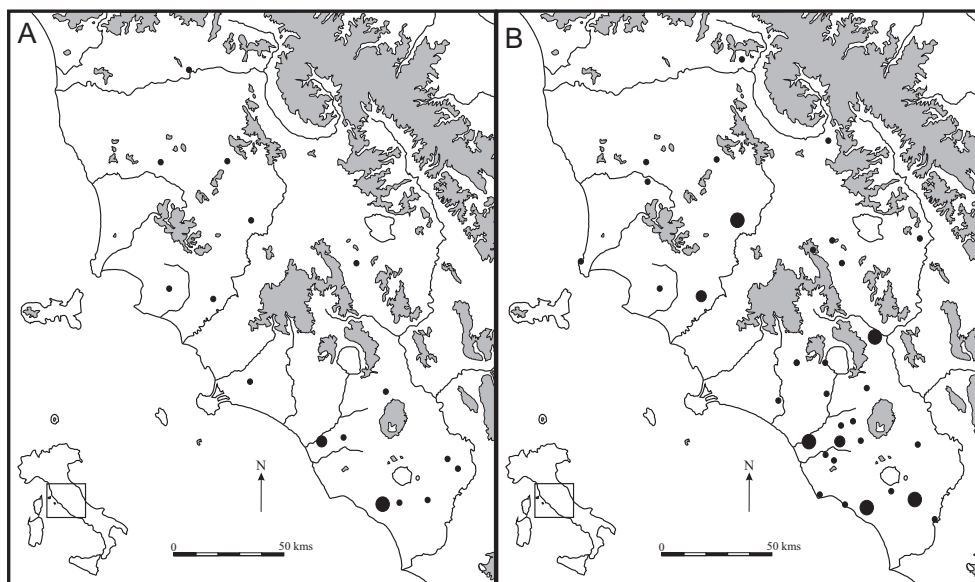


Figure 7.2 A. Distribution of inscriptions early 7th century. B. Distribution of inscriptions late 6th century (based on Spivey & Stoddart 1990).

exotics. The peak of Attic pottery imports for the inland centres of Orvieto and Chiusi is at about the same time, but followed by a much more gradual decline in imports. The peak for Bologna and Spina is somewhat later (475–450 BC). Umbrian centres such as Gubbio were never in such close contact with the Greek world and instead mainly received products of Etruscan origin, particularly from Volterra.

The distribution network of such imports is a fascinating problem that still requires much work, particularly when inter-related to imitations of imports and products (such as *bucchero* and amphorae) of clearly local production. Its analysis will, however, throw light on the organisation of settlement discussed above (Chapter 6). As a working model, the major coastal polities seem to have administered luxury trade at first directly, and then through the coastal emporia. Most of these luxury products were then used by the elite; we have the residue of this use in the cemeteries of the primate centres and some indication that the exotic vessels may have contained exotic liquids. Under the same administrative control, some of these products passed to lesser settlements arranged spatially in a distant ring around the primate centres (Chapter 6) and, on the basis of the XTENT technique, at least periodically, under the political control of the primate centres. In North Etruria and Umbria, there appears to have been no such powerfully directed trade. For instance, Castelnuovo di Berardenga and Poggio Civitate received as many of these exotic products as the local primate centre of Chiusi.

A few of the more recently researched products illustrate these patterns. 'Coppe Ioniche' (Fig. 7.1A) (predominantly from the late seventh to the middle of the sixth century) (Martelli Cristofani 1978) have been found in three areas: firstly the greatest numerical concentration in the three coastal centres of Cerveteri, Tarquinia and Vulci and the entrepôt of Gravisca (Boitani Visentini (1978), secondly, smaller numerical quantities in centres most probably politically dependent on the three primate centres and thirdly a dispersal of lower total quantities to centres (e.g. in North Etruria) outside the political control of the coastal centres. A similar pattern can be seen for the distribution of the 'balsimari plastici' (Fig. 7.1B) of c. 625–550 BC, except that Populonia and Vetulonia are included more prominently in this trade network. A less extensive network has recently been detected also for bulkier utilitarian products. Amphorae of Greek manufacture (Cristofani et al. 1985) are found exclusively in the coastal centres (with a strange relative absence in Tarquinia), whereas amphorae of Etruscan manufacture are found both in the coastal centres and in the inland centres. Over time, there was a decrease in numbers of Greek amphorae in the coastal primate centres as the quantities in the coastal emporia increased, although the quantities of other, more exotic, Greek imports continued to increase. The concentrations of Greek amphorae appear to indicate the locations from where the contents (wine/oil?) were distributed. On these grounds, early distribution can be said to be from the primate centres themselves; later distribution, from the sixth century, with development of ports such as Pyrgi, was from the coastal emporia, and only the contents of the amphorae and other luxury products continued their journey to the primate centres. Etruscan amphorae, particularly in the case of Cerveteri, most probably represent the distribution of locally produced wine (Colonna 1985a). The distribution of the amphorae would therefore represent a trade in such wine into the hinterland of Etruria and into the rest of the central western Mediterranean.

Locally produced products do not have this restricted distribution. *Bucchero* started as a highly finished product produced in Cerveteri from c. 675 BC (Rasmussen 1979: 158–9). From c. 650, the product, however, becomes much more widespread in terms of production centres and distribution. This range of distribution reaches a peak c. 625–550 BC, entering North Etruria to an extent that the exotic imports described above never did. *Bucchero* has also been found in many areas of Greece (Naso 2000; 2009). Some locally produced prestige items, such as the work of the Micali painter (Spivey 1987), had a more localised distribution, but with a greater penetration, particularly of certain areas of North Etruria than the imported exotic products, even if probably produced and primarily present in a coastal centre such as Vulci. Other more generalised products, such as the Etrusco-Corinthian *aryballoi* (small spherical or globular flasks with a narrow neck) of the turn of the late seventh/early sixth

century, although concentrated at Vulci and in the Val di Fiora, have a very wide distribution into northern Etruria (Populonia, Vetulonia and Poggio Civitate), inland southern Etruria (Orvieto and Castel d'Asso) and beyond (Mangani 1985: 79).

The Etruscan market created a crucial demand and therefore became, in turn, an important influence on Greek taste. New motifs appear surprisingly early, if not first, in Etruscan tombs. There is some evidence that certain forms of pottery appeared first in *bucchero* or metal produced in Italy and were only then produced in Greece to suit the Etruscan taste (Rasmussen 1985). Viewed from Etruria, Greece was effectively a specialist production centre to supply the needs of the prosperous Etruscan world. This does not suggest a peripheral relationship. On the contrary, the elaborate content of some of the iconography of the Greek pottery can be interpreted as the response of the Greek world to a stimulus to evolve new ideological representations (for instance of myths), in order to produce highly elaborate products for a market that would otherwise not have existed. The return trade for these exotic products is difficult to establish, but the relationship does not appear to have developed merely for the extraction of raw materials. The technology and economy of the Etruscan world developed in parallel with that of the Greek world.

INFORMATION DISPERSAL: A BALANCED PROCESS

The primate centres were the focal points of ideology and power. Clearly the individual primate centres cannot be studied in isolation. However, each centre had a distinctive artistic/ritual and historical trajectory. The independence and the material basis of these centres and the identification of their territories, independently of their cultural affinities, has already been discussed (Chapters 5 & 6). It is now important to examine their stylistic and ideological identity, particularly in relationship to the marginal buffer centres and to discuss the nature of the boundaries between them.

THE PRIMATE CENTRES: ARTISTIC SIMILARITY AND POLITICAL DOMINANCE?

Each primate centre had what art historians have considered to be well-defined characteristics. These same art historians have tended to equate the *irradiazione* of such culture with political influence. It is to avoid this preconception that, in this volume, the cultural elements have been presented later than the spatial evidence of settlement, so that the circularity of argument can be avoided.

Funerary architecture has provided a good source of data. Cerveteri, Vetulonia, Chiusi and Fiesole, in particular, have minor centres close by, that present strong affinities in funerary architecture. Seventeen Tombs of

the Pian di Conserva cemetery seem to have imitated very precisely the tombs of Cerveteri and formed an elite grouping of late seventh to sixth-century tomb architecture in the cemetery (Naso & Zifferero 1985). Many of the tombs of the Val Berretta cemetery have close structural similarities to those of the primate centre at Vetulonia (Curri 1977). The typical canopic cinerary urns of Chiusi have been found at a number of minor centres around Chiusi (e.g. Sarteano, Cetona) (Bianchi Bandinelli 1925). Lastly, the late Archaic stelae of Fiesole type are well defined stylistically and are distributed in the immediate hinterland of the centre (Capecchi 1997). The spatial delimitation of territorial extent by the XTENT technique suggests that all these sites were within the territories of the primate centres that have been claimed to have had a stylistic impact.

A further important dimension was a common ideology of time and space promoted by the political authorities of the primate centres. Evidence of this dimension of political authority is only indirectly distinguishable in the original core areas. The role of literacy in creating a permanent record of the succession of the elite in funerary architecture through personal name inscriptions is one example of this. Moreover, documents such as the Iguvine Tables and the Zagreb Mummy from a later period show the importance of the ritual measurement of time that can to a certain extent be inferred from later documents (Pfiffig 1975; Stoddart 2007–8 (2009)). The Iguvine Tables remain, however, the primary document of the spatial and temporal organisation of an urban centre, even if they belong to a virtually Romanised second-century BC peripheral Umbrian city-state (Stoddart 2012). The survival of this information in a peripheral location is a clear demonstration of the shared ideologies of Central Italy. These tables describe in great detail the ritual timetable of a city-state, specifying both spatial and temporal dimensions. Some of the details are controversial, but, within a ritual framework, the local boundaries of both city and polity are specified with reference to the gates of the town and to neighbouring groups (Prosdocimi 1984), although the main focus of Umbrian boundaries was most probably on the community, not the frontier (Stoddart et al. 2012).

BUFFER CENTRES: IDEOLOGY AND POLITICAL INDEPENDENCE?

In contrast to this, sites such as Acquarossa, Bisenzio, Castelnuovo Berardenga and Poggio Civitate contained a confusion of stylistic elements. These sites (Chapter 6) appear to lie outside the extreme boundaries of the territorial limits defined by the XTENT technique. In their short-lived existence, elaborate iconographical motifs were developed, but no subsequent reference is made of these centres in the literary sources. The political life of these centres had no subsequent tradition.

Acquarossa had a range of terracottas of a style and with motifs that have no proper parallel, not only in the Greek world, but also in other sites in Central Italy (Wikander 1986). Two phases have been detected, but the differences are subordinate to the constant features of the art produced by the centre. Art historians have detected a confusion of Cerveteri and Veii techniques and motifs, but no clear artistic dependency has been established. The presence of painting on the terracottas is a most characteristic local feature that distinguishes the site clearly from Poggio Civitate; the painting of white on red is the most common arrangement. The choice of motifs and their architectonic arrangement can, though, be interpreted at a more general level. Horses, birds, deer, fish, serpents take their themes from the rich applied arts of the primate centres, but are distinctively reworked. The aristocratic processions on the terracotta friezes suggest the elaboration of a local ideology, in support of an independent, but short-lived marginal polity that has much in common with the only other site in a similar position, Poggio Civitate, that has been extensively researched.

Poggio Civitate has also been excavated in some detail (Chapter 6). As already discussed in stratigraphic terms, this has produced principally two phases of occupation. The first phase of occupation (*c.* 650 – *c.* 610 BC) is referred to as the Recent Orientalizing period. The architectonic decoration that can be dated to this period includes *acroteria* (architectural ornaments) of an aristocratic figure on horseback and animal motifs. These architectural features have a strong connection with the motifs on the portable arts of the period. The *acroteria* are the earliest of a form that reappears on other sites set in marginal buffer zones at this time period, such as Acquarossa (see above). It is a two-dimensional type that has no Greek precedent (Rystedt 1985). Portable objects dominate the finds. Greek imports appear to be relatively few in number until one considers the quantities that are reaching the local ‘primate’ centres of the period (e.g. Chiusi) (see above). Attic pottery appears to be found in lower quantities than in the primate centres. A number of objects are the only surviving, applied or constructional, elements of more elaborate furniture, particularly in wood. A large number of robust bimetallic nails (body of iron and head of bronze) are considered to have been inserted in doors, and other more delicate nails (whose heads are sometimes covered with silver and gold sheet) probably served to apply decorative motifs; indeed one decorative nail is still inserted in a piece of applied ivory decoration (Warden 1985: 89). The most prominent riches of the Orientalising levels are more than 500 pieces of applied decorations in worked ivory, bone and horn (Nielsen 1985, 1984) manufactured on the spot. Very similar finds have been located previously in funerary contexts (e.g. Quinto Fiorentino) of a similar date. The subject matter includes many delicate animal and anthropomorphic motifs.

The second phase of Archaic occupation (*c.* 600 – *c.* 530 BC) has a very different range of artistic evidence that cannot be exclusively explained away by

post-depositional distortion. The architectonic features take on a three-dimensional form. The most elaborate *acroteria* appear to have decorated the north side of the formal courtyard. The most famous of these consist of seated (at least thirteen in number) and standing human figures; the dimensions were up to 1.5 metres in height for a figure seated on its tile base. The fists closed on a missing symbol of rank (?) and a broad hat over the head of the seated figures provide a distinctive iconography of authority. These human figures are supplemented by a range of largely exotic animals on other *acroteria*: sphinxes, lions/panthers, horses, bulls, a ram and a wild boar. More easily interpretable mythological elements also form part of the repertoire; Gorgon antefixes may have had a protective role (Lacy 1985). The evidence for terracotta friezes is the oldest in Etruria. Four different sets of frieze scenes contribute a more complex contextual iconography: the banquet, processions of horses, assemblages of seated persons, processions. Unfortunately, since they were found in a destruction dump, it is difficult to reconstruct their position with respect to other iconographic elements. The iconography was not exclusively built into the architecture of the complex; a large terracotta support, surviving to about half a metre in height, has an applied frieze of armed warriors and chariots. A free-standing stone sculpture of a ram was probably a small altar. This second phase of the complex, viewed as unified artistic conception, represents a transformation from the individual artistic identity manifested in the applied arts of the first phase.

Castelnuovo di Berardenga (Mangani 1985) appears to be a less complex centre of the same type. Although the complex is less well preserved, there is here the association of a monumental building (with a colonnaded courtyard) (at locality Piano Tondo) and a contemporary cemetery (at locality Poggione). The surviving remains include applied sculpture on tiles similar to Poggio Civitate. Two tombs from the cemetery have, however, produced more clear-cut evidence of an iconography similar to the Murlo phenomenon: a richly decorated ivory comb and ivory *pisside*, two *bucchero* vessels with dedicatory inscriptions and a number of clay caryatids originally forming the support for a vessel.

INFORMATION EXCHANGE AT A SUPRA-POLITY LEVEL

To what extent was there a conscious group at a pan-Etruscan level? The Etruscan language is of a very distinctive non-Indo-European form that provides the founding definition of Etruscan culture. The written use of the language, does not, though, allow a clear interpretation of the nature of the language or of the extent of its use in society. Unfortunately, most of the naming of the Etruscans is by non-Etruscans, principally by classical authors or possibly by the craftsman of the Iguvine Tables. Religion probably formed

some common focus. There is a suggestion that there might have been a pan-Etruscan federal sanctuary near Orvieto at Campo della Fiera (Stopponi 2011). Furthermore, there are certain ideological markers that suggest the sharing of common institutions and motifs; the use of inscriptions and the temple are two such cases. What is most probable is that the sense of common belonging was strengthened by the late encounter with Gallic incursions, a very different Other, and by pressure from Rome at the end of the Etruscan period (Turchin 2006), beyond the period covered by this volume.

INSCRIPTIONS: THE DISPERSAL OF IDEOLOGICAL ARTEFACTS

The source of the concept of writing was ultimately Greek. However, the employment of inscriptions (Chapter 1) was differently structured. Since inscriptions were predominantly ideological artefacts, with a major impact on those not fully acquainted with their content, inscriptions form one of the best-documented (from the beginning of Etruscan research), most readily recognisable, easily dated and satisfactorily quantified measures of ideological power. The density of inscriptions can be used to measure the distribution of ideological power over time and space and are one of the most systematically and rapidly catalogued data sources (Rix 1991) because of the prestige of their discovery for modern archaeologists.

It is true that we only have a distorted perception of the material that is being written (Cornell 1991) (Chapter 1), but as with all examples of relatively big data, patterns still survive that allow us to measure ideological power (which is related to the habit of writing on more solid materials) and reflect the wider changes in the distribution of literacy (Stoddart & Whitley 1988). On this basis, various stages of the distribution of power and the development of literacy can now be suggested. The first use of literacy (*c.* 700 BC) (Fig. 7.2A) is restricted to a small number of inscriptions (about thirty) in a very few centres (Acquarossa (?), Cerveteri, Narce, Tarquinia, Veii, Vetulonia and Vulci); these were exclusively from the ten largest centres of Etruria and are located on the coast or close to the primary contact zone in South Etruria. Ninety-four per cent of the inscriptions and 77 per cent of the letters inscribed were located in the five most primate centres. The earliest of these inscriptions are probably from Cerveteri (Colonna 1970c), Vulci (Cristofani 1973–4) and Tarquinia (Cristofani 1972). In the period up to 650 BC, the use of writing was most probably very restricted and corresponded closely to Goody's (1968) definition. It was a tool of elite legitimisation almost entirely restricted to a funerary context; *c.* 87 per cent (33/38) of traceable contexts are burial. The earliest alphabet from Marsiliana appears on a writing tablet as part of the grave goods of a rich individual in the buffer area on the fringes of the expanding territory of Vulci. There is no evidence that the innovation of literacy was initially a commercial or

administrative tool; it was adopted in a way suited to the socio-political structure of Etruscan society. A commercial role for literacy can only be convincingly demonstrated with the Giglio shipwreck of the sixth century BC where a writing tablet was discovered. As mentioned above, literacy was channelled into the very largest centres in a striking manner in southern Etruria.

In the total period up to 650 BC, 82 per cent (47/57) of all the inscriptions are from the primate centres. A contrast is apparent from the very beginning between North and South Etruria in the distribution. South Etruria, within the period under consideration, has the vast majority of the inscriptions. An equal distribution of inscriptions between the two areas is not reached until the fifth century BC. Furthermore, whereas in South Etruria 84 per cent of the inscriptions were located in the primate centres, only 50 per cent (initially out of a very small sample of two) are located in the primate centres in North Etruria. This contrast also holds true, if measured in terms of length of inscription, which is perhaps a better measure of a literacy devised to impress ideologically (74% as against 30%). In South Etruria, ideological power is considerably more centralised than in North Etruria, which remained a relatively decentralised landscape.

In the second stage (*c.* 650–600 BC), there was an expansion of the use of literacy, but there was no qualitative change in its role within society. However, studies of the onomastic (naming) inscriptions do show that in this period it became obligatory to indicate not just the individual name but also the descent group affiliation (Cristofani 1976b); the socio-political tool of literacy was becoming available to a wider range of society and clear identification and differentiation became necessary. Shorter inscriptions increase in number, but the general frequency of inscriptions by size remains much the same. There is a continued diversification of the context in which inscriptions appear; the proportion of inscriptions in tombs falls to 68 per cent. The contrast between North and South Etruria continued to be most apparent in the relative centralisation of inscriptions in the primate centres; North Etruria remained considerably more decentralised. In South Etruria, there is a slight, but not significant, decentralisation, both in length and in number of inscriptions, when compared with the previous half-century. In North Etruria, the proportion of longer inscriptions is slightly increased in the primate centres, but the use of shorter inscriptions is greatly decentralised. The decentralisation of the shorter inscriptions is principally into buffer or boundary centres, mainly in North Etruria, such as Monteriggioni (2), Bisenzio (1), Blera (1), Marsiliana (4), Massarosa (4), Narce (5), Poggio Civitate (10), Quinto Fiorentino (4), San Giovenale (2) and San Giuliano (2). These centres were probably politically independent, given their spatial position located away from the primate centre and the relatively early development of the political territories of the primate

centres. In these small centres, literacy was employed to establish political legitimisation, seeking to maintain independence from the primate centres already extensively employing inscriptions (e.g. Cerveteri (56), Tarquinia (12), Vulci (12) and Veii (8)). In North Etruria, the later primate centres are not identifiable as such from the quantity of inscriptions; Poggio Civitate is ranked first with ten inscriptions followed by Chiusi with five inscriptions; the total length of inscriptions does, though, restore a more expected order: Chiusi (137 letters), Vetulonia (106 letters), Quinto Fiorentino (90 letters), Monteriggioni (58 letters), Castelluccio (49 letters), Roselle (44 letters), Poggio Civitate (28 letters), Volterra (16 letters). However, it should be noted that at this stage the primate centres of Roselle and Volterra rated at a very low level and the other centres of Populonia, Fiesole and Arezzo did not feature at all.

A major reorientation of literacy took place during the early sixth century, the period of effective 'urbanisation' of Etruria. For the first time, the very short inscription dominated; writing was now being employed extensively as a shorthand, particularly in pottery manufacture. A writing tablet has also been found in an Etruscan (?) wreck dating to *c.* 600 BC off the island of Giglio (Bound 1985: 67; 1991a, 1991b, 1991c). This suggests (probably with some time lag given the nature of inscriptions available) that literacy was then employed in a much wider range of social contexts, including those of pottery manufacture and trade accounting. The proportion of inscriptions in a tomb context fell to an even lower level (39%). This change is also contemporary with the maximum extent of decentralisation of power as measured by the number of inscriptions; in North Etruria, only 23 per cent of inscriptions are in the primate centres, and in South Etruria the proportion reached its lowest level in the period under study (77%). The marginal buffer centres were at this stage at the peak of their power; the most prominent case of this phenomenon is Murlo, where there are sixty-three inscriptions and Quinto Fiorentino which accumulated four inscriptions totalling ninety letters. However, this decentralisation disguises the fact that the longer inscriptions are retained in the primate centres; the buffer centres were also shortly to be extinguished by pressure from the expanding primate centres.

A further transformation in literacy took place in the later sixth century. Very small inscriptions still dominated the range, but a new prominence is given to the size range of sixteen–twenty letters in length. The data are particularly affected by the prominence of a new social class contributing to two new large classes of inscription: the systematically planned cemetery of Crocefisso del Tufo (and to a lesser extent Cannicella) at Orvieto and the Portonaccio votive deposit at Veii. As a result of this deliberate planning of cemeteries at Orvieto, the proportion of tomb inscriptions rose again to 55 per cent. At the same time some very large ritual inscriptions appear in

sanctuaries almost certainly under the control of major primate centres (particularly at Pyrgi and Punta della Vipera). Work on the onomastic naming inscriptions (particularly from Orvieto) has shown that by the end of the sixth century there is a 40 per cent reduction in the range of first names (Cristofani 1976b: 100); the permutations possible through the combination of first and second names were from this moment the established means of identification.

At the same time there was a reversal in the trend towards decentralisation measured in terms of the number of inscriptions affecting North Etruria in particular (Fig. 7.2B). By the end of the century, the distribution of inscriptions is very similar throughout Etruria except in one detail; the smaller centres of North Etruria retain a greater share of the longer inscriptions. The effect may have been exaggerated somewhat by the prominence of the cemeteries at Orvieto (122 inscriptions) and by an 'edge effect' from the use of data that exclude any inscriptions that might date from the fifth century, favouring perhaps the better-dated inscriptions from the primate centres. However, the trend remains clear: namely that the political control of the major primate centres was extended to control the buffer areas that previously contained such prominent centres as Acquarossa and Murlo, and this recently acquired territory was not granted the political power to generate many inscriptions. This effect remained less marked in North Etruria, where a more decentralised organisation was important. Relatively small rural sites of the early fifth century, such as Romito di Pozzuolo in northern Etruria, contained large collections of short inscriptions (Rasmussen (1985–6: 120).

The next major reorientation of the spatial distribution of inscriptions was not until the fourth century. This was coincident with a renewed decentralisation of settlement. It was in this period that small centres such as Asciano produced the long local genealogies from tombs. This political organisation was, however, soon overtaken by the Roman conquest.

Umbrian inscriptions belong generally to a much later period. The majority belong to no earlier than the third/second century BC. The known inscriptions are few in number and dominated by the Iguvine Tables. Their distribution appears, however, to be restricted principally to the major known Umbrian centres, such as Gubbio, Assisi, Foligno and Todi.

Ritual Expression

Before the formation of the city-state, in the period of the Latest Bronze Age, there was a common ritual organisation throughout Central Italy, in terms of levels of complexity and stylistic manifestation. Ritual activity has been mainly detected in cave contexts (Grotta Misa, Monte Cetona, Campello Alto), revealing a continuity of activity that has its origins in the Neolithic (Tusa

1980; Guidi 1980; Malone 1986). However, although fine pottery was to a certain extent replaced by metalwork, the deposition of exotic objects seems to have played a somewhat reduced role. The rituals of the Latest Bronze Age appear to have been agriculturally based, involving the offering of agricultural products, and may have been embedded in settlement structures such as the pig deposits at Sorgenti della Nova and the middens in Gubbio. More complex ritual structures have been claimed for areas such as the megalithic structures of Crostoletto di Lamone but tend to lack precise definition (even in terms of chronology). It is clear that the development of the state brought about a major break in this continuity. Unfortunately, very little is known of earliest Iron Age and Villanovan ritual, so the link to the succeeding period cannot be made.

Religion was a very important focus of Etruscan society and, to judge from ideological documents such as the Iguvine Tables, of other societies in close contact with them. This tradition was sufficiently strong to have made an important mark on classical writers such as Livy (5,1,6): ‘gens ante omnes alias eo magis dedita religionibus, quod excelleret arte colendi eas’ (a people devoted more so than any other to religious practices, because it excelled in cultivating them). With the full development of the city-state, the temple focus of religion took over from the funerary focus of previous phases; this shift of focus is also shown by the shift of inscription contexts from a predominantly funerary deposition to one that includes important ritual deposits of votive inscriptions such as the Portonaccio of Veii.

In the core area of Etruria, emergence of formal religion can be traced spatially. Formal religion first developed in one or two of the centres of power, the prominent primate centres, and then rapidly spread until equilibrium was reached in South Etruria. North Etruria and Umbria had a rather different development, where votive deposits of bronze figurines predominated, until the temple became established in the late Archaic Etruscan period (fifth century). At a broad level of generality, the Etruscans shared a common religion; it is only at the level of more detailed analysis that chronological and cultural divergence becomes visible.

TERRACOTTA DECORATION: THE TEMPLE CONCEPT

A good demonstration of this is the dispersal of the concept of terracotta decoration (d’Agostino 1991b; Edlund-Berry et al. 2006; Lulof & Moorman 1997; Lulof & Ruscigno 2011; Rystedt et al. 1993) from a centre such as Veii (Andren 1974; Bartoloni et al. 2006). This is not a simple stylistic trait, but a well-defined marker of a new form of public religion. At Veii (Piazza d’Armi), a new form of terracotta decoration was associated with a new form of ground plan (Colonna 1985b: 53). The ascription of the primacy of this

development to Veii is difficult to assess, since a possible precursor has been identified at Roselle (Bocci Pacini 1985: 53–6); however, the Piazza d'Armi building is, at present, the earliest developed example of a temple so far identified (600–575 BC). The architectural terracottas that immediately followed this development did not come from the primate centres; they came from the marginal centres most in need of powerful innovative schemes of political legitimisation: Poggio Buco, Tuscania, Murlo (575–560/550 BC). The most surprising case is that of Murlo which is geographically placed in an area where other forms of ritual deposition were more normal (see below). The solution lies in the location of Murlo as a buffer centre between other developing polities (Chapters 5 and 6); Murlo was a centre ready to accept motifs, for a radical socio-political purpose, that were already circulating in the portable arts of Orientalising Etruria (e.g. Sphinx (Fullerton 1982se)). Other centres were, on the basis of present evidence, up to fifty years late in this development (e.g. Cerveteri 550–540 BC). It is, however, interesting to note that Cerveteri was using the technique of monumentality to legitimise the more 'traditional' (that is not public) funerary architecture of the family elites as early as 660 BC (Tombe Mengarelli and della Nave) (Colonna 1985b: 53). The development of the temple took place in North Etruria (and Umbria) much later (not until the fifth century at Pieve a Socana); here a different ritual tradition had been established that was more in keeping with a less centralised and also less developed society.

BRONZE FIGURINES: A DIFFERENT RITUAL APPROACH

The fully developed temple concept was not compatible with the less developed areas of northern Etruria and Umbria. The urbanisation of Arezzo, for instance, is a late development that cannot be readily established before the fifth century, in terms of the internal organisation of the centre, or its impact on the territory. The ritual sites of the territory are rich but take the form of votive deposits, primarily of bronze figurines, rarely associated with more than simple structures. These deposits have more in common with the pre-existing Bronze Age ritual practices, except that their structure within the landscape was completely reworked and the type of offerings were changed.

The earliest evidence for this ritual practice seems to be in the Val di Chiana (between Arezzo and Chiusi). There are early deposits from the early sixth century (e.g. Brolio from the Val di Chiana) and from *c.* 540 BC at Fonte Veneziana, Arezzo. Deposits of a similar type followed from the end of the sixth century onwards over a much larger area, cross-cutting the generally considered boundary of Etruscan territory into Umbria and beyond (e.g. Marzabotto, Bologna (ex Villa Casarini), Monte Falterona, Monte Ansciano (Gubbio)). The bronzes in the Etruscan territory tended to be more highly

developed stylistically and were more likely to be associated with structures (including temples in the later period). The bronzes in the Umbrian area were often highly schematic and associated with very rudimentary structures. There was, however, no clear-cut stylistic break, but more a clinal trend associated with degrees of economic development.

CONCLUSION

Etruscologists have described the radiation of cultural attributes and the blending of art styles. This chapter has shown that there are underlying socio-political reasons for the spatial distribution of material culture. There is clear evidence that a range of independent types of material culture define the pattern of power relationships in the political landscape of Etruria and Umbria. Levels of economic development and political relationships, both internal and external, all play an important part in the acceptance of particular structures of artistic expression. This is not to reduce the study of art to a mere response to economic development. Aesthetic studies are complementary. Furthermore, lines of communication, contact and distribution had an important effect on the spatial development of society itself, most readily visible here in the settlement system.

CHAPTER EIGHT

CONCLUSIONS

THE UNDERLYING TENET OF THIS VOLUME IS THAT LANDSCAPE provides the vital context in which lives and material culture are created. The volume was originally conceived in the late 1980s (Stoddart 1987), but although there have been a number of publications (Rendeli 1993; Pacciarelli 2000; Cifani 2003) which have covered some of the ground, they have been more restricted geographically and chronologically, so that the need for such a volume for the whole of Tyrrhenian Etruria has remained unfilled for more than thirty years.

The approach taken to the diversity of identity in Central Italy is thus not the top-down textual approach adopted by many scholars following the ancient authors (often grandly and myopically entitled the ancient sources) (Bourdin 2012), but a tentatively bottom-up spatial approach which stresses that people are profoundly affected by how they live in a many scaled landscape. The two key scales that were favoured by the Etruscans were the descent group and the community (Stoddart 2014). The way in which these two scales were implemented varied greatly between different communities, leading to a diversity on which distinctive material culture was imprinted (Banti 1969).

This book is nevertheless entitled: *Power and Place*. Many stages still need to be taken to elucidate the less visible parts of the engagement with landscape (Stoddart 2017a) by realising the bottom-up elements of the equation that investigate rural settlement. Steps are already being taken (Stoddart et al. in press; Palmisano et al. 2017), and so this book is a framework for that process.

Nevertheless, we can already identify a tension between the power of the place and the heterarchical components of each powerful place, formed by descent groups imprinted on urban neighbourhoods and corresponding cemeteries. The relationship of city and countryside varied considerably between the relatively centralised southern coastal polities and the northern and inland polyfocal polities. Future work will add an even stronger quantitative dimension to the lower orders of settlement (Stoddart et al. in press). In this volume, the foundations are laid for research that not only brings the study of Etruria into line with other landscape work but demonstrates the strength of the data and their potential.

Thirty years ago, the trajectory of settlement development in Etruria during state formation presented some unusual aspects compared with other case studies. There appeared to be a radical shift from a dispersed to a highly nucleated settlement without any evidence for the power structure to support the burden of administering the large and concentrated numbers of inhabitants within the new settlement structure. Recent research has infilled the intermediate stages in this transition. The dominant primacy of the principal centres has parallels in other cases of state formation. The transition in the Valley of Oaxaca, Mexico (Flannery & Marcus 2012; Stoddart 2010), different and unconnected in terms of geography and culture, had some similarities in terms of scale (3341 sq. km territory) and timing (first millennium BC) but led to a much more expansive outcome (Monte Alban reached 416 ha and a probable territory of 20,719 sq. km). The rate of change in Etruria, in the form of a punctuated equilibrium, is no longer considered so decisive and sudden as to demand outside intervention, but can be explained better as an intensification of the exploitation of resources over a long period, in conjunction with creative political forces (see below). Delicate differences between regions are also becoming apparent. These divergent trajectories were, on the one hand, the consequence of a subtle variation in articulation between areas more and less closely in contact with the Mediterranean, and, on the other hand, the result of internal social and economic processes. Variation can now also be measured within the substantial unity of the latest Bronze Age, even if the impression of relative unity remains clear. In the Iron Age and Archaic periods, there was a more striking divergence that was picked up by classical authors ethnically, as Etruscan, Umbrian and Latin.

This volume has explored the development of complex polities in Etruria and northern Umbria over the period 1200–500 BC. For the first time, a programme has been implemented that has investigated the changes in the spatial operation of complex society in Central Italy, during a set of well-demarcated phases of formation and consolidation. Northern Etruria and Umbria have been investigated in greater detail, so as to allow a comparison with similar work that has been undertaken in the intensively studied southern

Etruria (cf. Rendeli 1993). For northern Etruria, the settlement data have been carefully screened and then analysed to investigate the patterns of social development in this neglected and, in part, peripheral area. For the wider geographical region of Etruria and northern Umbria, the abstract hierarchy of settlement of South Etruria has been set in a hierarchical (Chapter 4) and then spatial context (Chapter 5) before addressing these together (Chapter 6) and providing the context of connectivity offered by material culture (Chapter 7). Here we draw out some of the conclusions of this analysis.

THE DIVERSITY OF MATURE URBANISM

The plot of territories by XTENT for the value of 0.03 provides a useful setting for reflecting on the diversity of the implementation of mature urbanism in Etruria, tentatively placed in the sixth century BC. Although caution must be employed when examining the North Etruria data, the striking difference between the two areas is only partly a matter of research development. In South Etruria, the three coastal centres, Cerveteri, Tarquinia and Vulci have striking similarities of settlement structure within their territories. No subsidiary settlement is greater than one-tenth the size of the primate centre. Cerveteri had the most primate rank-size value. Each primary centre is closely associated spatially with one centre of intermediate size and a coastal entrepôt: Cerveteri – Castel Dannato – Pyrgi; Tarquinia – Casale Grotte – Gravisca; Vulci – Montalto di Castro – Regisvilla. The remainder of the subsidiary settlements are predominantly located at some distance from the primate centre, concentrated on the margins of the political territory, in many cases on good communication routes provided by valleys. Vulci differed in one respect: the entrepôt of Doganella developed traditionally under Vulci's control on the northern boundary of her territory, directly linked to the development of trade with northern Etruria. Collectively, these settlement patterns are typical of centres of strong political and administrative importance. Furthermore, they had direct control of their immediate hinterland and a virtual monopoly of trade derived from the coastal emporia and then distributed into the hinterland through intermediate sites, as illustrated in Chapter 7. In spite of the similarities, where we have the data, we can see differences in the relationship between urban centre and hinterland (Fig 8.1). Tarquinia has all the characteristics of a rationally structured administered system within its river catchment. Cerveteri is much more orientated towards the outside maritime world, with a much more restricted terrestrial space.

The inland centres of Etruria were very differently organised (Fig. 8.1). Veii stands virtually alone as a nucleated centre, in spite of the detailed survey work of the British School at Rome (Potter 1976: 76). In terms of the rank-size index, Veii had the greatest primate value of all the sites of Etruria in its

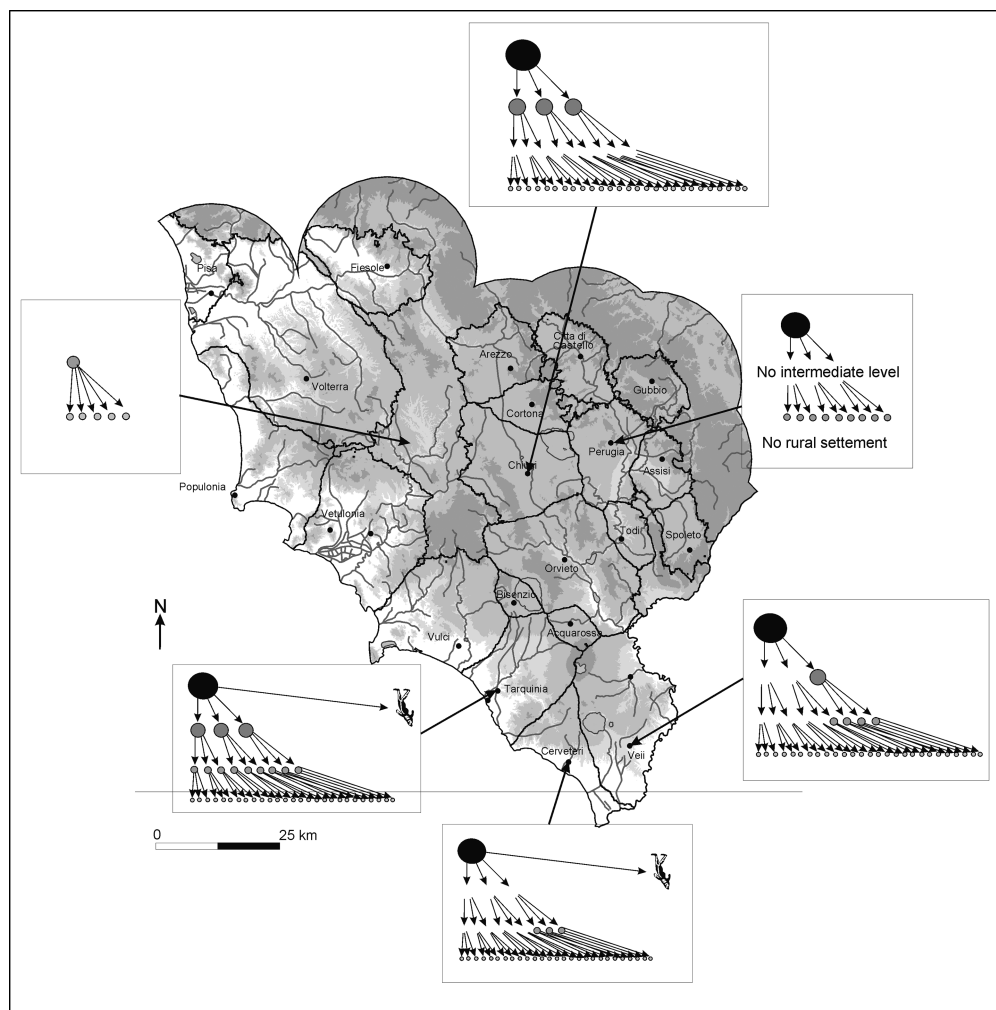


Figure 8.1 Varied hierarchical structures in different territories.

immediate hinterland, although this was reduced by inclusion of the Faliscan territory. Veii had direct control of the nearest rural sites in its territory, without mediation through intermediate centres. External trade and ideological power were monopolised. This power enabled the take-over of the Faliscan territory (Ceccarelli & Stoddart 2007) (which if taken alone would have had a much more lognormal gradient), suggesting a certain degree of autonomy for the Faliscan territory. *Latium vetus*, with Rome as the primary centre, assumed prominence and then dominance at this stage. Rome became the principal settlement of the most lognormal settlement system in Central Italy, but a settlement system that was greatly skewed from the predictions of central place (Fulminante 2014). This peripheral role was, though, short-lived. In terms of the spatial allocation of power, as would be measured by XTENT

for a centre of Rome's newly achieved size, Rome naturally expanded to the north, against the more vulnerable political structure of the Etruscan polities.

Orvieto and Chiusi were two transitional stages between North and South Etruria. Orvieto was a form of mirror image to the coastal polities but without a structural equivalent of the coastal emporium, except by medium of the River Tiber. Orvieto was dominant in its immediate territory, with a few smaller dependent centres located on its southern boundary with neighbouring Etruscan centres. Chiusi was a polyfocal centre surrounded by centres of moderate size (although difficult to estimate exactly), and can be estimated to be the Etruscan centre with a settlement structure most closely approximating to lognormality (a point explored elsewhere (Stoddart et al. in press)). Later literary sources (Livy 28. 45), limited scientific evidence (Paolucci 1993) and the presence of the Val di Chiana suggest that the Chiusi area was involved in intensive agricultural production; this production may have provided the material means for political resistance to larger centres such as Orvieto, thus overcoming the disadvantages of smaller size. A similar argument can be used to understand the relationship between the smaller Roselle and the larger Vetulonia, since Roselle had greater access to the Ombrone valley and its resources (Biserni & Geel 2005). In north-eastern Etruria and Umbria, although not many Archaic nucleated centres have been found outside the major centres, those that existed had a relatively favourable political relationship with respect to their local primate centres. Perugia had relatively few dependent centres and no rural settlement until very late in its development (Ceccarelli & Stoddart in press). There was not the major disparity in size that occurred in South Etruria. However, it is, unlikely that the predictions of Paynter (1981), mentioned in Chapter 2, that underdeveloped areas would have a convex rank-size distribution, held good even for Umbria in the Archaic period. Even in the peripheral areas, the major centres were still dominant.

The location of ritual sites forms a further differentiation between coastal southern Etruria and north eastern Etruria and northern Umbria in the Archaic period. In the developed southern areas, there was a complex distribution of ritual sites with respect to the primary centre: urban, suburban, cemetery, extra-urban and rural. In South Etruria, the rural sanctuaries were in particular located on the boundaries of the territories of developed polities (e.g. Punta della Vipera and Foce del Marangone) (Colonna 1985c). In North Etruria, in the context of a much more dispersed settlement organisation, these boundary sanctuaries did not develop until the fifth century and the landscape was dominated by upland sanctuaries in common with Umbria, which had a much less zoned distribution of ritual locations (Colonna 1970a; Stoddart and Redhouse 2014): principally hilltops (often re-occupying Late Bronze Age sites) with some deposits of lesser importance in caves and river beds. Caves were now relatively peripheral to all aspects of the ritual system. The contrast between Etruria and Umbria is also visible

in the complexity and diversification of the ritual structures in the sites themselves, although north-eastern Etruria and Umbria had certain common traits such as the presence of bronze figurine deposits, often on mountain summits.

THE DIVERSITY OF FRONTIERS

The differences between territories were also played out in the boundaries between them (Fig. 8.2). Southern Etruria was contained by the Tiber and Albegna rivers. The Tiber River to the south defined substantial differences in identity and politics, although even this was a permeable boundary. The Albegna River to the north marked an unstable political boundary. South Etruria itself was divided into two portions, the westerly primate cities of Cerveteri, Tarquinia and Vulci, and the easterly cities of Veii and Orvieto by the buffer region of the volcanic lakes, containing Grotte di Castro to the north

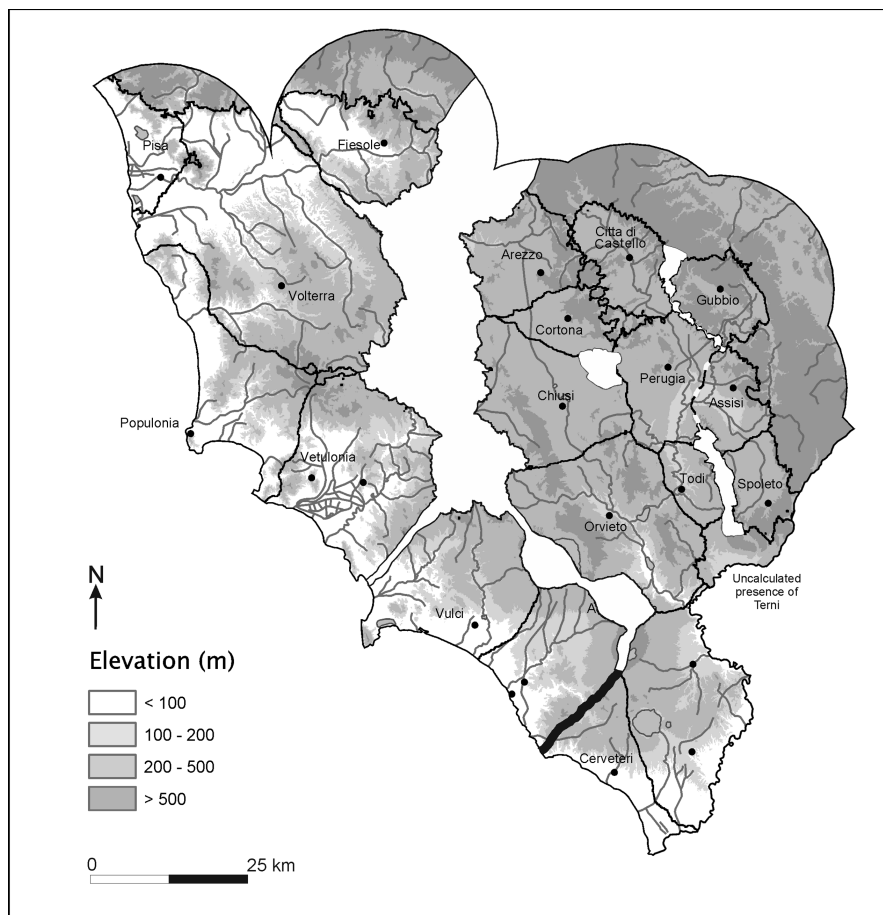


Figure 8.2 Varied frontier zones. White buffer zones. Hard black line denotes more formalised boundary between Cerveteri and Tarquinia.

and Bisenzio to the south (Cifani et al. 2012). The frontier between Perugia and Umbria beyond was in part defined by topography and in part much more permeable (Stoddart et al. 2012; Stoddart & Redhouse 2014). These frontiers varied in their development according to the nature of the cities at the centre. The internal frontier mode of Kopytoff (1989) has considerable relevance to this state of play. The primate centre (the metropole of Kopytoff) appears to be relatively weak in the early development of Etruria, losing population to the internal frontier in the interstices. However, these internal frontiers proved to be unstable and vulnerable, particularly as the primate centres gathered strength. The result is a pattern of long and stable occupation of the primate centres and short-lived occupation of the intervening buffer zones (Fig. 8.3).

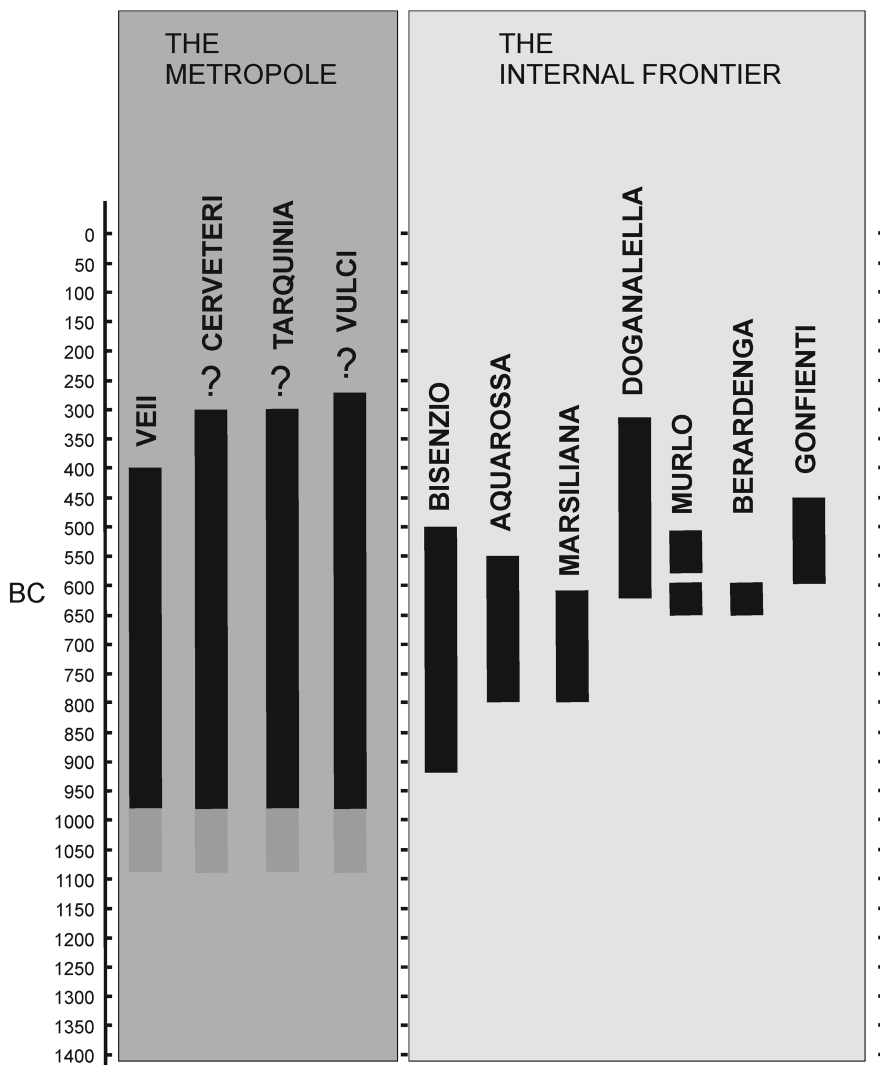


Figure 8.3 Different tempo of settlement duration in metropolises and internal frontiers.

DIVERGENT PROCESSES OF POLITICAL DEVELOPMENT

Socio-political change did not have the same trajectory throughout Central Italy. This volume has shown how very different patterns of settlement development are visible in four principal areas: South Etruria, coastal North Etruria, inland North Etruria and Umbria, to which a fourth, *Latium vetus* (Fulminante 2014), can be added. Geographical areas with similar settlement organisation in the Latest Bronze Age were re-aligned by the political transformations of c. 950 BC. The unity of the inland tectonic valleys in the Final Bronze Age (e.g. Monte Cetona and Monte Ingino) was dissolved at the beginning of the Iron Age. The broad socio-political unity and increasing economic diversity of the Late Bronze Age were replaced by the divergent economic and socio-political trajectories of the Archaic period. In South Etruria and coastal northern Etruria, the primate centre dominated the political landscape. In *Latium vetus*, a classic stepped settlement hierarchy developed. In inland northern Etruria, a much more decentralised political landscape was formed, although a centre such as that of Chiusi was reorientated towards the coastal centres. In Umbria, we have a clear case of underdevelopment in a geographically peripheral zone. It was into this 'frontier' zone that the polity of Perugia expanded (Ceccarelli & Stoddart in press).

These divergent developments of settlement hierarchy are not isolated indications of the differences in socio-political and cultural development between these areas. The distribution of inscriptions followed similar organisational principles. During the seventh century, inscriptions were strongly centralised in South Etruria, but more widely dispersed in North Etruria (particularly inland) (Fig. 8.4). During the sixth century, North Etruria moved towards, but never completely attained, the centralization of South Etruria. Later inscriptions that designated boundaries (*tular*) were concentrated on the uncertain north-eastern frontiers towards the Apennines and Umbria (Fig. 8.5), and inscriptions in Umbrian itself appeared late and were few in number. Recent research has shown that military organisation (Spivey 1988; Spivey & Stoddart 1990; Torelli 2011) paralleled this trend. *Latium vetus* appears to have had the most 'hoplite'-like organisation, where a large proportion of the community participated in military action sponsored by the state. In South Etruria, at least in the early period, military organisation was heavily centralised under the control of the elite descent groups. In North Etruria, there was a greater spatial dispersal of military power, but control was still restricted to a small number of military leaders. The contrasting power structure of these different areas is also reflected in the control of exotic trade items. The centres of South Etruria kept a rigorous centralised control over the administration of trade. In North Etruria, this control was much less powerful; although access to exotic items was less extensive, it was more equally distributed. Northern

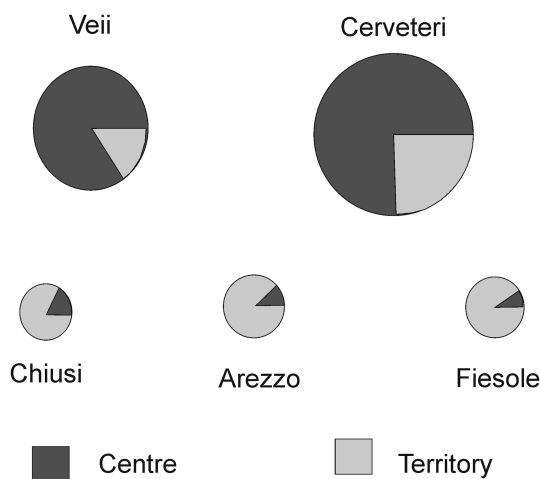


Figure 8.4 Contrasting distribution of inscriptions between city and countryside in the 7th century between South and North Etruria.

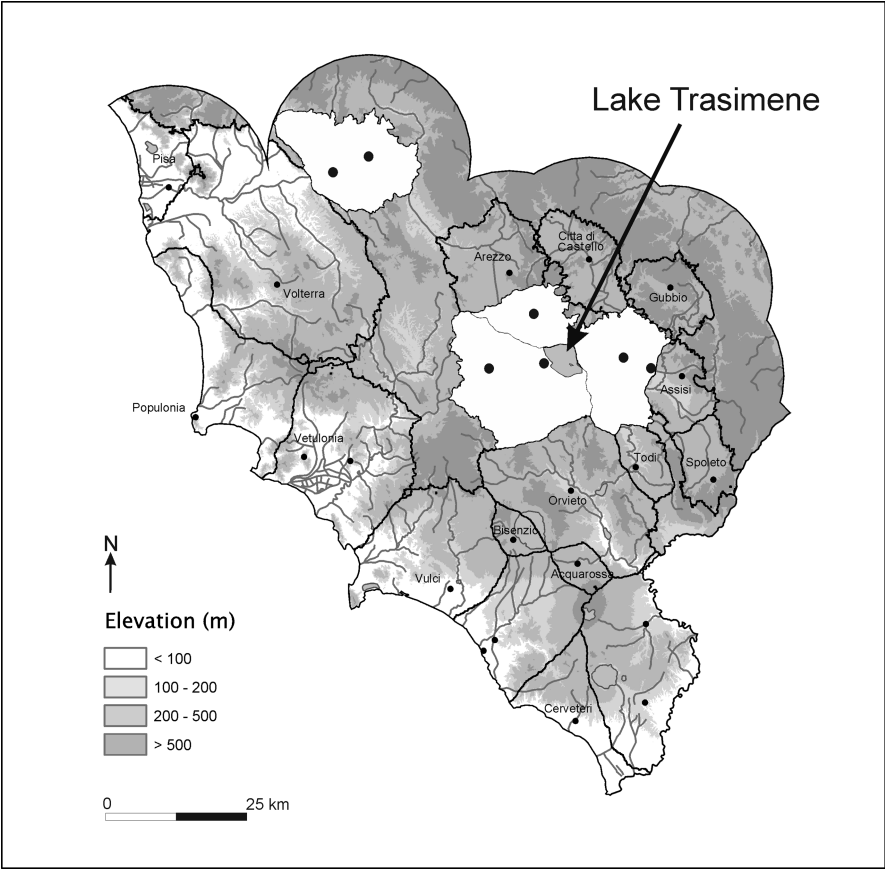


Figure 8.5 Location of tular boundary stones in frontier zones of Etruria.

Umbria was at the end of an extended exchange network and received very few exotic items (Matteini Chiari 1995).

CONTRASTS AND COMPARISONS WITH GREECE AND CENTRAL EUROPE AND BEYOND

The tempo of state formation places the Etruscan case study firmly within the Old World trajectory. If we place Etruscan state formation on the same scale as some examples provided by Peterson and Drennan (2012) in the recalibration of time, we can see that the later occurrence of state formation in Etruria has similar scalar qualities to the classic cases of the Old World (Fig. 8.6). A key element of this scale is the long build-up from the onset of agriculture compared with the New World. So although comparisons can be made with developments in Oaxaca, there are major differences in this crucial respect. Furthermore, the Etruscan case study can be compared to the Chinese case illustrated here in terms of the small-scale size of initial agricultural settlement, the tipping points of demography and the strongest phases of the materialisation of state formation (although the latter is more difficult to quantify accurately).

In more detailed respects, the developments in Central Italy contrast with settlement development in Central Europe and Greece during the same period, although culture contact has often been envisaged between these areas and Italy. The contrast appears most strikingly in the general long-term political development of the three areas. In central Europe, a generally decentralised political landscape was interrupted by a succession of short-lived foci of centralised, but weakly integrated nucleations (Wells 1984; Stoddart 2017b): Hallstatt, Heuneburg, Manching, Magdalensberg. In Greece, there were several cycles of complex socio-political organisation. Cycladic civilisation developed in the third millennium (Renfrew 1972; van Andel & Runnels 1988; Broodbank 2002). Minoan and Mycenaean civilisation rapidly succeeded each other in the second millennium (Knappett et al. 2011; Parkinson & Galaty 2007). A radically new political organisation based on the *polis* developed in the first millennium (Hansen 2006). Only a very few scholars (e.g. Van Effenterre 1984) would suggest continuity between these stages. By contrast, in Central Italy, a long-term continuous process, culminating in accelerated socio-political change, was much more evident. During the third and second millennia, there was little development of political complexity, although some of the Chalcolithic groups of the early second millennium can be interpreted as indicative of incipient social ranking (Dolfini 2004). It was only towards the close of the second millennium that there was major accelerated progress towards complexity (Iaia 1999). Although this accelerated progress towards social complexity is marked by a major reorganisation of settlement in the ninth

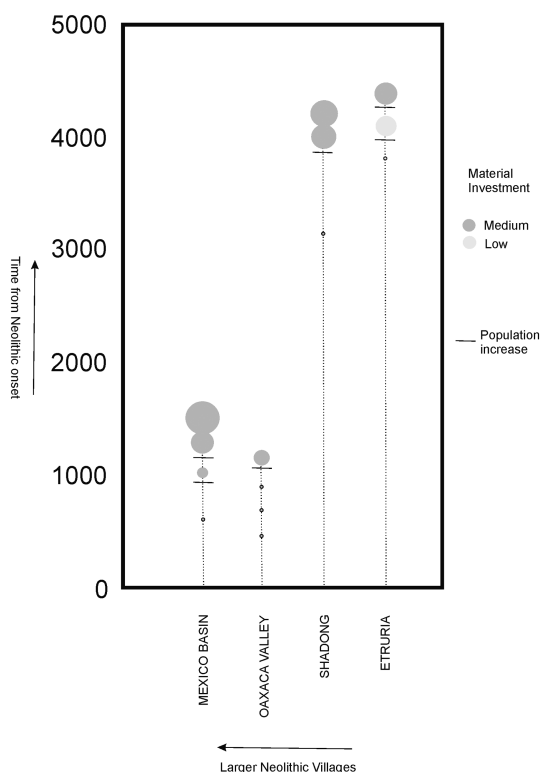


Figure 8.6 The tempo of state formation following the criteria of Peterson and Drennan (2012).

century, there was subsequently no radical break until the Roman system replaced the Etruscan from the fourth century, and this change could be argued to have more political continuity than drastic realignment.

The resurgence of interest in the spatial organisation of the Greek *polis* (Alcock 1991; Bintliff 2006; Fitzsimons 2014) allows some general comparisons to be made of a more spatial nature. The political landscape of Archaic Greece was divided into many independent political territories. Some of these were extremely small and may not have contained more than a few thousand inhabitants. Other *poleis*, such as Athens, were extremely large (Greco et al. 2015; Papadopoulos & Smithson 2017) and in the Cyclades incorporated (e.g. Naxos) several islands. This political landscape may, in part, have been a result of the fragmented physical landscape of Greece, but this cannot explain why small islands such as Keos and Amorgos were divided between independent political units (Snodgrass 1986: 49), or why the western colonies followed a very similar pattern. The essential contrast with the five politically dominant primate centres of southern Etruria is most evident, although greater similarities of spatial diversity emerge when the whole of Etruria is examined, as in this volume. There are also important comparisons in the ritualisation of space. De Polignac (1984) has emphasised the bipartite ritual focus of the Greek *polis*, with

the important exception of Athens. Ritual monuments were placed not only in the acropolis but also close to the boundary of the territory of the *polis* (Morgan 1990). Legitimisation of territory appears to have been an important political consideration at an early date. The same phenomenon occurred in Central Italy, initially in South Etruria, at the end of the sixth century and the beginning of the fifth century. Religion was equally fundamental to the Etruscan polity, but the tempo of the spatial distribution of ritual monuments was different. It was only at this later date that the ritual monuments at Gravisca and Pyrgi were founded to ritualise the boundary with the Greek world, and the sanctuaries of Punta della Vipera and Foce della Marangone were established on the political boundary between Cerveteri and Tarquinia (Riva & Stoddart 1996), and even later on Lakes Bolsena (d'Atri 2006) and Trasimeno (Colonna 1976–7). Until this moment, political authority remained strongly focused on the primate centre itself, and political control had not extended to meet the territory of the contiguous polities.

There were, however, similar processes at work, in spite of what appear to be radical differences in the distribution of political power. The *polis* system in Greece did not extend much beyond the Peloponnese and the coastal strip of the Aegean and its islands. Beyond lay the *ethnos* form of organisation (Snodgrass 1980, 1986; Morgan 2003). The *polis* system was also expandable; the purest form of *polis* may be that placed in a colonial context (Wilson 1997). A comparable phenomenon existed in Etruria. The polities had a fairly restricted spatial extension which, although penetrating further from the coast than in the Greek case, did not penetrate deeply into the Apennines. At the end of the sixth century, polities expanded to meet the boundaries of their competing neighbours. After the sixth century, there was a colonisation process into the Po Valley and into Campania. The ideal Etruscan city, laid out on a well-defined grid plan is that of Marzabotto in the Po plain. Pressure was gradually brought on the contiguous underdeveloped zones, such as northern Umbria. Immediately before this process was cut off by the Roman conquest, Gubbio developed an emulated political and religious structure recorded in the Iguvine Tables. Variation has also been recorded in the spatial organisation within the territory of the *polis*, which differed as much as the variation within the territory of an Etruscan polity recorded in this volume. For instance, Gallant (1982) has contrasted the colonial *polis* of Lefkas, which effectively had a strongly primate organisation, with the indigenous *polis* of Pronnoi, which had effectively a more lognormal structure. Intensive survey is detecting further contrasts in the use of space within the territories of differently structured centres, in the Greek context. These differences in the deployment of rural settlement are also beginning to be detected in Etruria (Stoddart 2016; Stoddart et al. in press). Lastly, although strikingly different in ideology and political organisation, the Greek *polis* and the Etruscan polity are good

examples of the operationalisation of the peer-polity interaction concept (Renfrew 1986; Renfrew & Wagstaff 1982), even if with modifications (Redhouse & Stoddart 2011).

CAUSES

The operation and expansion of the Etruscan polities are considerably easier to demonstrate than their cause. As pointed out at the end of the last section, the peer-polity interaction concept can be applied very readily to Etruria. Even if parity of the parts can be overstated, the city-states of Etruria stayed in equilibrium for at least 500 years. After the expansion of the Villanovan centres on the site of smaller Bronze Age settlements from the late tenth century BC, subsequent development can be described and even explained in terms of the strong interactions between competing polities, although it is important to acknowledge that intensified peer-polity interaction from 800 BC onwards was accompanied by increasingly intensified Mediterranean interaction. This subsequent external interaction contributed considerably to the divergent socio-political trajectories in Central Italy. Nevertheless, the major conditions of peer-polity interaction are satisfied; the individual polities are known historically to have been independent and structural homologies clearly existed which had a slightly earlier innovation in one or two polities. The process of competitive emulation has been explored in detail in the case of inscriptions. The same process has been suggested in the case of the formal temple adorned with terracottas. A very similar process can be envisaged for the spread of myth (Spivey & Stoddart 1990). Other homologies, in the field of urban design, can be expected once the internal organisation of cities is better known through excavation. Clear interaction can already be shown in terms of the exchange of pottery style and the local imitation of exotic styles; further work on local styles will clarify this relationship (e.g. Conti 2011). All these examples are a clear demonstration of the peer-polity interaction process in action, but the problem remains whether this is an adequate explanation. For with this concept, the process of complex polity formation can only be investigated at present from the secure starting point of the Villanovan period. The process of complex polity formation must, in contrast, be taken back to the Latest Bronze Age.

The problem of origins is not new to the Etruscans. A major contribution of Pallottino (1961, 1984) was to consider the Etruscans the result of a long-term endogenous process in contrast to earlier theories that emphasised external migration and other major exogenous impacts on Central Italy. The endogenous nature of this process has been emphasised in this volume, pointing out the

low level of external interaction at the moment of crucial transformation in settlement structure during the late tenth century (Chapter 7). Unfortunately, as already pointed out, the concept of peer-polity interaction does not provide a ready causal mechanism to replace external influence, although interactions at a local level appear to have continued during this crucial phase. Equally, a simple explanation cannot be found in environmental change or the distribution of resources.

This issue needs to be explored at the level of the agents who promoted nucleation, the underlying decision of gathering together (Stoddart 2010, in press). In parallel to the discussion of the Valley of Oaxaca, there are two main contrasting approaches. On the one hand, explanation can appeal to a legendary figure who, by sheer charisma and energy, brings the community together. This is the mythological approach that would be Theseus in the Greek world, Romulus in the Latin world and a series of more intangible Tarchons from the Etruscan world. It is the explanation promoted by Flannery in the Valley of Oaxaca (Flannery 1999). Posed against this explanation is a concept of collective action. This collective action may have retained some of the component parts of the Bronze Age communities that contributed their demographic power to the new nucleations. This is the explanation promoted by Blanton (Blanton & Fargher 2008) in the Valley of Oaxaca and that also seems most probable in the case of Etruria. The political circumstances, tinged with uncertainty, encouraging of militarism, of the late second millennium BC promoted a new collectivity that brought together the separate villages of the Bronze Age.

No absolute explanation of collectivity can be presented here. Unlike in Greece (Snodgrass 1986), with the lack of Etruscan literature, there is no explicit evidence for an increasing self-awareness of Etruscans that can be considered the underlying process. However, it is clear that the identity of the Etruscan engaged with a heterarchical tension between descent group and community, the first visible in the funerary genealogies, the second in the construction of centralised rituals and encircling walls. Furthermore, it is clear that a long-term process of intensification of production was at work from the middle of the second millennium. This was initially a slow change that did little to disturb the pre-existing long-term stability in the peninsula. However, during the Final Bronze Age, there was a considerable acceleration in this process. This increase in production was undoubtedly exploited politically by the end of the Bronze Age. The most radical exploitation of the changes in production was the centralisation of settlement in the Villanovan centres. Only conditions of high productivity, helped by the arrival of tree crops, would have enabled the restructuring of a dispersed 'convex' settlement system as a strongly 'primate' settlement system. Competition in the latest period of the Final Bronze Age was such that the conditions of growth could not be maintained

without a political solution. It was from this moment that an overtly political landscape was formed.

FUTURE DIRECTIONS

The major focus of this volume has been on the spatial distribution of settlement. The analysis of settlement has, however, mainly been of centres larger than 10 hectares in size. Settlements smaller than this size are only known in the surveyed areas (Palmisano et al. 2017; Stoddart et al. 2019) (Fig. 8.7). The release of data pertaining to these surveys has more recently allowed a series of new analyses while taking due account of the available and varied information (Stoddart et al. in press) and should be read alongside this volume, providing a different level of comparison across Central Italy. Clearly more settlement excavation and regional survey work will allow a major change in the type of analysis that can be undertaken, by exploring the invisible as well as the visible Etruscans (Malone et al. 2014; Paolucci

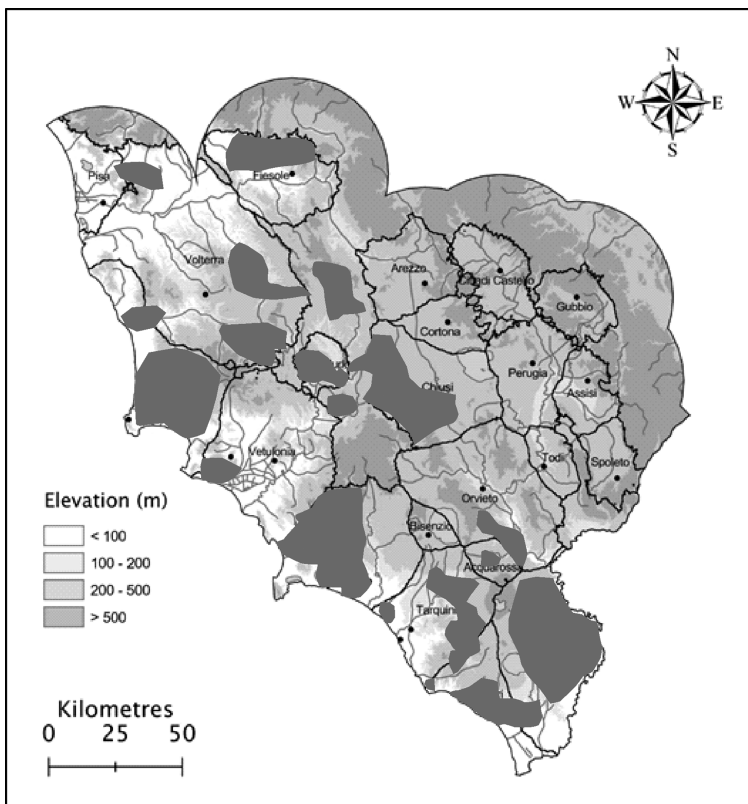


Figure 8.7 Zones where reliable rural settlement is available for the Archaic period.

1993; Perkins & Attolini 1992; Stoddart 2017b; Zifferero et al. 2009). Firstly, an understanding of internal settlement development in the major centres, particularly of the formative phases of the ninth and eighth centuries, will be fundamental for a more complete understanding of socio-political change. Employing the data from a more detailed investigation of the internal organisation of settlement, it will be possible to present more quantitative measures of contrasting development between different areas. Major advances have been achieved in this sector over the last few years in important cities such as Veii (Tabolli & Cerasuolo 2019), Cerveteri (de Grummond & Pieraccini 2016) and Tarquinia (Bonghi Jovino 2010), and even in the more challenging contexts of living cities such as Perugia (Cenciaioli 2014). Secondly, an understanding of the distribution of the lower levels of the settlement hierarchy will complement the more politically orientated distribution of the major centres. Again much progress has been made in the implementation of surface survey (Stoddart 2007; Stoddart et al. in press), and new insights into the subtleties of hierarchy can be determined by including the lower levels of the settlement system. Thirdly, some of these rural settlements deserve excavation to establish precisely the relationship of the urban centre to its rural hinterland. This has been much less developed, and many of the excavated examples are concentrated into a few sample regions such as the Albegna valley, the neighbourhood of Chiusi and near Perugia. Finally, the application of normal science by the recovery of systematic samples of organic as well as inorganic materials and their analysis will substantially change our knowledge of the invisible Etruscan. Cuisine can be gleaned from residues as much as from reading iconography.

As mentioned in Chapter 1, funerary evidence has not been systematically investigated in this volume, but only mentioned in passing as complementary evidence to the patterns of settlement. Substantial modern studies exist of the inference that can be drawn from this evidence (Riva 2010), and complementary material culture and monumental remains (Izzet 2007a). Although not investigated here, the funerary evidence of Etruria and Latium does present a major opportunity for future research. The contrast in development between *Latium vetus* and Etruria over the ninth and eighth century can already be made in part through the cemeteries of Osteria dell'Osa and Quattro Fontaneli, the two most accurately investigated cemeteries of this period. However, even with the inadequacies of some of the older data, more sophisticated quantitative analyses of socially embedded changes in style and distribution of wealth need to be made, as accomplished for a similar period in Greece (Morris 1987, 1992; Whitley 1991; Papadopoulos & Smithson 2017). These cemeteries also contain the biological remains of the agents of the political process, and, although

ancient DNA should not be confused with identity, the study of biological genealogies does provide a parallel account alongside the social and fictive genealogies (Stoddart 2014).

A continuing challenge is that pronounced by many archaeologists predominantly with Greece in mind (e.g. Renfrew 1980; Snodgrass 1985; Spencer 1995), but with equal application to Italy: the integration of diverse methodological approaches to the rich data of the Great Tradition. This volume has approached the Great Tradition of Etruria with the outlook of a prehistorian to explore the spatial development of the complex polities of Central Italy. The volume is, however, only one step towards inserting the intricacies of the cultural record in a socio-political framework of which space and time are two important dimensions.

CULTURAL BALLAST AND THE GREAT DIVIDE

Some Etruscologists have been content to rework the rich corpus of evidence supplied by the independent studies of numerous cemeteries and elaborate iconography, epigraphy and concurrent linguistic problems, as largely an aesthetic exercise. Unfortunately, an integration of the rich range of evidence on early Etruscan state formation is rarely attained; the material remains as cultural ballast without full exploration of its socio-political meaning. This contrasts with work in Greece, where some form of compromise has been achieved, and where artistic, processual and even post-processual studies manage to co-exist successfully (Snodgrass 1980; Whitley 2001; Bintliff 2012; Nevett & Whitley 2018).

The danger of a new treatment of this period is the perpetuation of a new Great Divide (cf. Renfrew 1980). An acultural approach can seem dangerously arid to more traditional academic audiences, as one reviewer has pointed out (Piggott 1985). In this period, the artistic achievements cannot be ignored. Ethnographic parallels or mechanistic models are not the only evidence. However, it must also be pointed out that the external models of the ancient authors so attentively followed by many scholars can be equally erroneous. As a simple illustration of this, we can compare the attention of Livy to individual Etruscan cities with their size (Fig. 8.8), a central feature of this volume. The attention of Livy varied with the intensity of the political relationship, governed principally by military action and treaties. In this political geography, the primate centre of Veii and the smaller centres of the Faliscan territory feature strongly, but not consistently, whereas the other powerful places of Etruria remain in the shadows.

There is much room for complementary treatment of the first millennium BC. In Italy, the means are increasingly available but have only been attempted coherently on two occasions (Spivey & Stoddart 1990; Barker

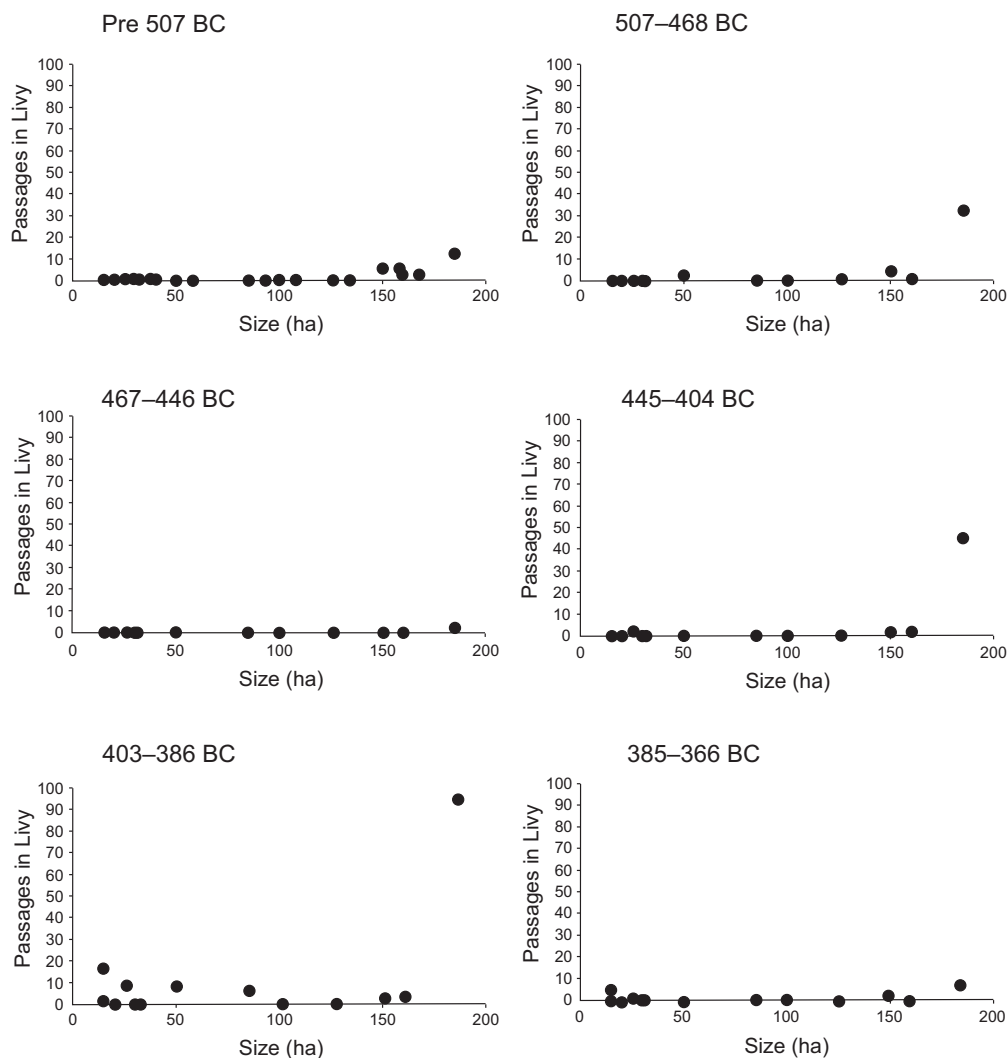


Figure 8.8 Diagrams comparing citations of Etruscan centres by Livy with their size across time.

& Rasmussen 1998). In 1990, two of us attempted to rewrite Livy in a way that overcame the problems encapsulated in Figure 8.8. Some thirty years later, conversations in the Cambridge palestra suggest that it may be time to report on progress!

BIBLIOGRAPHY

- Abulafia, D. 2011. *The Great Sea: A Human History of the Mediterranean*. London: Allen Lane.
- Acconcia, V. 2012. *Paesaggi etruschi in terra di Siena: L'agro tra Volterra e Chiusi dall'età del ferro all'età romana*. (BAR International Series 2422). Oxford: Archaeopress.
- Acconcia, V. & Rizzelli, C. (eds.). 2008. *Materiali per Populonia 7*. Pisa: Edizioni ETS.
- Adams, R. E. W. & Adams, J. J. 2003. Volumetric and stylistic reassessment of classic Maya sites in the Peten, Rio Bec, Chenes, and Puuc Hills. *Ancient Mesoamerica* 14: 139–50.
- Adams, R. M. C. 1981. *Heartland of Cities: Surveys of Ancient Settlement and Land Use on the Central Floodplane of the Euphrates*. London: University of Chicago Press.
- Alberti, D. & Laurenzi, G. P. 2001. Rinvenimenti dell'età del ferro nell'alta Valtiberina. In Martini, F. & Nappini, R. (eds.), *Atti della XXXIV Riunione scientifica: Preistoria e protostoria della Toscana, Firenze, 29 settembre–2 ottobre 1999*. Florence: Istituto Italiano di Preistoria e Protostoria, 583–6.
- Albertoni, P., Ducci, M., Innocenti, G., Paggetti, L., Vanni, F. M. & Fognani, S. 1985. *Ricognizioni archeologiche sul territorio comunale di Stia*. (Catalogo della Mostra). Stia: Comune di Stia (Biblioteca Comunale) – Gruppo Archeologico Casentino.
- Alcock, S. E. 1991. Urban survey and the polis of Phlius: Hesperia: *The Journal of the American School of Classical Studies at Athens* 60 (4): 421–63.
- Alden, J. 1979. A reconstruction of Toltec period political units in the Valley of Mexico. In Renfrew, A. C. & Cooke, K. L. (eds.), *Transformations, Mathematical Approaches to Culture Change*. New York: Academic Press, 161–200.
- Alessio, M., Bella, F., Cortesi, C. & Grasiadei, B. 1968. University of Rome C-14 Dates VII. *Radiocarbon* 10 (2): 350–64.
- Allegrucci, F., Biondi, E., Fulton, R., Housley, R., Hunt, C. & Stoddart, S. 1994. Vegetation, land use and climate. In Malone, C. & Stoddart, S. (eds.), *Territory, Time and State: The Archaeological Development of the Gubbio Basin*. Cambridge: Cambridge University Press, 36–58.
- Allen, K. M., Green, S. W. & Zubrow, E. B. 1990. *Interpreting Space: GIS and Archaeology*. London: Taylor and Francis.
- Alvarez, W. 1972. The Treia valley north of Rome: volcanic stratigraphy, topographic evolution and geographical influence on human settlement. *Geologia Romana* 11: 153–76.
1975. The Pleistocene volcanoes north of Rome. In Squyres, C. (ed.), *Geology of Italy*. Tripoli: Earth Science Society, 355–77.
1976. The tectonic significance of Mediterranean volcanoes. *Geologia Romana* 15: 311–13.
- Ancillotti, A. & Cerri, R. 1996. *Le Tavole di Gubbio e la civiltà degli Umbri*. Perugia: Edizioni Jama.

- Andr n, A. 1974. Osservazioni sulle terracotte architettoniche etrusco italiche. *Skriver Utgivna av Svenska Institutet I Rom (Opuscula Romana 8)* 4^o 31: 1–16.
- Andreoni, C. 1990a. Grotta del Gosto. In Martini, F. & Sarti, L. (eds.), *La preistoria del Monte Cetona: Materiali e documenti per una guida del Museo civico per la preistoria del Monte Cetona*. Florence: All’Insegna del Giglio, 86–7.
- 1990b. Grotta Lattaia. In Martini, F. & Sarti, L. (eds.), *La preistoria del Monte Cetona: Materiali e documenti per una guida del Museo civico per la preistoria del Monte Cetona*. Florence: All’Insegna del Giglio, 84–6.
- Angelini, I., Artioli, G., Bellintani, P., Diella, V., Gemmi, M., Polla, A. & Rossi, A. 2004. Chemical analyses of Bronze Age glasses from Frattesina di Rovigo, Northern Italy. *Journal of Archaeological Science* 31: 1175–84.
- Angle, M. & Gianni, A. 1985. An application of quantitative methods for a socio-economic analysis of an Iron Age necropolis in Latium. In Malone, C. & Stoddart, S. (eds.), *Papers in Italian Archaeology IV*, part 3: *Patterns in Protohistory*. (British Archaeological Reports International Series, 245). Oxford: British Archaeological Reports, 145–65.
- Aprasio, M. & Mascione, C. (eds.). 2006. *Materiali per Populonia 5*. Pisa: Edizioni ETS.
- Aranguren, B. 2008. Un insediamento produttivo per ceramica dell’eta del bronzo finale in localita le Chiarine, Puntone Nuovo, Scarlino (GR)s. *Officina Etruscologia* 1: 9–21.
- Ashby, T. 1898. Sul vero sito del lago Regillo. *Rendiconti Lincei* 7 (5): 103–26.
1902. The classical topography of the Roman Campagna. Part I. *Papers of the British School at Rome* 1: 125–285.
1927. *The Roman Campagna in Classical Times*. London: Benn.
- Atti 1982. Atti del seminario ‘Economia e organizzazione del territorio nelle societ  protostoriche’. *Dialoghi di Archeologia* 4 (2): 1–160.
- Attolini, I., Cambi, F., Celuzza, M., Fentress, E., Gualandi, M. L., Pasquinucci, M., Regoli, E., Ricci, A. & Walker, L. 1983. Ricognizione archeologica nell’Ager Cosanus e nella valle dell’Albegna. Rapporto preliminare 1982/3. *Archeologia Medievale* 10: 439–65.
- Auerbach, F. 1913. Das Gesetz der Bev lkerungskonzentration. *Petermanns Geographische Mitteilungen* 59: 74–6.
- Azzaroli, A. 1972. Il cavallo domestico in Italia dall’et  del bronzo agli Etruschi. *Studi Etruschi* 40: 273–306.
- Babbi, A. 2005. L’insediamento protostorico di Isola Farnese: Considerazioni sull’et  del bronzo finale nel distretto Veiente. In Paoletti, O. (ed.), *Dinamiche di sviluppo delle citt  nell’Etruria meridionale: Veio, Caere, Tarquinia, Vulci*. Atti del XXIII Convegno di Studi etruschi ed italici, Roma–Veio–Cerveteri–Pyrgi–Tarquinia–Tuscania–Vulci–Viterbo, 1–6 ottobre 2001. Pisa–Rome: Istituti Editoriali e Poligrafici Internazionali, 665–73.
2016. Bisenzio between proto-history and the archaic period: the Research Project. In Della Fina, G. M. (ed.), *Dalla capanna al palazzo: Edilizia abitativa nell’Italia preromana*. (Annali della Fondazione per il Museo Claudio Faina 24). Rome: Quasar, 169–86.
- Babbi, A. & Delpino, F. 2004. Materiali protostorici da Sant’Andrea di Orvieto (scavi M. Cagiano de Azevedo). In Della Fina, G. M. (ed.), *I Greci in Etruria: Atti dell’XI Convegno internazionale di studi sulla storia e l’archeologia dell’Etruria*. (Annali della Fondazione per il Museo Claudio Faina 11). Rome: Quasar, 341–77.

- Baglione, M. P., Belevi Marchesini, B., Carlucci, C. & Michetti, L. M. 2017. Pyrgi, harbour and sanctuary of Caere: landscape, urbanistic planning and architectural features. *Archeologia e Calcolatori* 28 (2): 201–10.
- Bagnasco Gianni, G. 2005. Tarquinia, il deposito reiterato: una preliminare analisi dai comparanda. In Bonghi Jovino, M. & Chiesa, F. (eds.), *Offerte dal regno vegetale e dal regno animale nelle manifestazione del sacro: Atti dell'incontro di studio Milano 26–27 giugno 2003*. (Università degli Studi di Milano: Tarchna, Supplemento 1). Rome: 'L'Erma' di Bretschneider, 91–101.
- Bagnasco Gianni, G., Garzulino, A. & Marzullo, M. 2017. The last ten years of research at Tarquinia. *Archeologia e Calcolatori* 28 (2): 211–21.
- Balista, C., De Guio, A., Leonardi, G. & Serafini, A. R. 1982. La frequentazione protostorica del territorio vicerentino: metodologia analitica ed elementi preliminari di lettura interpretativa. *Dialoghi di Archeologia* 4: 113–36.
- Banti, L. 1936. Contributo alla storia ed alla topografia del territorio Perugino. *Studi Etruschi* 10: 97–127.
1969. *Il mondo degli Etruschi*. (Biblioteca di Storia Patria). Rome: Ente per la Diffusione e l'Educazione Storica.
- Baratti, G. 2010. Un sito per la produzione del sale sulla spiaggia di Baratti (area Centro Velico) alla fine dell'età del Bronzo. In Baratti, G. & Fabiani, F. (eds.), *Materiali per Populonia* 9. Pisa: Edizioni ETS, 243–60.
2011. Nuovi dati dagli scavi nella Pineta del Casone e considerazioni sull'evoluzione dell'area tra età del bronzo ed età Romana. In Facchin, G. & Milletti, M. (eds.), *Materiali per Populonia* 10. Pisa: Edizioni ETS, 211–27.
- Baratti, G. & Fabiani, F. (eds.). 2010. *Materiali per Populonia* 9. Pisa: Edizioni ETS.
- Barbaro, B. 2010. *Insedimenti, aree funerarie ed entità territoriali in Etruria meridionale nel Bronzo Finale*. Florence: All'Insegna del Giglio.
- Barbieri, G. 1966. *Memoria illustrativa della carta della Utilizzazione del Suolo della Toscana. Fogli 9, 11 e 12 della carta della Utilizzazione del Suolo d'Italia*. Rome: Consiglio Nazionale delle Ricerche.
1991. *Viterbo e il suo territorio*. Rome: Quasar – Regione Lazio.
- Barfield, L. 1971. *Northern Italy before Rome*. (Ancient Peoples and Places). London: Thames and Hudson.
- Barker, G. 1976. Animal husbandry at Narce. In Potter, T. W. (ed.), *A Faliscan Town in South Etruria*. London: British School at Rome, 295–307.
1981. *Landscape and Society: Prehistoric Central Italy*. London: Academic Press.
1983. The Montarrenti survey, 1982. *Archeologia Medievale* 10: 339.
1988. Archaeology and the Etruscan countryside. *Antiquity* 62: 772–85.
1993. Approaches to the Etruscan landscape: the development of the Tuscania survey. In Bogucki, P. (ed.), *Case Studies in European Prehistory*. London: CRC Press, 229–57.
- (ed.). 1995. *A Mediterranean Valley: Landscape Archaeology and Annals History in the Biferno Valley*. Leicester: Leicester University Press.
- Barker, G. & Rasmussen, T. 1988. The archaeology of an Etruscan polis: a preliminary report on the Tuscania Project (1986 and 1987 seasons). *Papers of the British School at Rome* 56: 25–42.
1998. *The Etruscans*. Oxford: Blackwell.
- Barker, G. & Stoddart, S. 1994. The Bronze Age of Central Italy: c. 2000–900 BC. In Mathers, C. & Stoddart, S. (eds.), *Development and Decline in the Mediterranean Bronze Age*. Sheffield: J. R. Collis Publications, 145–66.

- Barker, G. & Symonds, J. 1984. The Montarrenti Survey, 1982–3. *Archeologia Medievale* 11: 278–89.
- Barocelli, P. 1939. Il contributo italiano al progresso della paleontologia, negli ultimi cento anni. In *Un secolo di progresso scientifico italiano: 1839–1939*. Rome: Società per il Progresso delle Scienze.
- Barratt, R., McLaughlin, R., Malone, C. & Stoddart, S. 2018. Celebrations in prehistoric Malta. *World Archaeology* 50 (2): 271–84.
- Bartoli, F., Mallegni, F. & Fornaciari, G. 1997. Le risorse alimentari nel mondo etrusco: aspetti della paleodieta in due gruppi umani a cultura etrusca. In Maetzsche, G. & Tamagno Perna, L. (eds.), *Aspetti della cultura di Volterra etrusca fra l'età del ferro e l'età ellenistica e contributi della ricerca antropologica alla conoscenza del popolo etrusco*. Atti del XIX Convegno di Studi etruschi ed italici: Volterra, 15–19 ottobre 1995. Florence: L. S. Olschki, 477–88.
- Bartoloni, G. 1988. Insediamenti della tarda età del bronzo nel distretto minerario toscano. In Sperl, G. (ed.), *Il primo ferro nel Mediterraneo: Atti del Convegno di Populonia/Piombino 1983*. (PACT: Journal of the European Study Group on Physical, Chemical, Biological and Mathematical Techniques Applied to Archaeology 21). Strasbourg: Council of Europe, 71–82.
- 2003a. Veio e Rome: considerazioni alla luce di recenti indagini. In Van Kampen, I. (ed.), *Dalla capanna alla casa: I primi abitanti di Veio*. (Exhibition Catalogue: Formello, December 2003–March 2004). Formello: Museo dell'Agro Veientano, 13–21.
- 2003b. Veio-Piazza d'Armi: un'abitazione in capanna. In Van Kampen, I. (ed.), *Dalla capanna alla casa: I primi abitanti di Veio*. Exhibition catalogue (Formello, December 2003–March 2004). Formello: Museo dell'Agro Veientano, 57–62.
2009. *L'abitato etrusco di Veio: Ricerche dell'Università di Roma La Sapienza*. Rome: IUNO.
- Bartoloni, G., Acconcia, V., Piergrosi, A., Van Kampen, I. & Ten Kontenaar, S. 2006. Veio: l'abitato di Piazza d'Armi. Le terrecotte architettoniche. In Edlund-Berry, I., Greco, G. & Kenfield, J. (eds.), *Deliciae Fictiles IV: Proceedings of the International Conference (American Academy in Rome, November 7–8, 2002)*. Oxford: Oxbow, 50–76.
- Bartoloni, G., Acconcia, V. & Ten Kontenaar, S. 2005. Veio: Piazza d'Armi. In Paoletti, O. (ed.), *Dinamiche di sviluppo delle città nell'Etruria meridionale: Veio, Caere, Tarquinia, Vulci*. Atti del XXIII Convegno di studi etruschi ed italici: Roma–Veio–Cerveteri–Pyrgi–Tarquinia–Tuscania–Vulci–Viterbo, 1–6 ottobre 2001. Pisa-Rome: Istituti Editoriali e Poligrafici Internazionali, 73–85.
- Bartoloni, G., Bietti Sestieri, A. M., Fugazzola Delpino, M. A., Morigi Govi, C. & Parise Badoni, F. (eds.). 1980. *Materiali dell'età del bronzo finale e della prima età del Ferro*. Florence: Centro Di.
- Bartoloni, G. & Bocci Pacini, P. 2002. Roselle: un rilettura dei dati di scavo nell'abitato arcaico. In Manganelli, M. & Pacchiani, E. (eds.), *Città e territorio in Etruria: Per una definizione di città nell'Etruria settentrionale. Giornate di Studio, Colle Val d'Elsa 12–13 marzo 1999. Teatro dei Varii*. Colle Val d'Elsa: Gruppo Archeologico Colligiano, 187–212.
- Bartoloni, G., Buranelli, F., D'Atri, V. & De Santis, A. 1987. *Le urne a capanna rinvenute in Italia*. Rome: G. Bretschneider.

- Bartoloni, G. & Delpino, F. 1975. Un orciolo a lamelle metalliche: considerazioni sulla prima fase villanoviana. *Studi Etruschi* 43: 40–52.
- Bartoloni, G. & Rossetti, C. 1984. L'insediamento protostorico di Scarlino: relazione preliminare. *Rivista di Scienze Preistoriche* 39: 223–46.
- Batty, M. 2013. *The New Science of Cities*. Cambridge, MA: MIT Press.
- Becker, H. 2002–3. The Etruscan castellum: fortified settlements and regional autonomy in Etruria. *Etruscan Studies* 9: 85–95.
- Becker, H. 2008. Urbs, oppidum, castellum, vicus: settlement differentiation and landscape nomenclature in Etruria. In Camporeale, G. (ed.), *La città murata in Etruria*. Atti del XXV Convegno di studi etruschi ed italici: Chianciano Terme – Sarteano – Chiusi, 30 marzo – 3 aprile 2005. Pisa–Rome: Fabrizio Serra Editore, 73–80.
- Belelli Marchesini, B. 2001a. Comunità. In Moretti Sgubini, A. M., Arancio, M. L. & Berardinetti Insam, A. (eds.), *Veio, Cerveteri, Vulci: Città d'Etruria a confronto*. Rome: 'L'Erma' di Bretschneider, 23–4.
- 2001b. L'abitato costiero di Pyrgi: osservazioni sull'impianto urbanistico e sugli aspetti edilizi. In Brandt, J. R. & Karlsson, L. (eds.), *From Huts to Houses: Transformations of Ancient Societies. Proceedings of an International Seminar organised by the Norwegian and Swedish Institutes in Rome, 21–24 September 1997*. Stockholm: Paul Åströms Förlag, 395–405.
- Bell, S. & Carpino, A. (eds.). 2016. *A Companion to the Etruscans*. Oxford: Wiley Blackwell.
- Bellardelli, C., Angle, M., di Gennaro, F. & Trucco, F. (eds.). 2007. *Repertorio dei siti protostorici del Lazio: Province di Roma, Viterbo e Frosinone*. Borgo San Lorenzo: All'Insegna del Giglio – Regione Lazio.
- Bellelli, V. 2004. Maestranze greche a Caere: il caso delle terrecotte architettoniche. In Della Fina, G. M. (ed.) *I Greci in Etruria: Atti dell'XI Convegno internazionale di studi sulla storia e l'archeologia dell'Etruria* (Annali della Fondazione per il Museo Claudio Faina 11). Rome: Quasar, 95–118.
2014. *Caere*. Vol. IV: *Il territorio, la viabilità e le fortificazioni*. Atti della Giornata di Studio: Roma, Consiglio Nazionale delle Ricerche, 1 marzo 2012. Pisa–Rome: Fabrizio Serra Editore.
- Bellelli, V., Cristofani, M., Guidi, G. F. & Rendeli, M. (eds.). 2003. *Caere*. Vol. IV: *Vigna parrocchiale: Scavi 1983–1989. Il santuario, la residenza e l'edificio ellittico*. Rome: Consiglio Nazionale delle Ricerche.
- Bergamini, M. (ed.). 1991. *Gli Etruschi maestri di idraulica*. Perugia: Electa Editori Umbri.
- Berggren, E. 1967. A new approach to the closing centuries of etruscan history: a team work project. *Arctos* 5: 29–43.
- Berggren, E. & Moretti, M. 1960. S. Giovenale (Blera): Scavi archeologici condotti dall'Istituto svedese di Studi Classici in Roma e dalla Soprintendenza alle Antichità dell'Etruria Meridionale di Roma II. *Notizie degli Scavi alle Antichità* 14 (85): 1–66.
- Berggren, K. 1984. Un tentativo di spiegare la cultura 'Protovillanoviana'. In Forsberg, S. and Thomasson, B. F. (eds.), *San Giovenale: Materiale e problemi. Atti del Simposio all'Istituto Svedese di studi classici a Roma, 6 aprile 1983*. Acta Instituti Romani Regni Sueciae 4°, 41: 61–4.
- Acta Instituti Romani Regni Sueciae, series in 4°*
- Bergonzi, G. 1973. Ricerche protostoriche nei dintorni di Roselle. *Studi Etruschi* 41: 3–25.
- Bergonzi, G., Buffa, V., Cardarelli, A., Giardino, C., Peroni, R. &

- Vagnetti, L. 1982. *Ricerche sulla proto-storia della Sibaritide* 2. (Cahiers du Centre J. Bérard 8). Naples: Centre J. Bérard.
- Bergonzi, G., Cardarelli, A., Guzzo, P. G., Peroni, R. & Vagnetti, L. 1982. *Ricerche sulla protostoria della Sibaritide* 1. (Cahiers du Centre J. Bérard 7). Naples: Centre J. Bérard.
- Bernardini, P. & Perra, M. (eds.). 2012. *I Nuragici, i Fenici e gli altri: Sardegna e Mediterraneo tra Bronzo finale e prima Età del ferro*. Atti del I Congresso internazionale in occasione del venticinquennale del Museo Genna Maria di Villanovaforru, 14–15 dicembre 2007. Sassari: Carlo Delfino Editore.
- Berranger, M. & Fluzin, P. 2012. From raw iron to semi-product: quality and circulation of materials during the iron age in France. *Archaeometry* 54 (4): 664–84.
- Berry, B. J. L. 1964. Cities as systems within systems of cities. *Papers of the Regional Science Association* 13: 147–62.
1971. City size and economic development: conceptual synthesis and policy problems with special reference to south and south east Asia. In Jakobsen, L. & Prakash, V. (eds.), *Urbanisation and National Development*. Beverley Hills: Sage, 111–55.
- Berti, F., Baldacci, E. & Alderighi, L. 1985. *L'Abitato etrusco di Montereggi: Scavi 1982–1985*. (Capraia, Quaderni del Museo della Ceramica e del Territorio di Montelupo). Capraia: Comune di Capraia e Limite.
- Bertini, M., D'Amico, C., Deriu, M., Tagliavini, S. & Vernia, L. 1971. Note illustrative della carta geologica d'Italia alla scala 1: 100,000. Foglio 143: Bracciano. Rome: Nuova Tecnica Grafica.
- Bettelli, M. 1994. La cronologia della prima età del ferro laziale attraverso i dati delle sepolture. *Papers of the British School at Rome* 62: 1–66.
- Bettini, M. C. 1988. Chiusi: Capanna protovillanoviana in località I Forti. In Paolucci, G. (ed.), *Archeologia in Valdichiana*. Rome: Multigrafica Editrice, 128–37.
- Bevan, A. 2010. Political geography and palatial Crete. *Journal of Mediterranean Archaeology* 23 (1): 27–54.
- Bianchi Bandinelli, R. 1925. Clusium: ricerche archeologiche e topografiche su Chiusi e il suo territorio in età etrusca. *Monumenti Antichi* 30: 210–578.
1926. Murlo (Siena). Monumenti archeologici del territorio. *Notizie degli Scavi alle Antichità* 51: 165–70.
- 1927a. *Foglio 113 (S. Casciano Val di Pesa)*. (Edizione Archeologica della Carta d'Italia al 100,000). Florence: R. Istituto Geografico Militare.
- 1927b. *Foglio 121 (Montepulciano)*. (Edizione Archeologica della Carta d'Italia al 100,000). Florence: R. Istituto Geografico Militare.
- 1927c. Questioni generali di topografia etrusca. *Studi Etruschi* 1: 95–8.
1959. Rusellae. I Premessa. *Studi Etruschi* 27: 3–6.
1970. L'esplorazione di Roselle. In *Studi sulla città antica: Atti del Convegno di studi sulla città etrusca e italica preromana*. Bologna: Istituto per la Storia di Bologna, 141–4.
- Biancifiori, E. 2010. Note sui materiali dei periodi I e II del saggio alle pendici sud-orientali di Poggio del Telegrafo (PdT): Periodi I e II. In Baratti, G. & Fabiani, F. (eds.), *Materiali per Populonia* 9. Pisa: Edizioni ETS, 61–80.
- Bianco Peroni, V. 1970. *Die Schwerter in Italien: Le spade nell'Italia continentale*. (Prähistorische Bronzefunde IV, 1). Munich: Beck.
1979. *I Rasoi nell'Italia continentale*. (Prähistorische Bronzefunde 8, 2). Munich: Beck.
- Bianco Peroni, V., Peroni, R. & Vanzetti, A. 2010. *La necropoli del*

- Bronzo finale di Pianello di Genga*. Borgo San Lorenzo (Fi): All'Insegna del Giglio.
- Biancofiore, F. & Toti, O. 1973. *Monte Rovello: Testimonianze dei Micenei in Lazio*. (Incunabula Graeca 53). Rome: Edizioni dell'Ateneo – Consiglio Nazionale delle Ricerche – Istituto per gli Studi Micenei ed Egeo-Anatolici.
- Bietti Sestieri, A. M. 1973. The metal industry of continental Italy, 13th to the 11th century BC. and its connection with the Aegean. *Proceedings of the Prehistoric Society* 39: 383–424.
1976. Contributo allo studio delle forme di scambio della tarda età del bronzo nell'Italia continentale. *Dialoghi d'Archeologia* 9–10 (1–2): 201–41.
- 1984a. Central and Southern Italy in the Late Bronze Age. In Hackens, N. T. & Holloway, R. R. (eds.), *Crossroads of the Mediterranean: Papers Delivered at the Haffenreffer Museum of Anthropology, Brown University, May 8–10, 1981*. Providence, RI: Brown University, 55–122.
- 1984b. Intervento. In Forsberg, S. & Thomasson, B. F. (eds.), *San Giovenale: Materiale e problemi. Atti del simposio all'Istituto Svedese di studi classici a Roma, 6 aprile 1983*. Acta Instituti Romani Regni Sueciae 4°, 61: 101–3.
- (ed.). 1984c. *Preistoria e Protostoria nel territorio di Roma*. Rome: De Luca editore.
1986. Preistoria e protostoria nel territorio di Roma: Modelli di insediamento e vie di comunicazione. *Archeologia Laziale* 7: 30–70.
- 1992a. *The Iron Age Community of Osteria dell'Osa: A Study of Socio-Political Development in Central Tyrrhenian Italy*. Cambridge: Cambridge University Press.
- (ed.). 1992b. *La necropoli laziale di Osteria dell'Osa*. Rome: Quasar.
1998. L'Italia in Europa nella prima età del ferro: una proposta di ricostruzione storica. *Archeologia Classica* 50: 1–67.
2010. *L'Italia nell'età del bronzo e del ferro*. Rome: Carocci Editore.
2012. Il Villanoviano: un problema archeologico di storia mediterranea. In Belevi, V. (ed.), *Le origini degli Etruschi: Storia antropologia e archeologia*. Rome: L'Erma di Bretschneider, 249–77.
- Binford, L. R. 1964. A consideration of archaeological research design. *American Antiquity* 29: 425–41.
- Bini, M., Pappalardo, M., Sarti, G. & Ross, V. 2013. Gli scenari paleografici della pianura di Pisa dalla protostoria all'età contemporanea. In Gualandi, M. L., Anichini, F., Dubbini, N., Fabiani, F. & Gattiglia, G. (eds.), *MAPPa: Metodologie Applicate alla Predittività del Potenziale Archeologico*. Vol. II. Rome: Edizioni Nuova Cultura, 13–27.
- Bintliff, J. 1992. Erosion in the Mediterranean lands: a reconsideration of pattern, process and methodology. In Bell, M. G. & Boardman, J. (eds.), *Past and Present Soil Erosion: Archaeological and Geographical Perspectives*. Oxford: Oxbow Books, 125–31.
2006. Issues in the economic and ecological understanding of the Chora of the Classical Polis in its social context: a view from the intensive survey tradition of the Greek Homeland. In Guldager Bilde, P. & Stolba, V. F. (eds.), *Surveying the Greek Chora: The Black Sea Region in a Comparative Perspective*. Aarhus: Aarhus University Press, 13–26.
2012. *The Complete Archaeology of Greece: From Hunter-Gatherers to the 20th century AD*. Chichester and Malden, MA: Wiley-Blackwell.
- Biserni, G. & Geel, B. 2005. Reconstruction of Holocene palaeoenvironment and sedimentation history of the Ombrone alluvial plain (South Tuscany, Italy).

- Review of Palaeobotany and Palynology* 136: 16–28.
- Bizzarri, M. 1962. La necropoli di Crocefisso del Tufo I. *Studi Etruschi* 30: 136–51.
1966. La necropoli di Crocefisso del Tufo II. *Studi Etruschi* 34: 3–108.
- Blake, E. 2014. *Social Networks and Regional Identity in Bronze Age Italy*. New York: Cambridge University Press.
- Blanton, R. E. 1976. The role of symbiosis in adaptation and sociocultural change in the valley of Mexico. In Wolf, E. (ed.), *The Valley of Mexico*. Albuquerque: University of New Mexico Press, 181–201.
1978. *Monte Albán: Settlement Patterns at the Ancient Zapotec Capital*. London: Academic Press.
- Blanton, R. E. & Fargher, L. 2008. *Collective Action in the Formation of Pre-modern States*. New York: New York: Springer.
- Blanton, R. E., Kowalewski, S. A., Feinman, G. & Appel, J. 1981. *Ancient Mesoamerica: A Comparison of Change in Three Regions*. Cambridge: Cambridge University Press.
- Boardman, J. 1964. *The Greeks Overseas*. London: Thames and Hudson.
1980. *The Greeks Overseas: Their Early Colonies and Trade*. London: Thames and Hudson.
- Bocci Pacini, P. 1973. Un ritrovamento arcaico presso Castelnuovo Berardenga. *Studi Etruschi* 41: 121–41.
1975. Appunti su Arezzo arcaica. *Studi Etruschi* 43: 47–70.
1979. Postilla su Arezzo arcaica. *Studi Etruschi* 47: 53–64.
1985. Una casa nell'età orientalizzante a Roselle. In Colonna, G. (ed.), *Santuari d'Etruria*. (Catalogo della Mostra). Milan: Electa – Regione Toscana, 53–6.
- Bocci Pacini, P. 1998. L'insediamento orientalizzante nella valle del foro. In Nicosia, F. & Poggesi, G. (eds.), *Roselle: Guida al parco archeologico*. Siena: Nuova Immagine, 87–8.
- Bocci Pacini, P., Canocchi, D., Catalli, F., Donati, L., Laviosa, C., Maetzke, G., Michelucci, M. & Romualdi, A. 1975. *Roselle: Gli scavi e la mostra*. (Catalogo della mostra). Pisa: Pacini.
- Boitani, F. 1987. Puntali di aratro in ferro. In Cerchiai, C. (ed.), *L'Alimentazione nel mondo antico: Gli Etruschi*. Rome: Istituto Poligrafico e Zecca dello Stato, 143–4.
- Boitani Visentini, F. 1978. Le ceramiche decorate di importazione greco-orientale di Gravisca. In *Les céramiques de la Grèce de l'Est et leur diffusion en Occident: Centre Jean Bérard. Institut Français de Naples, 6–9 Juillet*. Colloques internationaux du Centre National de la Recherche Scientifique n. 569. Sciences Humaines. 1976. Paris and Naples: Editions du Centre National de la Recherche Scientifique – Bibliothèque de l'Institut Français de Naples, 216–22.
- Bonadonna, F. P. & Bigazzi, G. 1970. Studi sul Pleistocene del Lazio VIII: Datazione di tufi intertirreniani della zona di Cerveteri (Roma) mediante il metodo delle tracce di fissione. *Bollettino della Società Geologica Italiana* 89 (4): 463–73.
- Bonamici, M. 2007. Città e territorio. In Catani, G. (ed.), *Etruschi di Volterra: Capolavori da grandi musei europei*. Milan: Federico Motta Editore, 202–4.
- Bonamici, M., Stopponi, S. & Tamburini, P. 1994. *Orvieto: La necropoli di Cannicella*. (Biblioteca Archaeologica 13). Rome: 'L'Erma' di Bretschneider.
- Bonatti, E. 1963. Stratigrafia pollinica dei sedimenti postglaciali di Baccano, lago craterico del Lazio. *Atti della Società Toscana di Scienze Naturali (Serie A)* 70: 40–8.
- Bonghi Jovino, M. 1986. Gli scavi della Università degli Studi di Milano (campagne 1982–1985) sul Pian di Civita:

- L'orizzonte protovillanoviano. In Bonghi Jovino, M. (ed.), *Gli Etruschi di Tarquinia*. Modena: Panini, 83–6.
- (ed.). 1999. *Tarquinia: Testimonianze archeologiche e ricostruzione storica. Scavi sistematici nell'abitato, campagne 1982–1988. I materiali*. (Tarchna 2). Rome: 'L'Erma' di Bretschneider.
2005. Tarquinia. Monumenti urbani. In Paoletti, O. (ed.), *Dinamiche di sviluppo delle città nell'Etruria meridionale: Veio, Caere, Tarquinia, Vulci*. Atti del XXIII Convegno di studi etruschi ed italici: Roma–Veio–Cerveteri–Pyrgi–Tarquinia–Tuscania–Vulci–Viterbo, 1–6 ottobre 2001. Pisa–Rome: Istituti Editoriali e Poligrafici Internazionali, 273–81.
2010. The Tarquinia Project: a summary of 25 years of excavation. *American Journal of Archaeology* 114: 161–80.
- Bonghi Jovino, M. & Chiaramonte Treré, C. (eds.). 1997. *Tarquinia: Testimonianze archeologiche e ricostruzione storica. Scavi sistematici nell'abitato, campagne 1982–1988*. (Tarchna 1). Rome: 'L'Erma' di Bretschneider.
- Bonghi Jovino, M. & Chiesa, F. (eds.). 2005. *Offerte dal regno vegetale e dal regno animale nelle manifestazioni del sacro: Atti dell'incontro di studio Milano 26–27 giugno 2003*. Rome: 'L'Erma' di Bretschneider.
- Bonomi Ponzi, L. 1970. Il ripostiglio di Contigliano. *Bullettino di Paleontologia Italiana* 79: 95–156.
1985. Topographic survey of the Colfiorito di Foligno plateau: a contribution towards the study of the population in the territory of the Plestini. In Malone, C. & Stoddart, S. (eds.), *Papers in Italian Archaeology IV*, part 1: *The Human Landscape*. Oxford: British Archaeological Reports, 201–38.
1990. Gubbio: loc. Fontevole. Kline di bronzo. In Corbucci, M. P. & Pettine, S. (eds.), *Antichità dall'Umbria a Leningrado*. Perugia: Electa Editori Umbri, 297–323.
- 1991a. Gli Umbri: territorio, cultura e società. In Corbucci, M. P. & Pettine, S. (eds.), *Antichità dall'Umbria a New York*. Perugia: Electa Editori Umbri, 51–61.
- 1991b. Tombe principesche dell'altipiano plestino. In Corbucci, M. P. & Pettine, S. (eds.), *Antichità dall'Umbria a New York*. Perugia: Electa Editori Umbri, 143–70.
1992. Occupazione del territorio e modelli insediativi nel territorio plestino e camerte in età protostorica. In Durdari, M. (ed.), *La Civiltà picena nelle Marche: Studi in onore di Giovanni Annibaldi*. Ancona, 10/13 luglio 1988. Ripatransone: Maroni, 204–41.
1996. Aspetti dell'ideologia funeraria nel mondo umbro. In Bonamente, G. & Coarelli, F. (eds.), *Assisi e Gli Umbri nell'antichità: Atti del Convegno Internazionale, Assisi 18–21 dicembre 1991*. Assisi: Società Editrice Minerva – Università degli Studi di Perugia – Accademia Proporziana del Subbasio di Assisi, 105–26.
1997. *La necropoli plestina di Colfiorito di Foligno*. Perugia: Ministero per i Beni Culturali e Ambientali – Soprintendenza Archeologica per l'Umbria – Quattroemme Srl.
- 2002a. Introduzione storico-archeologica. In De Vecchi, P. (ed.), *Museo civico di Gualdo Tadino. Rocca Flea 2: Materiali archeologici e ceramiche dal XVI al XX secolo*. Perugia: Electa /Editori Umbri Associati, 17–29.
- 2002b. Perugia e il suo territorio in età villanoviana e orientalizzante. In Della Fina, Giuseppe M. (ed.), *Perugia Etrusca: Atti del IX Convegno internazionale di studi sulla storia e l'archeologia dell'Etruria*. (Annali della Fondazione per il Museo 'Claudio Faina' 9). Rome: Edizioni Quasar, 584–617.

- Borsi, F. 1985. Architettura. In Borsi, F. (ed.), *Fortuna degli Etruschi*. (Catalogo della Mostra). Milan: Electa, 36–43.
- Borzatti von Lowenstern, E. & Magaldi, D. 1968. Ultime ricerche nella Grotta dell'Alto. *Rivista di Scienze Preistoriche* 22 (2): 205–50.
- Botarelli, L. 2004. *Carta archeologica della Provincia di Siena*. Vol. VII: *Radicefani*. Siena: Nuova Immagine.
- Botarelli, L., Coccoluto, M. & Mileti, M. C. (eds.). 2007. *Materiali per Populonia 6*. Pisa: Edizioni ETS.
- Bouloumié, B. 1972. Murlo (Poggio Civitate, Sienne). Céramique grossière locale: L'instrumentum culinaire. *Mélanges de l'Ecole Française de Rome* 84: 61–110.
1978. Nouveaux instruments culinaires (?) en céramique de Murlo (Poggio Civitate). *Mélanges de l'Ecole Française de Rome* 90 (1): 113–31.
- Bound, M. 1985. Una nave mercantile di età arcaica all'Isola di Giglio. In M. Cristofani (ed.), *Il commercio etrusco arcaico: Atti dell'incontro di studio*, 5–7, dicembre 1983. Rome: Consiglio Nazionale delle Ricerche, 65–70.
- 1991a. *The Giglio Wreck: A Wreck of the Archaic Period (c. 600 BC) off the Tuscan Island of Giglio, an Account of its Discovery and Excavation: A Review of the Main Finds*. (Enalia. Supplement 1). Athens: Hellenic Institute of Marine Archaeology.
- 1991b. The pre-classical wreck at Campese Bay, Island of Giglio. First season report (first section). In *Studi e materiali: Scienza dell'antichità in Toscana*. Vol. VI. Rome: 'L'Erma' Di Bretschneider, 181–98.
- 1991c. The pre-classical wreck at Campese Bay, Island of Giglio. First season report (second section). In *Studi e materiali: Scienza dell'antichità in Toscana*. Vol. VI. Rome: 'L'Erma' Di Bretschneider, 199–244.
- Bourdin, S. 2012. *Les peuples de l'Italie préromaine: Identités, territoires et relations inter-ethniques en Italie centrale et septentrionale (VIIIe-1er s. av. J.-C.)* (Bibliothèque des Écoles Françaises d'Athènes et de Rome 350). Rome: École française de Rome.
- Bozzo, E., Lombardo, S., Merlanti, F. & Pavan, M. 1994. Integrated geophysical investigations at an Etrurian settlement in Northern Apennines (Italy). *Archaeological Prospection* 1: 19–35.
- Bradford, J. S. P. 1947. Etruria from the air. *Antiquity* 21: 74–83.
1957. *Ancient Landscapes: Studies in Field Archaeology*. London: G. Bell and Sons.
- Bradley, R. 1990. *The Passage of Arms: An Archaeological Analysis of Prehistoric Hoards and Votive Deposits*. Cambridge: Cambridge University Press.
- Brandt, J. R. & Karlsson, L. (eds.). 2001. *From Huts to Houses: Transformations of Ancient Societies*. Proceedings of an International Seminar organised by the Norwegian and Swedish Institutes in Rome, 21–24 September 1997. *Acta Instituti Romani Regni Sueciae* 4°, 56: 29–39.
- Braudel, F. 1972. *The Mediterranean and the Mediterranean World in the Age of Philip II*. London: Collins.
- Broise, H. & Jolivet, V. 2002. Topographie générale du site. In Andreau, J., Broise, H., Catalli, F., Galeotti, L. & Jolivet, V. (eds.), *Musarna 1: Les trésors monétaires*. Rome: École Française de Rome, 3–35.
- Bronson, R. & Uggeri, G. 1970. Isola del Giglio – Isola di Giannutri – Monte Argentario – Laguna di Orbetello. *Studi Etruschi* 38: 201–14.
- Broodbank, C. 2000. *An Island Archaeology of the Early Cyclades*. Cambridge: Cambridge University Press.

- Brooke, J. L., Strauss, J. C. & Anderson, G. (eds.). 2018. *State Formations: Global Histories and Cultures of Statehood*. Cambridge: Cambridge University Press.
- Brown, A. G. 1997. *Alluvial Geoarchaeology: Floodplain Archaeology and Environmental change*. Cambridge: Cambridge University Press.
- Brown, A. G. & Ellis, C. 1995. People, climate and alluviation: theory, research design and new sedimentological and stratigraphic data from Etruria. *Papers of British School at Rome* 64: 45–74.
- Bruni, S. 1987. Roncola in ferro. In Cerchiai, C. (ed.), *L’Alimentazione nel mondo antico: Gli Etruschi*. Rome: Istituto Poligrafico e Zecca dello Stato, 144.
1998. *Pisa Etrusca. Anatomia di una città scomparsa*. Milan: Longanesi & C.
2002. La Valle dell’Arno: i casi di Fiesole e Pisa. In Manganelli, M. & Pacchiani, E. (eds.), *Città e territorio in Etruria: Per una definizione di città nell’Etruria settentrionale. Giornate di Studio, Colle Val d’Elsa, 12–13 marzo 1999. Teatro dei Varii*. Colle Val d’Elsa: Gruppo Archeologico Colligiano, 271–344.
2007. Il santuario di Ortaglia. In Cateni, G. (ed.), *Etruschi di Volterra: Capolavori da grandi musei europei*. Milan: Federico Motta Editore, 226–9.
2014. Luoghi rituali e cultuali della tarda età del bronzo in rapporto con le aree insediative nell’ambiente eugubino. In Negroni Catacchio, N. (ed.), *Paesaggi cerimoniali: Ricerche e scavi*. Atti dell’XI Incontro di Studi, Valentano (VT – Pitigliano (GR), 14–16 settembre 2012. Milan: Centro Studi di Preistoria e Archeologia, 401–6.
- Brusadin Laplace, D. 1964. Le necropoli protostoriche del Sasso di Furbara. I – La Necropoli Ai Puntoni. *Bullettino di Paleontologia Italiana* 15 (73): 143–86.
- Bruschetti, P. 1979. Nota sul popolamento antico del territorio cortonese. *Annuario dell’Accademia Etrusca di Cortona* 18: 85–103.
1989. Il santuario di Pasticetto di Magione e i votivi di bronzo. In Corbucci, M. P. & Pettine, S. (eds.), *Antichità dall’Umbria a Budapest e Cracovia*. Perugia: Electa Editori Umbri, 113–22.
2002. Il territorio di Perugia etrusca. In Della Fina, Giuseppe M. (ed.), *Perugia Etrusca: Atti del IX Convegno internazionale di studi sulla storia e l’archeologia dell’Etruria*. (Annali della Fondazione per il Museo ‘Claudio Faina’ 9). Rome: Edizioni Quasar, 71–94.
- Buchner, G. 1975. Nuovi aspetti e problemi posti dagli scavi di Pithecusa con particolari considerazioni sulle oreficerie di stile orientalizzante antico. In *Contributions à l’étude de la société et de la colonisation eubéennes*. Naples: Centre Jean Bérard.
- Buranelli, B. 1985. La ceramica comune. In Stopponi, S. (ed.), *Casa e palazzi d’Etruria*. Milan: Regione Toscana – Electa, 138–9.
- Burghardt, A. F. 1971. A hypothesis about gateway cities. *Annals of the Association of American Geographers* 61: 269–85.
- Caccioli, D. & Whitehead, J. K. 1994. New researches at La Piana. *American Journal of Archaeology* 98: 319–20.
- Cagianò de Azevedo, M. 1974. Bagnoregio (Viterbo): Scavi in località Girella. *Notizie degli Scavi alle Antichità* 28: 21–37.
- Caldarelli, R. 1932. Studi sulla topografia medievale dell’antico territorio vetulone. *Studi Etruschi* 6: 146–240.
- Caloi, L. & Palombo, M. R. 1981. Analisi dei resti ossei rinvenuti nell’abitato del bronzo finale di sorgenti della nova. In Negroni Catacchio, N. (ed.), *Sorgenti della Nova: Una comunità protostorica e il*

- suo territorio nell'Etruria meridionale. (Catalogo della Mostra). Rome: Consiglio delle Ricerche, 269–77.
- Calzoni, U. 1933. L'abitato preistorico di Belverde sulla montagna di Cetona. *Notizie degli Scavi alle Antichità* 11: 45–102.
1936. Resti di un abitato preistorico a Casa Carletti sulla montagna di Cetona. *Studi Etruschi* 10: 329–39.
1938. Lo strato superiore delle 'Tane del Diavolo' presso Parrano (Orvieto). *Studi Etruschi* 12: 225–32.
1940. Recenti scoperte a Grotta Lattaia sulla montagna di Cetona. *Studi Etruschi* 14: 301–4.
1947. La stipe votiva di Colle Arsiccio nei pressi di Magione. *Bollettino della Deputazione di Storia Patria per l'Umbria* 44: 45–7.
- 1954a. Le stazioni preistoriche della montagna di Cetona. In Calzoni, U. (ed.), *Belverde. I: Premessa, l'ambiente naturale, topografia e scavi*. Florence: Olschki, 1–57.
- 1954b. Topografia e scavi. In Calzoni, U. (ed.), *Le stazioni preistoriche della montagna di Cetona. Belverde. I: Premessa, l'ambiente naturale, topografia e scavi*. Florence: Olschki, 29–57.
1962. Le stazioni preistoriche della montagna di Cetona. In Calzoni, U. (ed.), *Belverde. II: La ceramica*. Florence: Olschki, 7–47.
- Calzoni, U. & Rellini, U. 1939. Capeduncola con ansa a corna ramificate da Casa Carletti (Cetona). *Bollettino di Paletnologia Italiana* 3: 204–5.
- Cambi, F. (ed.). 1996. *Carta archeologica della Provincia di Siena*. Vol. II: *Il Monte Amiata (Abbadia San Salvatore)*. Siena: Nuova Immagine.
2002. La geografia. In Carandini, A. & Cambi, F. (eds.), *Paesaggi d'Etruria: Valle dell'Albegna, Valle d'Oro, Valle del Chiarone, Valle del Tafone: Progetto di ricerca italo-britannico seguito allo scavo di Settefinestre*. Rome: Edizioni di Storia e Letteratura, 30–6.
- Cambi, F. & De Tommaso, M. G. 1988. Ricognizione archeologica nel comprensorio di Abbadia S. Salvatore: Rapporto preliminare 1987–8. *Archeologia Medievale* 15: 471–80.
- Cambi, F. & Manacorda, D. (eds.). 2002. *Materiali per Populonia 1*. (Quaderni del Dipartimento di Archeologia e Storia delle Arti, Università di Siena). Florence: All'Insegna del Giglio.
- Cambi, F. & Terrenato, N. 1994. *Introduzione all'archeologia dei Paesaggi*. Rome: La Nuova Italia Scientifica.
- Camilli, A., Bimbi, S., Borghini, F., Giorgi, G., Pecci, A., Pieragnoli, G., Rossi, E., Sanchirico, C., Santoro, E., Tofani, G. & Zifferero, A. 2008. Marsiliana d'Albegna: nuovi dati dall'abitato e dal suburbio. *Notiziario della Soprintendenza per i Beni Archeologici della Toscana* 4: 352–75.
- Camilli, A., Carta, L., Conti, T. & De Laurenzi, A. 1995. Ricognizioni nell'Ager Faliscus meridionale. In Christie, N. (ed.), *Settlement and Economy in Italy, 1500 BC to AD 1500: Papers of the Fifth Conference of Italian Archaeology*. Oxford: Oxbow, 395–402.
- Camilli, A., Casi, C. & Zifferero, A. 2003. Relazione preliminare sulla campagna di scavo condotto in località Piani di Perazzeta, presso Marsiliana d'Albegna. Florence: Soprintendenza per i Beni Archeologici della Toscana (unpub).
- Camilli, A. & Gualandi, M. L. (eds.). 2005. *Materiali per Populonia 4*. Florence: All'Insegna del Giglio.
- Campana, S. 2001. *Murlo: Carta archeologica della Provincia di Siena*. Vol. V. Siena: Nuova Immagine.
- (ed.). 2013. *Montalcino: Carta archeologica della Provincia di Siena*. Vol. XII. Siena: Nuova Immagine.

2015. Emptyscapes: filling 'empty' Mediterranean landscapes, mapping the archaeological continuum. *Archaeologia Polona* 53: 149–52.
- Campana, S. & Felici, C. 2012. 20 years of archaeological investigation and communication in the Orcia Valley, central Italy. In Castillo, A. (ed.), *Proceedings of the First International Conference on Best Practices in World Heritage: Archaeology*. Madrid: Editora Complutense, 347–83.
- Campana, S. & Francovich, R. 2006. Landscape exploration, interpretation, and conservation in Tuscany, central Italy. Technical report, Dept. of Medieval Archaeology, University of Siena.
- Camporeale, G. 1974. Irradiazione della cultura chiusina arcaica. In Atti 1974 (ed.) *Aspetti e problemi di Etruria interna: Atti dell'VIII Convegno nazionale di studi etruschi ed italici*, Orvieto, 1972. Florence: Olschki – Istituto di Studi Etruschi ed Italici, 99–130.
1985. Massa Marittima: Lago di Accesa. In Camporeale, G. (ed.), *L'Etruria mineraria*. (Catalogo della Mostra). Milan: Electa – Florence: Regione Toscana, 127–78.
1997. *L'abitato etrusco dell'Accesa: il quartiere B*. (Archaeologica 122). Rome: G. Bretschneider.
2017. Sulla genesi della città nell'Italia preromana. Economia, sociologia, urbanistica: Il caso dell'insediamento dell'Accesa. *Archeologia e Calcolatori* 28 (2): 69–85.
- Capecchi, G. 1987. *Artimino (Firenze). Scavi 1974: L'area della Paggeria medicea: Relazione preliminare*. (Materiali per la ricerca sul territorio 1). Florence: Comune di Carmignano – Museo Archeologico di Artimino.
- Capecchi, G. 1997. Le 'pietre fiesolane': nuova carta delle segnalazioni. In Capecchi, G. (ed.), *Alle origini di Firenze: Dalla preistoria alla città romana*. Florence: Edizioni Polistampa, 154–67.
- Cappuccini, L. 2008a. Esordi dell'architettura funeraria nel territorio di Vetulonia. *Studi Etruschi* 74: 3–16.
- 2008b. Per un modello di sviluppo delle città di Chiusi tra X e V secolo a. C. *Rivista di Topografia Antica* 18: 43–74.
2010. Dinamiche insediative a Chiusi nel VII e nel VI sec. a.C. In Fontaine, P. (ed.), *L'Étrurie et l'Ombrie avant Rome: Cité et territoire. Actes du colloque international Louvain-la-Neuve Halles Universitaires, Sénat académique 13–14 février 2004*. Rome: Belgisch Historisch Instituut te Rome, 63–81.
- Caputo, G. 1961. L'esplorazione archeologica della fascia di confine dell'Etruria orientale. *Studi Etruschi* 29: 399–409.
- Carafa, P. 1994. Organizzazione territoriale e sfruttamento delle risorse economiche nell'agro volterrano tra l'Orientalizzante e l'età ellenistica. *Studi Etruschi* 59: 109–21.
- Carancini, G. L. 1975. *Die Nadeln in Italien: Gli spilloni nell'Italia continentale*. (Prähistorische Bronzefunde 13, 2). Munich: C. H. Beck.
1979. I ripostigli dell'Età del Bronzo Finale. In 1979, A. (ed.) *Atti della XXI Riunione scientifica: Il bronzo finale in Italia*. Florence: Istituto Italiano di Preistoria e Protostoria, 631–41.
1984. *Le asce nell'Italia continentale II*. (Prähistorische Bronzefunde 8, 12). Munich: C. H. Beck.
- Carancini, G. L., Massetti, S. & Posi, F. 1986a. Gli insediamenti perilacustri di età protostorica individuati nell'alveo dell'antico Lacus Velinus: dati e considerazioni. In *Gli insediamenti perilacustri dell'età del bronzo e della prima età del ferro: Il caso dell'antico Lacus Velinus*. Atti dell'Incontro di Acquasparta, 15–17 novembre 1985. Perugia: Istituto di Archeologia, Perugia, 65–91.

- 1986b. L'area tra Umbria meridionale e Sabina alla fine della protostoria. *Dialoghi di Archeologia* 3 (2): 37–56.
- Carancini, G. L., Massetti, S., Posi, F., Curci, P. & Dionisi, P. 1990. Seconda relazione sulle nuove ricerche di superficie eseguite nell'alveo dell'antico Lacus Velinus (TR–RI). In Carancini, G. L. (ed.), *Miscellanea protostorica*. Rome: Giorgio Bretschneider Editore, 1–185.
- Carandini, A. 1979. *Archeologia e cultura materiale*. Bari: De Donato.
- (ed.). 1985a. *La romanizzazione dell'Etruria: Il territorio di Vulci*. Milan: Electa – Florence: Regione Toscana.
- 1985b. Premessa. In Carandini, A. (ed.) *La romanizzazione dell'Etruria: il territorio di Vulci*. Milan: Electa – Florence: Regione Toscana, 21–4.
- Carandini, A. & Cambi, F. (eds.). 2002. *Paesaggi d'Etruria: Valle dell'Albegna, Valle d'Oro, Valle del Chiarone, Valle del Tafone: Progetto di ricerca italo-britannico seguito allo scavo di Settefinestre*. Rome: Edizioni di Storia e Letteratura.
- Caravaggi, L. 2002. L'epoca moderna. In Carandini, A. & Cambi, F. (eds.), *Paesaggi d'Etruria: Valle dell'Albegna, Valle d'Oro, Valle del Chiarone, Valle del Tafone: Progetto di ricerca italo-britannico seguito allo scavo di Settefinestre*. Rome: Edizioni di Storia e Letteratura, 287–341.
- Cardarelli, A., di Gennaro, F., Guidi, A. & Pacciarelli, M. 1980. Le ricerche di topografia protostorica nel Lazio. In Peroni, R. (ed.), *Il bronzo finale in Italia*. Bari: De Donato, 91–103.
- Carter, J. C. 1998. *The Chora of Metaponto: The Necropoleis*. Austin: University of Texas Press – Institute of Classical Archaeology.
- Carter, J. C., Costantini, L., D'Annibale, C., Jones, J. R., Folk, R. L. & Sullivan, D. 1985. Population and agriculture: Magna Graecia in the fourth century BC. In Malone, C. & Stoddart, S. (eds.), *Papers in Italian Archaeology IV*, part 1: *The Human Landscape*. (British Archaeological Reports – International Series 243). Oxford: British Archaeological Reports, 281–312.
- Cascino, R., di Giuseppe, H. & Patterson, H. (eds.). 2012. *Veii: The Historical Topography of the Ancient City: A Restudy of John Ward-Perkins's Survey*. London: British School at Rome.
- Cassano, S. M. & Manfredini, A. 1978. Torriacionaccio (Viterbo): scavo di un abitato protostorico. *Notizie degli Scavi alle Antichità* 32: 1–382.
- Castagnoli, F. 1978. Premessa. In Curri, C. B. (ed.), *Vetulonia I*. Florence: Olschki, 3.
- Castelletti, L. 1986. Appendice: i resti vegetali dallo scavo dell'abitato. In Bonghi Jovino, M. (ed.), *Gli Etruschi di Tarquinia*. Modena: Edizioni Panini, 381–3.
- Cataldi, M. (ed.). 1993. *Tarquinia*. Rome: Quasar.
- Cateni, G. 2007a. La città in età arcaica (VI–V secolo a.C.). In Cateni, G. (ed.), *Etruschi di Volterra: Capolavori da grandi musei europei*. Milan: Federico Motta Editore, 114–21.
- 2007b. Prima della città. In Cateni, G. (ed.), *Etruschi di Volterra: Capolavori da grandi musei europei*. Milan: Federico Motta Editore, 40–1.
- Cavagnaro Vanoni, L. 1989. Intervento all' Civita di Tarquinia della Fondazione Lerici. In Maetzke, G., Marzi Costagli, M. G., Iozzo, M., Paoletti, O. & Shepherd, E. J. (eds.), *Atti del II Congresso internazionale etrusco: Firenze 26 maggio – 2 giugno, 1985*. Rome: Giorgio Bretschneider Editore, 341–5.
1997. La prospezione geofisica. In Bonghi Jovino, M. & Chiaramonte Treré, C. (eds.), *Tarquinia: Testimonianze*

- archeologiche e ricostruzione storica. Scavi sistematici nell'abitato, campagne 1982-1988.* (Tarchna 1). Rome: 'L'Erma' di Bretschneider, 2-5.
- Cazzella, A. 2001. Sviluppi verso l'urbanizzazione a Roma alla Luce dei recenti scavi nel Giardino Romano. *Bullettino della Commissione Archeologica Comunale di Roma* 102: 265-8.
- Ceccarelli, L. & Stoddart, S. 2007. The Faliscans. In Riva, C., Bradley, G. J. & Isayev, E. (eds.), *Ancient Italy: Regions without Boundaries*. Exeter: Exeter University Press, 131-60.
2013. Nepi: nuovi dati dallo scavo in area urbana. In Cifani, G. (ed.), *Tra Roma e l'Etruria: Cultura, identità e territorio dei Falisci*. Proceedings of the Seminar held at the British School at Rome, 19 May 2011. Rome: Quasar, 209-22.
- In press. Perugia: the frontier city. In Cutler, J., Dimova, B., Marin Aguilera, B. & Gleba, M. (eds.), *Making Cities. Economies of Production and Urbanisation in Mediterranean Europe 1000-500 BCE*. Cambridge: McDonald.
- Celuzza, M. & Regoli, E. 1982. La valle d'Oro nel territorio di Cosa. *Dialoghi di Archeologia* 4: 31-62.
- Cenciaioli, L. 1990. Perugia: l'insediamento protovillanoviano di Via Settevalli. In Corbucci, M. P. & Pettine, S. (eds.), *Antichità dall'Umbria a Leningrado*. Perugia: Electa Editori Umbri, 83-92.
1991. Il santuario di Monte Acuto di Umbertide. In Corbucci, M. P. & Pettine, S. (eds.), *Antichità dall'Umbria a New York*. Perugia: Electa Editori Umbri, 211-26.
- 1992a. Monte Acuto (Umbertide, Provincia di Perugia). *Rivista di Scienze Preistoriche* 44 (1-2): 260-1.
- 1992b. Perugia. *Studi Etruschi* 58: 620-3.
- 1992c. Umbertide (Perugia). *Studi Etruschi* 58: 623-5.
1996. Un santuario di altura nella Valle Tiberina: Monte Acuto di Umbertide. In Bonamente, G. & Coarelli, F. (eds.), *Assisi e gli Umbri nell'antichità: Atti del Convegno internazionale, Assisi 18-21 dicembre 1991*. Assisi: Società Editrice Minerva - Università degli Studi di Perugia - Accademia Proporziana del Subbasio di Assisi, 193-234.
- 1998a. Cima Cerchiaia. In Cenciaioli, L. (ed.), *Umbri ed Etruschi: Genti di confine a Monte Acuto e nel territorio di Umbertide*. Umbertide: Tipografia La Fratta - Comune di Umbertide - Soprintendenza archeologica per l'Umbria, 26.
- 1998b. Gli insediamenti fortificati. In Cenciaioli, L. (ed.), *Umbri ed Etruschi: Genti di confine a Monte Acuto e nel territorio di Umbertide*. Umbertide: Tipografia La Fratta - Comune di Umbertide - Soprintendenza archeologica per l'Umbria, 23.
- 1998c. Le Necropoli. In Cenciaioli, L. (ed.), *Umbri ed Etruschi: Genti di confine a Monte Acuto e nel territorio di Umbertide*. Umbertide: Tipografia La Fratta - Comune di Umbertide - Soprintendenza archeologica per l'Umbria, 67-8.
- 1998d. Monte Acuto. In Cenciaioli, L. (ed.), *Umbri ed Etruschi: Genti di confine a Monte Acuto e nel territorio di Umbertide*. Umbertide: Tipografia La Fratta - Comune di Umbertide - Soprintendenza archeologica per l'Umbria, 41-65.
2002. *Umbria antica: Vie d'acqua e di terra. Mostra archeologica*. Milan: Electa - Soprintendenza per i Beni Culturali dell'Umbria.
- (ed.). 2014. *Perugia: La città antica sotto la Cattedrale di S. Lorenzo. I risultati degli scavi*. Napoli: Edizioni Scientifiche ed Artistiche.
- Cenni, F. 2007. *Buonconvento: Carta archeologica della Provincia di Siena*. Vol.

- VIII. (Carta Archeologica della Provincia di Siena 8). Siena: Nuova Immagine.
- Cherry, J. F. 1986. Politics and palaces: some problems in Minoan state formation. In Renfrew, C. & Cherry, J. F. (eds.), *Peer Polity Interaction and Socio-Political Change*. Cambridge: Cambridge University Press, 19–45.
- Ciacci, A. 1981. La Valle dell'Ombrone. In Cristofani, M. (ed.), *Gli Etruschi in Maremma: Popolamento e attività produttive*. Siena: Monte dei Paschi di Siena, 131–5.
- Chiaramonte, C. (ed.). 1999. *Tarquinia: Scavi sistematici nell'abitato, campagne 1982–1988. I materiali 1*. (Tarchna 2.1). Rome: 'L'Erma' di Bretschneider.
- Chorley, R. J. & Haggett, P. 1967. *Models in Geography*. London: Methuen.
- Christaller, W. 1933. *Die Zentralen Orte in Süddeutschland. Eine Ökonomische-Geographische Untersuchung über die Gesetzmässigkeit der Verbreitung und Entwicklung der Siedlungen mit Städtischen Funktionen*. Jena: Karl Zeiss.
- Ciampoltrini, G. 1987. Modellini votivi di attrezzi agricoli in bronzo. In Cerchiai, C. (ed.), *L'alimentazione nel mondo antico: Gli Etruschi*. Rome: Istituto Poligrafico e Zecca dello Stato, 144.
2016. *Il porto del vino etrusco: L'insediamento arcaico di Fonteblanda*. (I segni dell'Auser: Archeologia a Lucca e nella Valle del Serchio). Florence: Soprintendenza Archeologica della Toscana.
- Ciampoltrini, G. & Firmati, M. 2002. The Blacksmith of Fonteblanda: artisan and trading activity in the Northern Tyrrhenian in the sixth century BC. *Etruscan Studies* 9: 29–36.
- Cianferoni, G. C. 2002. L'alta Val d'Elsa in età orientalizzante e arcaica. In Manganeli, M. & Pacchiani, E. (eds.), *Città e territorio in Etruria: Per una definizione di città nell'Etruria settentrionale*. *Giornate di Studio. Colle Val d'Elsa, 12–13 Marzo 1999. Teatro dei Varii*. Colle Val d'Elsa: Gruppo Archeologico Colligiano, 83–125.
- Cifani, G. 2003. *Storia di una frontiera: Dinamiche territoriali e gruppi etnici nella media Valle Tiberina dalla prima età del ferro alla conquista romana*. (Archeologia del Territorio). Rome: Libreria dello Stato. Istituto Poligrafico e Zecca dello Stato.
- Cifani, G., Ceccarelli, L. & Stoddart, S. 2012. Exploring a frontier area in Etruria: the Civita di Grotte di Castro survey. In Cifani, G., Stoddart, S. & Neil, S. (eds.), *Landscape, Ethnicity and Identity in the Archaic Mediterranean area*. Oxford: Oxbow, 163–71.
- Cifani, G. & Munzi, M. 1995. Considerazioni sugli insediamenti in area falisca. In Christie, N. (ed.), *Settlement and Economy in Italy, 1500 BC to AD 1500: Papers of the Fifth Conference of Italian Archaeology*. Oxford: Oxbow, 387–94.
- Cimino, L. 1979a. Santa Colomba. In Cristofani, M. (ed.), *Siena: Le origini. Testimonianze e miti archeologici*. Florence: Olschki, 59–67.
- 1979b. Foglio 120 I NE Siena Città. In Cristofani, M. (ed.), *Siena: Le origini. Testimonianze e miti archeologici*. Florence: Olschki, 190–7. SS to check ch.6
- Cimino, L. 1986. *La collezione Mieli nel Museo archeologico di Siena*. (Archeologica 48). Rome: Giorgio Bretschneider Editore.
- Cinque, G. E., Broise, H. & Jolivet, V. 2017. Civita Musarna (VT), il suo territorio e la chora di Tarquinia in età ellenistica: uno spazio ritualmente suddiviso? *Archeologia e Calcolatori* 28 (2): 223–32.
- Ciotti, U. 1974. Orvieto, Perugia e l'Umbria anche come mediatrice di scambi con l'adriatico. In *Aspetti e problemi dell'Etruria interna: Atti dell'*

- VIII Convegno nazionale di studi etruschi ed italici* (Orvieto, 27–30 giugno 1972). Orvieto: Olschki – Centro di Studi Etruschi Orvieto – Istituto di Studi Etruschi e Italici, 151–5.
- Cipolloni, M. 1971. Insediamento proto-villanoviano sulla vetta del Monte Cetona. *Origini* 5: 149–91.
2002. Gubbio (Perugia): Necropoli in località Vittorina, campagne di scavo 1980–2. *Notizie degli Scavi alle Antichità* 9 (11–12, 2000–1): 5–371.
- Cipolloni Sampò, M. 1977–82. Scavi nel villaggio neolitico di Rendina (1970–1976): Relazione preliminare. *Origini* 11: 183–323.
- Cipriani, L. 1927. Su crani etruschi della Marsiliana. *Studi Etruschi* 1: 391–405.
- Clark, C. 1967. *Population Growth and Land Use*. London: Macmillan.
1989. A group of animal bones from Cerveteri. *Studi Etruschi* 55: 253–69.
- Close-Brooks, J. 1965. Proposta per una suddivisione in fasi. *Notizie degli Scavi alle Antichità* (ser. 8, 19) 90: 53–64.
1967. Considerazioni sulla cronologia delle facies arcaiche dell'Etruria. *Studi Etruschi* 35: 323–9.
- Colini, G. A. 1914. Necropoli di Pianello presso Genga (Ancona) e l'origine della civiltà del ferro in Italia (first section). *Bullettino di Paletnologia Italiana* 39: 19–68.
1914. Necropoli di Pianello presso Genga (Ancona) e l'origine della civiltà del ferro in Italia (second section). *Bullettino di Paletnologia Italiana* 40: 121–63.
1916. Necropoli di Pianello presso Genga (Ancona) e l'origine della civiltà del ferro in Italia. *Bullettino di Paletnologia Italiana* 41: 48–70.
- Colonna, G. 1967. L'Etruria meridionale interna dal Villanoviano alle tombe rupestri. *Studi Etruschi* 35: 3–30.
- 1970a. *Bronzi votivi umbro-sabellici a figura umana: I – Periodo 'Arcaico'*. (Studi e Materiali di Etruscologia e Antichità Italiche, 8). Florence: G. C. Sansoni.
- (ed.). 1970b. *Pyrgi: Scavi del Santuario Etrusco (1959–1967)*. Rome: Accademia Nazionale dei Lincei.
- 1970c. Una nuova iscrizione etrusca del VII secolo e appunti sulla epigrafia ceretana dell'epoca. *Mélanges de l'École Française de Rome* 80: 637–72.
1973. Ricerche sull'Etruria interna volsiniese. *Studi Etruschi* 41: 45–72.
1974. La cultura dell'Etruria meridionale interna con particolare riguardo alle necropoli rupestri. In *Aspetti e problemi dell'Etruria interna: Atti del VIII Convegno di studi etruschi*. Florence: Istituto di Studi Etruschi ed Italici, 253–66.
- 1976–7. La dea Cel e i santuari del Trasimeno. *Rivista di Storia Antica* 6–7: 45–62.
1978. Archeologia dell'età romantica in Etruria: I Campanari di Toscanella e la tomba dei Vipinana. *Studi Etruschi* 46: 81–117.
1984. Intervento. In Forsberg, S. and Thomasson, B. F. (eds.), *San Giovenale: Materiale e problemi. Atti del simposio all'Istituto svedese di studi classici a Roma, 6 aprile 1983*. Acta Instituti Romani Regni Sueciae 4°, 41: 103–5.
- 1985a. Anfore di trasporto: il contributo di Pyrgi. In M. Cristofani (ed.), *Il commercio etrusco arcaico: Atti dell'incontro di studio, 5–7, dicembre 1983*. Rome: Consiglio Nazionale delle Ricerche, 5–18.
- 1985b. Dalla casa al tempio. In Colonna, G. (ed.) *Santuari d'Etruria*. (Catalogo della Mostra). Milan: Electa – Florence: Regione Toscana, 53.
- 1985c. *Santuari d'Etruria*. Milan: Electa – Florence: Regione Toscana.
1986. Urbanistica ed architettura. In Pugliese Carratelli, G. (ed.), *Rasenna:*

- Storia e civiltà degli Etruschi*. Milan: Libri Scheiwiller, 371–530.
- (ed.). 1988–9. *Pyrgi: Scavi del Santuario Etrusco*. Rome: Accademia Nazionale dei Lincei.
1990. Corchiano, Narce e il problema di Fescennium. In Maetzke, G., Paoletti, O. & Tamagno Perna, L. (eds.), *La civiltà dei Falisci*. Atti del XV Convegno di studi etruschi ed italici: Civita Castellana–Forte San Gallo, 28–31 maggio 1987. Florence: Olschki, 111–26.
2004. I Greci di Caere. In Della Fina, G. M. (ed.), *I Greci in Etruria: Atti dell'XI Convegno internazionale di studi sulla storia e l'archeologia dell'Etruria*. (Annali della Fondazione per il Museo 'Claudio Faina' 11). Rome: Quasar, 69–94.
2006. Sacred architecture and the religion of the Etruscans. In De Grummond, N. T. & Simon, E. (eds.), *The Religion of the Etruscans*. Austin: University of Texas Press, 132–68.
- Colonna di Paolo, E. & Colonna, G. 1970. *Castel d'Asso: Le necropoli rupestri dell'Etruria meridionale*. Rome: Consiglio Nazionale delle Ricerche.
- Coltorti, M. & Dal Ri, L. 1985. The human impact on the landscape: some examples from the Adige valley. In Malone, C. & Stoddart, S. (eds.), *Papers in Italian Archaeology IV*, part 1: *The Human Landscape*. (British Archaeological Reports – International Series 243). Oxford: British Archaeological Reports, 105–34.
- Comella, A. 2001. *Il Santuario di Punta della Vipera (Santa Marinella, comune di Civitavecchia)*. Vol. I: *I materiali votivi*. Rome: Giorgio Bretschneider Editore.
- Conti, A. (ed.) 2011. *Tetti di terracotta: La decorazione architettonica fittile tra Etruria e Lazio in età arcaica*. Atti delle giornate di studio, Sapienza-Università di Roma, 25 marzo e 25 ottobre 2010. (Officina Etruscologia 5). Rome: Officina.
- Corbucci, M. P. & Pettine, S. (eds.). 1989. *Antichità dall'Umbria a Budapest e Cracovia*. Perugia: Electa Editori Umbri.
- Corbucci, M. P. & Pettine, S. (eds.). 1990. *Gens antiquissima italiae: Antichità dall'Umbria a Leningrado*. Perugia: Electa Editori Umbri.
- (eds.). 1991. *Antichità dall'Umbria a New York*. Perugia: Electa Editori Umbri.
- Cornell, T. J. 1991. The tyranny of the evidence: a discussion of the possible uses of literacy in Etruria and Latium in the archaic age. In Beard, M., Bowman, A. K., Corbier, M., Cornell, T., Franklin, J. L., Hanson, A., Hopkins, K. & Horsfall, N. (eds.), *Literacy in the Roman World*. (Journal of Roman Archaeology Supplementary Series 3). Ann Arbor, MI: Journal of Roman Archaeology, 7–33.
- Corridi, C. 1989. Analisi preliminari dei reperti faunistici rinvenuti in due scavi archeologici in Roselle. *Studi Etruschi* 55: 227–34.
- Costantini, F. 1970. Ipotesi sulla topografia dell'antica Gubbio. *Atti e Memorie dell'Accademia Toscana di Scienze e Lettere: La Colombaria* (35) 21: 49–73.
- Costantini, L., Costantini Biasini, L. & Scali, S. 1987. Bolsena–Gran Carro. In Cerchiai, C. (ed.), *L'Alimentazione nel mondo antico: Gli Etruschi*. Rome: Istituto Poligrafico e Zecca dello Stato, 61–70.
- Costantini, L. & Loredana, C. B. 1995. I reperti paleobotanici. In Tamburini, P. (ed.), *Un abitato villanoviano perilacustre: Il Gran Carro sul lago di Bolsena (1959–1985)*. Rome: Giorgio Bretschneider Editore, 325–35.
- Cowgill, G. L. 2004. Origins and development of urbanism: archaeological perspectives. *Annual Review of Anthropology* 33: 525–49.

- Cozza, L. 1972. Storia della carta archeologica d'Italia (1881-1897). In Gamurrini, G. F., Cozza, A., Pasqui, A. & Mengarelli, R. (eds.), *Carta archeologica d'Italia (1881-97): Materiali per l'Etruria e la Sabina*. Florence: Olschki, 429-59.
- Cremaschi, M. 1990. Depositional and post-depositional processes in rock shelters of northern Italy during the late Pleistocene: their palaeoclimatic and palaeoenvironmental significance. *Quaternaire* 1: 51-64.
- Crezzini, J. 2009. La fauna. In Iaia, C. & Moroni Lanfredini, A. (eds.), *L'età del ferro a Sansepolcro: Attività produttive e ambiente nel sito di Trebbio*. Perugia: AMP edizioni - Aboca Edizioni 89-97.
- Cristofani, M. 1972. Appunti di epigrafia arcaica. Postilla: la più antica iscrizione di Tarquinia. *Annali della Scuola Normale Superiore di Pisa, Classe di Lettere e Filosofia* 1: 295-9.
- 1973-4. Appunti di epigrafia etrusca arcaica - II. *Archeologia Classica* 25-26: 151-65.
- Cristofani, M. 1975a. Il 'dono' in Etruria arcaica. *Parola del Passato* 30: 132-52.
- 1975b. Considerazioni su Poggio Civitate. *Prospettiva* 1: 9-17.
- 1976a. *Città e campagna nell'Etruria settentrionale*. Arezzo: Banca Popolare dell'Etruria.
- 1976b. Il sistema onomastico. In *Atti del Colloquio sul tema l'etrusco arcaico*. Florence: Istituto di Studi Etruschi ed Italici, 92-109.
1977. Problemi poleografici dell'agro cosano e caetrano in età arcaica. In Neppi Modona, A., Marzi Costagli, M. G. & Tamagno Perna, L. (eds.), *La civiltà arcaica di Vulci e la sua espansione*. Atti del X Convegno di studi etruschi ed italici: Grosseto, Roselle, Vulci, 29 maggio-2 giugno 1975. Florence: Olschki, 231-57.
1979. Recent advances in etruscan epigraphy and language. In Ridgway, D. & Ridgway, F. (eds.), *Italy before the Romans: The Iron Age, Orientalizing and Etruscan Periods*. London: Academic Press, 373-412.
- (ed.). 1981a. *Gli Etruschi in Maremma: Popolamento e attività produttive*. Siena: Monte dei Paschi di Siena.
- 1981b. Varietà linguistica e contesti sociali di pertinenza nell'antroponomia etrusca. *Annali del Seminario di Studi del Mondo Classico: Sezione Linguistica* 3: 47-78.
1983. *Gli Etruschi del mare*. Milan: Longanesi.
1985. *I bronzi degli Etruschi*. Novara: Istituto Geografico de Agostini.
1986. Nuovi dati per la storia urbana di Caere. *Bollettino d'Arte Supplemento* 35-36: 1-24.
1988. L'area urbana. In Cristofani, M. & Nardi, G. (eds.), *Caere 1: Il parco archeologico*. Rome: Consiglio Nazionale delle Ricerche, 85-93.
- (ed.). 1992. *Caere 3.1: Lo scarico arcaico della Vigna Parrocchiale*. Rome: Consiglio Nazionale delle Ricerche.
- (ed.). 1993. *Caere 3.2. Lo scarico arcaico della Vigna Parrocchiale*. Rome: Consiglio Nazionale delle Ricerche.
- Cristofani, M. & Cristofani Martelli, M. 1979. Ricerche archeologiche nella zona 'industriale' di Populonia. *Prospettiva* 16: 74-6.
1985. Populonia: Quartiere industriale. In Camporeale, G. (ed.), *L'Etruria mineraria*. (Catalogo della Mostra). Milan: Electa - Florence: Regione Toscana, 84-6.
- Cristofani, M., Moscati, P., Nardi, G. & Pandolfini, M. (eds.). 1985. *Il commercio etrusco arcaico: Atti dell'incontro di studio, 5-7 dicembre 1983*. Rome: Consiglio Nazionale delle Ricerche.
- Cristofani, M., Nardi, G., Santoro, P., Pandolfini, M. & Moscati, P. 1986. Ricerche nell'area urbana di Caere. In *Archeologia della Tuscia II: Atti degli incontri di studio organizzati a Viterbo*

- (1984). Rome: Quaderni di Archeologia Etrusco-Italica.
- Crumley, C. L. 1976. Toward a locational definition of state systems of settlement. *American Anthropologist* 78 (1): 59–73.
- Crumley, C. L. & Marquardt, W. H. (eds.). 1988. *Regional Dynamics: Burgundian Landscapes in Historical Perspective*. London: Academic Press.
- Cucini, C. 1985. Topografia del territorio delle valli del Pecora e dell'Alma. In Francovich, R. (ed.), *Scarlinto I: Storia e territorio*. Florence: All'Insegna del Giglio, 147–320.
1986. Per una storia del popolamento nella Toscana centro meridionale: prima campagna topografica nel territorio di Radicondoli (alta valle del Fiume Cecina). *Archeologia Medievale* 13: 321–9.
1990. Protostoria: Periodo etrusco. In Cucini, C. (ed.), *Radicondoli: Storia e archeologia di un comune Senese*. Rome: Multigrafica Editrice, 231–42.
- Cunliffe, B. W. 1971. Some aspects of hill-forts and their cultural environments. In Jesson, M. & Hill, D. (eds.), *The Iron Age and its Hillforts*. Southampton: Southampton University Press, 53–69.
- Curri, C. B. 1977. Relazioni fra un centro costiero di Vetulonia e il territorio di Vulci. In Neppi Modona, A., Marzi Costagli, M. G. & Tamagno Perna, L. (eds.), *Atti del X convegno di studi etruschi e italici. La Civiltà arcaica di Vulci e la sua espansione*. Florence: Olschki, 259–76.
1978. *Vetulonia*. (Forma Italiae, Regio VII, Volumen V). Florence: Olschki.
- Curri, C., Dani, A. & Sorbelli, S. 1971. Una nuova necropoli etrusca nell'agro vetuloniese a San Germano. *Studi Etruschi* 39: 175–91.
- Cygielman, M. 2002. Per una definizione di città nell'Etruria settentrionale: Il Caso di Vetulonia. In Manganelli, M. & Pacchiani, E. (eds.), *Città e territorio in Etruria: Per una definizione di città nell'Etruria settentrionale. Giornate di Studio. Colle Val d'Elsa 12–13 Marzo 1999. Teatro dei Varii. Colle Val d'Elsa: Gruppo Archeologico Colligiano*, 161–86.
- Cygielman, M. 2002. *Vetulonia: Museo civico archeologico 'Isidoro Falchi'*. Guida. Florence: Arti Grafiche Giorgi & Gambi.
- Cygielman, M. & Poggessi, G. 2008. Cinta muraria di Roselle: alcune considerazioni alla luce dei recenti lavori di restauro. In Camporeale, G. (ed.), *La città murata in Etruria*. Atti del XXV Convegno di studi etruschi ed italici: Chianciano Terme–Sarteano–Chiusi, 30 marzo – 3 aprile 2005. Pisa–Rome: Fabrizio Serra Editore, 245–61.
- D'Achiardi, G. 1927. L'industria mineraria e metallurgica in Toscana al tempo degli Etruschi. *Studi Etruschi* 1: 411–20.
- d'Agostino, B. 1977. Grecs et 'indigènes' sur la côte Tyrrhenienne au VIIe siècle: la transmission des idéologies entre élites sociales. *Annales, Economies, Sociétés, Civilisations* 1: 3–20.
1984. Italy. In Cleere, H. (ed.), *Approaches to the Archaeological Heritage: A Comparative Study of World Cultural Resource Management Systems*. Cambridge: Cambridge University Press, 73–81.
1985. La formazione dei centri urbani. In Cristofani, M. (ed.), *Civiltà degli Etruschi*. Milan: Electa, 43–7.
- 1991a. The Italian perspective on theoretical archaeology. In Hodder, I. (ed.), *Archaeological Theory in Europe*. London: Routledge, 52–64.
- 1991b. Dal palazzo alla tomba percorsi della imagerie etrusca arcaica. *Archeologia Classica* 43: 223–35.
- Dallai, L. 1999. Topografia mineraria in Val di Bruna. *Archeologia Medievale* 26: 163–6.

- Damiani, I. 2010. *L'età del bronzo recente nell'Italia centro-meridionale*. (Grandi Contesti e Problemi della Protostoria Italiana 12). Borgo San Lorenzo, Florence: All'insegna del Giglio.
- D'Atti, V. 1986. Castiglione in Teverina (Viterbo). *Studi Etruschi* 54: 352–4.
2006. Aggiornamenti dallo scavo del santuario di Piana del Lago (Montefiascone, VT). In Pandolfini Angeletti, M. (ed.), *Archeologia in Etruria meridionale: Atti delle giornate di studio in ricordo di Mario Moretti*. Rome: 'L'Erma' di Bretschneider, 173–81.
- De Agostino, A. 1962. La cinta fortificata di Populonia. *Studi Etruschi* 30: 275–82.
- De Angelis, M. C. 1979. Il bronzo finale in Umbria e Toscana interna. In *Atti della XX Riunione scientifica: Il bronzo finale in Italia, Firenze, 21–23 ottobre 1977, in memoria di Ferrante Rittatore Vonwiller*. Florence: Istituto italiano di Preistoria e Protostoria, 221–47.
1990. Casa Carletti. In Martini, F. & Sarti, L. (eds.), *La Preistoria del Monte Cetona: Materiali e documenti per una guida del Museo civico per la preistoria del Monte Cetona*. Florence: All'insegna del Giglio, 88–90.
- De Grossi Mazzorin, J. 1985. Reperti faunistici dall'acropoli di Populonia: testimonianze di allevamento e di caccia nell III a.C. *Rassegna di Archeologia* 5: 131–71.
- 1995a. Economie di allevamento in Italia centrale dalla media età del bronzo alla fine dell'età del ferro. In Christie, N. (ed.) *Settlement and Economy in Italy, 1500 BC to AD 1500: Papers of the Fifth Conference of Italian Archaeology*. Oxford: Oxbow, 167–77.
- 1995b. Ricerche zoologiche in alcuni insediamenti protostoriche dell'Etruria Meridionale. In Negroni Catacchio, N. (ed.), *Tipologia delle necropoli e rituali di deposizione: Ricerche e scavi*. Atti del II incontro di studi, Farnese, 21–23 maggio 1993 (Preistoria e protostoria in Etruria). Vol. II. Milan: Centro Studi di Preistoria e Archeologia, 17–26.
1997. The introduction of the domesticated cat in Italy. *Anthropozoologica* 25–26: 789–92.
1998. Analisi dei resti faunistici da alcune strutture di Sorgenti della Nova. In Negroni Catacchio, N. (ed.) *Protovillanoviani e/o protoetruschi: Ricerche e scavi. Atti del III incontro di studi. Manciano-Farnese 1995 (Preistoria e protostoria in Etruria)*. Milan–Florence: Centro Studi di Preistoria e Archeologia–Ottavo F. Cantini, 169–80.
2001. Archaeozoology and habitation models: from a subsistence to a productive economy in central Italy. In Brandt, J. R. & Karlsson, L. (eds.), *From Huts to Houses. Transformations of Ancient Societies. Proceedings of an International Seminar organised by the Norwegian and Swedish Institutes in Rome, 21–24 September 1997*. Stockholm: Paul Åströms Förlag, 323–30.
2005. Introduzione e diffusione del pollame in Italia ed evoluzione delle sue forme di allevamento fino al Medioevo. Introduction and diffusion of the domestic fowl in Italy and the evolution of the its farming until the Middle Ages. In Fiore, I., Malerba, G. & Chilardi, S. (eds.), *Atti del 3°Convegno Nazionale di Archeozoologia*. Rome: Istituto Poligrafico dello stato, 351–61.
2006. Il quadro attuale delle ricerche archeozoologiche in Etruria e nuove prospettive di ricerca. In Curci, A., Vitali, D. & Penzo, A. (eds.), *Animali tra uomini e dei: Archeozoologia del mondo preromano*. Atti del Convegno internazionale, 8–9 novembre 2002. Bologna: Ante quem, 77–96.
2008. *Archeozoologia: Lo studi dei resti animali in archeologia*. Bari: Editori Laterza.

- De Grossi Mazzorin, J. & Cucinotta, C. 2009. Analisi archeozoologica di alcuni contesti della città antica di Veio. In Bartoloni, G. (ed.), *L'abitato etrusco di Veio: Ricerche dell'Università di Roma La Sapienza*. Vol. I: *Cisterne, pozzi e fosse*. Rome: Edizioni Iuno, 125–36.
- De Grossi Mazzorin, J. & di Gennaro, F. 1992. L'habitat et l'occupation du sol à l'âge du Bronze en Etrurie méridionale. In Mordant, C. & Richard, A. (eds.), *L'habitat et l'occupation du sol à l'âge du Bronze en Europe*. (Documents préhistoriques 4). Paris: Éditions du Comité des Travaux Historiques et Scientifiques, 459–65.
- De Grossi Mazzorin, J. & Minniti, C. 2010. L'utilizzazione degli animali nella documentazione archeozoologica a Roma e nel Lazio dalla preistoria recente all'età classica. In Drago Troccoli, L. (ed.), *Il Lazio dai Colli Albani ai Monti Lepini tra preistoria ed età moderna*. Rome: Quasar, 39–67.
- De Grossi Mazzorin, J., Riedel, A. & Tagliacozzo, A. 1998. Horse remains in Italy from the Eneolithic to the Roman period. In *Proceedings of the XIII International Congress of Prehistoric and Protohistoric Sciences, Forlì (Italia) 8–14 September 1996*, Vol. VI, Tome I. Forlì: ABACO Edizioni, 87–92.
- De Grummond, N. T. & Pieraccini, L. C. (eds.). 2016. *Caere*. Austin: University of Texas Press.
- De Guio, A. 1985. Towards an analytical-mathematical approach to locational strategies: some preliminary steps from fieldwork in the “Vicentino” (Veneto). In Malone, C. & Stoddart, S. (eds.), *Papers in Italian Archaeology IV*, part 1: *The Human Landscape*. (British Archaeological Reports – International Series 243). Oxford: British Archaeological Reports, 153–83.
- De Lucia Brolli, M. A., Gallavotti, D. & Aiello, M. 1991. *L'agro falisco*. (Le Guide Territoriali dell'Etruria Meridionale). Rome: Quasar – Regione Lazio.
- De Marinis, G. 1977. *Topografia storica della Val d'Elsa in periodo etrusco*. (Biblioteca della ‘Miscellanea Storica della Valdelsa’ 1). Florence: Società Storica della Valdelsa.
- de Polignac, F. 1984. *La Naissance de la cité grecque*. Paris: Éditions la Découverte.
- De Puma, R. D. & Small, J. P. (eds.). 1994. *Murlo and the Etruscans: Art and Society in Ancient Etruria*. Madison: University of Wisconsin Press.
- De Rita, D., Di Filippo, M. & Rosa, C. 1996. Structural evolution of the Bracciano volcano-tectonic depression, Sabatini Volcani District Italy. *Geological Society London, Special Publications* 110: 225–36.
- Del Vita, A. 1927. Arezzo etrusca: L'Acropoli e le mura di Castelsecco. *Studi Etruschi* 1: 103–11.
- Delano Smith, C. 1979. *Western Mediterranean Europe: A Historical Geography of Italy, Spain and Southern France since the Neolithic*. London: Academic Press.
- Delano-Smith, C., Mills, N. & Ward-Perkins, B. 1986. Luni and the Ager Lunensis: the rise and fall of a Roman town and its territory. *Papers of the British School at Rome* 54: 82–146.
- Della Fina, Giuseppe M. 1983. *Le antichità a Chiusi: Un caso di 'arredo urbano'*. Rome: Giorgio Bretschneider Editore.
- (ed.). 2002. *Perugia Etrusca: Atti del IX convegno internazionale di studi sulla storia e l'Archeologia dell'Etruria*. (Annali della Fondazione per il Museo ‘Claudio Faina’ 9). Rome: Edizioni Quasar.
- della Volpaia, E. 1547. *Mappa della Campagna Romana: Riprodotto dall'unico esemplare esistente nella Biblioteca Vaticana, con introduzione di Thomas Ashby*. Rome.
- Delpino, F. 1977. La prima età del ferro a Bisenzio. Divisione in fasi ed

- interpretazione culturale. *Studi Etruschi* 45: 36–49.
1981. Aspetti e problemi della prima età del ferro nell'Etruria settentrionale marittima. In *L'Etruria mineraria: Atti del XII Convegno di Studi etruschi e italici* (Firenze – Populonia – Piombino, 16–20 giugno 1979). Florence: Olschki, 265–98.
1985. Necropoli del Sorbo, Cerveteri. In Cristofani, M. (ed.), *Civiltà degli etruschi*. (Catalogo della Mostra). Milan: Electa, 33.
1986. Rapporti e scambi nell'Etruria meridionale villanoviana con particolare riferimento al Mezzogiorno. *Archeologia della Toscana* 2: 167–76.
1994. Bisenzio. In *Enciclopedia dell'Arte Antica (II suppl. 1971–1994, vol. I)*. Rome: Istituto dell'Enciclopedia Italiana, 697–9.
- Dennis, G. 1848. *The Cities and Cemeteries of Etruria*. London: J. Murray.
- Descœudres, J.-P. & Kearsley, R. 1983. Greek pottery at Veii: another look. *Annual of the British School at Athens* 78: 9–53.
- Di Cola, V. & Pitzalis, F. (eds.). 2015. *Materiali per Populonia* 11. Pisa: Edizioni ETS.
- di Gennaro, F. 1982. Organizzazione del territorio nell'Etruria meridionale protostorica: applicazione di un Modello Grafico. *Dialoghi di Archeologia* 2: 102–12.
1984. Intervento. In Forsberg, S. and Thomasson, B. F. (eds.), *San Giovenale: Materiale e Problemi. Atti del simposio all'Istituto Svedese di studi classici a Roma, 6 aprile 1983*. Acta Instituti Romani Regni Sueciae 4°, 41: 97–100.
1986. *Forme di insediamento tra Tevere e Fiora dal Bronzo Finale al principio dell'età del ferro*. Florence: Olschki.
2009. Le sepolture megalitiche dell'età del bronzo in Italia centrale tra falsi allarmi e nuove attestazioni. In Tusa, S., Buccellato, C. & Biondo, L. (eds.), *Orme dei Giganti*. Palermo: Regione Siciliana – Assessorato dei Beni Culturali, Ambientali e della Pubblica Istruzione – Dipartimento dei Beni Culturali e dell'Educazione Permanente, 83–93.
- di Gennaro, F. & Barbaro, B. 2008. Territori e paesaggi mediotirrenici nella mente dei protostorici. In Negrone Catacchio, N. (ed.), *Paesaggi reali e paesaggi mentali: Ricerche e scavi*. Atti dell'VIII incontro di studi (Preistoria e protostoria in Etruria). Milan: Centro Studi di Preistoria e Archeologia, 117–28.
- di Gennaro, F., Cerasuolo, O., Colonna, C., Rajala, U., Stoddart, S. & Whitehead, N. 2002. Recent research on the city and territory of Nepi. *Papers of the British School at Rome* 70: 29–77.
- di Gennaro, F., Rajala, U., Rizzo, D., Stoddart, S. & Whitehead, N. 2008. Nepi and territory: 1200 BC – 400 AD. In Patterson, H. & Coarelli, F. (eds.), *Mercator Placidissimus – The Tiber Valley in Antiquity: New Research in the Upper and Middle Valley*. Rome, 27–28 February 2004. Rome: Quasar, 879–87.
- di Gennaro, F. & Schiappelli, A. 2004. Protohistoric Veii. In Patterson, H. (ed.), *Bridging the Tiber: Approaches to Regional Archaeology in the Middle Tiber Valley*. London: British School at Rome, 14–15.
- di Gennaro, F. & Stoddart, S. 1982. A review of the evidence for prehistoric activity in part of South Etruria. *Papers of the British School at Rome* 50: 1–21.
- Di Giuseppe, H. 2007. Assetti territoriali nella media valle del Tevere dall'età orientalizzante a quella repubblicana. In Coarelli, F. & Patterson, H. (eds.), *Mercator Placidissimus: The Tiber Valley in Antiquity. New Research in the Upper and*

- Middle River Valley*. (Proceedings of the Conference held at the British School at Rome, 27–28 February 2004). Rome: Edizioni Quasar, 431–65.
- Di Paola, G. 2018. Central place and liminal landscape in the territory of Populonia. *Land* 7 (3): 94; doi:10.3390/land7030094.
- Di Rita, F., Fletcher, W. J., Aranbarri, J., Margaritelli, G., Lirer, F. & Magri, D. 2018. Holocene forest dynamics in central and western Mediterranean: periodicity, spatio-temporal patterns and climate influence. *Scientific Reports* 8: 8929. <https://doi.org/10.1038/s41598-018-27056-2>.
- Dietler, M. 2010. *Archaeologies of Colonialism: Consumption, Entanglement, and Violence in Ancient Mediterranean France*. Berkeley: University of California Press.
- Diringer, D. 1930. *Foglio 115 Città di Castello*. (Edizione Archeologica della Carta d'Italia al 100,000). Florence: R. Istituto Geografico Militare.
- Dolfini, A. 2002. *Le abitazioni a pianta ellittica del settore III*. (Collana Sorgenti della Nova. I materiali del Bronzo Finale). Vol. I. Milan: Centro Studi di Preistoria e Archeologia.
2004. Le necropoli di Rinaldone (Montefiascone, Viterbo): rituale funerario e dinamiche sociali di una comunità eneolitica in Italia centrale. *Bullettino di Paletnologia Italiana* 95: 127–278.
2005. Lo spazio abitativo come spazio sociale: le case di Sorgenti della Nova nel quadro della protostoria italiana. In Attema, P., Nijboer, A. J. & Zifferero, A. (eds.), *Papers in Italian Archaeology VI: Communities and Settlements from the Neolithic to the Early Medieval Period. Proceedings of the Sixth Conference of Italian Archaeology held at the University of Groningen, Groningen Institute of Archaeology, The Netherlands, April 15 –17, 2003*. Oxford: British Archaeological Reports, 346–57.
- Donatella Gentili, M. 1990. I santuari di Pyrgi e Punta della Vipera. In Maffei, A. & Nastasi, F. (eds.), *Caere e il suo territorio da Agylla a Centumcellae*. Rome: Libreria dello Stato, 279–84.
- Donati, L. 1994. *La casa dell'impluvium: Architettura etrusca a Roselle*. Rome: Giorgio Bretschneider Editore.
2010. Ai confini del territorio chiusino: il caso di Poggio Civitate. In Fontaine, P. (ed.), *L'Étrurie et l'Ombrie avant Rome: Cité et territoire*. (Actes du colloque international Louvain-la-Neuve Halles Universitaires, Sénat académique 13–14 février 2004). Rome: Belgisch Historisch Instituut te Rome, 83–102.
- Donati, L. & Cappuccini, L. 2008. Poggio Civitella: la fortezza ellenistica e le testimonianze culturali del sito. In Camporeale, G. (ed.), *La città murata in Etruria: Atti del XXV Convegno di studi etruschi ed italici (Chianciano Terme–Sarteano– Chiusi, 30 marzo – 3 aprile 2005)*. Pisa-Rome: Fabrizio Serra Editore, 221–44.
- Donati, L. & Ceccarelli, L. 2002. Poggio Civitella (Montalcino, Siena): le ricerche sull'insediamento etrusco. *Rassegna di Archeologia classica postclassica* 19b: 9–43.
2004. Poggio Civitella: nuove metodologie d'indagine archeologica. Applicazione GIS di scavo e viewshed analysis. In Cortonesi, A. & Pagani, A. (eds.), *Ilcinensia: Nuove ricerche per la storia di Montalcino e del suo territorio*. Rome: Vecchiarelli Editore, 15–36.
- Donnini, L. & Rosi Bonci, L. 2008. *Civitella d'Arna (Perugia, Italia) e il suo territorio: Carta archeologica*. Oxford: John and Erica Hedges Ltd.
- Drennan, R. & Peterson, C. E. 2004. Comparing archaeological settlement systems with rank-size graphs: a measure of shape and statistical

- confidence. *Journal of Archaeological Science* 31: 533–49.
- Drescher-Schneider, R., de Beaulieu, J.-L., Magny, M., Walter-Simonnet, A.-V., Bossuet, G., Millet, L., Brugiapaglia, E. & Drescher, E. 2007. Vegetation history, climate and human impact over the last 15,000 years at Lago dell'Accesa (Tuscany, Central Italy). *Vegetation History and Archaeobotany* 16: 279–99.
- Dubbini, N. 2013. L'algoritmo MAPPA. In Gualandi, M. L., Anichini, F., Dubbini, N., Fabiani, F. & Gattiglia, G. (eds.), *MAPPA: Metodologie applicate alla predittività del potenziale archeologico*. Vol. II. Rome: Edizioni Nuova Cultura, 101–13.
- Ducke, B. & Kroefges, P. C. 2008. From points to areas: constructing territories from archaeological site patterns using an enhanced Xtent Model. In Posluschny, A., Lambers, K. & Herzog, I. (eds.), *Layers of Perception: Proceedings of the 35th International Conference on Computer Applications and Quantitative Methods in Archaeology (CAA), Berlin, Germany, April 2–6, 2007*. Bonn: Dr. Rudolf Habelt GmbH Verlag.
- Duncan, F. C. 1958. Sutri (Sutrium). *Papers of the British School at Rome* 26: 63–134.
- Dyson, S. L. 1985. Two paths to the past: a comparative study of the last fifty years of *American Antiquity* and *American Journal of Archaeology*. *American Antiquity* 50: 452–63.
- Dzieńkowski, K. 1972. General theory of rank size distributions in regional size rule. *Papers of the Regional Science Association* 29: 74–86.
- Earle, T. K. 1976. A nearest neighbour analysis of two formative settlement systems. In Flannery, K. V. (ed.), *The Early Mesoamerican Village*. New York: Academic Press, 234–49.
- Eckhel, J. 1775. *Numi Veteres Anecdota Ex Museis Caesareo Vindobonensi, Florentino Magni Ducis Etruriae, Granelliano Nunc* Caesareo, Vitziano, Festeticiano, Savognano Veneto, Aliisque. Vienna: Typis Josephi Kurzböck.
- Edlund-Berry, I., Greco, G. & Kenfield, J. 2006. *Deliciae Fictiles III. Architectural Terracottas in Ancient Italy: New Discoveries and Interpretations*. (Proceedings of the International Conference Held at the American Academy in Rome, November 7–9, 2002). Oxford: Oxbow Books.
- Enei, F. 1987. *Cerveteri: Recupero nell'area della città antica*. (Ricognizioni Archeologiche 3). Rome: Gruppo Archeologico Romano.
1993. *Cerveteri: Ricognizioni archeologiche nel territorio di una città etrusca*. Rome: Gruppo Archeologico Romano.
2001. *Progetto Ager Caeretanus: Il litorale di Alsium*. (Ricognizioni Archeologiche nel Territorio di Ladispoli, Cerveteri e Fiumicino). Ladispoli: Comune di Ladispoli – Regione Lazio.
- Environmental Systems Research Institute 2001. *ArcInfo 8.0.1 for Solaris*. Redlands, CA: Environmental Systems Research Institute.
- Esposito, A. M. 2007a. Il territorio: La Valle del Cecina. In Cateni, G. (ed.), *Etruschi di Volterra: Capolavori da grandi musei europei*. Milan: Federico Motta Editore, 86–8.
- 2007b. Casale Marittimo: l'insediamento e le necropoli. In Cateni, G. (ed.), *Etruschi di Volterra: Capolavori da grandi musei europei*. Milan: Federico Motta Editore, 90–5.
- Evernden, J. F. & Curtis, G. H. 1965. The Potassium-Argon dating of late Cenozoic rocks in East Africa and Italy. *Current Anthropology* 6 (4): 343–64.
- Fabiani, F., Gattiglia, G., Ghizzani Marcia, F., Grassini, F., Gualandi, M. L. & Parodi, L. 2013. Analisi spaziali e ricostruzioni storiche. In Gualandi, M. L., Anichini, F., Dubbini, N.,

- Fabiani, F. & Gattiglia, G. (eds.), *MAPPÀ: Metodologie applicate alla predittività del potenziale archeologico*. Vol. II. Rome: Edizioni Nuova Cultura, 45–87.
- Facchin, G. & Milletti, M. (eds.). 2011. *Materiali per Popolonia 10*. Pisa: Edizioni ETS.
- Falchi, I. 1891. *Vetulonia e la sua necropoli antichissima*. Florence: coi tipi dei successori Le Monnier.
1903. La necropoli etrusca di Popolonia, forse inesplorata. *Notizie degli Scavi alle Antichità* 1903 (1): 4–14.
- Falconer, S. E. 1994. The development and decline of Bronze Age civilisation in the southern Levant: a reassessment of Urbanism and ruralism. In Mathers, C. & Stoddart, S. (eds.), *Development and Decline in the Mediterranean Bronze Age*. Sheffield: John Collis Press, 305–33.
- Falconer, S. E. & Savage, S. H. 1995. Heartlands and hinterlands: Alternative trajectories of early urbanisation in Mesopotamia and the Southern Levant. *American Antiquity* 60 (1): 37–58.
- Fedeli, F. 1983. *Popolonia: Storia e territorio*. Florence: All'Insegna del Giglio.
- Fedeli, F., Galiberti, A. & Romualdi, A. 1993. *Popolonia e il suo territorio: Profilo storico-archeologico*. Florence: All'Insegna del Giglio.
- Felici, C. 2004. *Carta archeologica della Provincia di Siena*. Vol. VI: *Pienza*. Siena: Nuova Immagine.
- (ed.). 2012. *San Giovanni d'Asso: Carta archeologica della Provincia di Siena*. Vol. X. Siena: Nuova Immagine.
- Fentress, E. 2002a. Criteri tipologici. In Carandini, A. & Cambi, F. (eds.), *Paesaggi d'Etruria: Valle dell'Albegna, Valle d'Oro, Valle del Chiarone, Valle del Tafone. Progetto di ricerca italo-britannico seguito allo scavo di Settefinestre*. Rome: Edizioni di Storia e Letteratura, 54–61.
- 2002b. Leggibilità del terreno e intensità della ricognizione. In Carandini, A. & Cambi, F. (eds.), *Paesaggi d'Etruria: Valle dell'Albegna, Valle d'Oro, Valle del Chiarone, Valle del Tafone. Progetto di ricerca italo-britannico seguito allo scavo di Settefinestre*. Rome: Edizioni di Storia e Letteratura, 36–8.
- Feruglio, A. E. 1968. Rassegna degli scavi e delle scoperte: territorio della Soprintendenza alle antichità dell'Umbria. Panigarola (Castiglione del Lago). *Studi Etruschi* 36: 161.
1969. Rassegna degli scavi e delle scoperte: territorio della Soprintendenza alle antichità dell'Umbria. Panigarola (Castiglione del Lago). *Studi Etruschi* 37: 281.
1973. Rivista di epigrafia etrusca: Perugia. *Studi Etruschi* 41: 293–5.
1990. Perugia: le testimonianze di tipo villanoviano. In Corbucci, M. P. & Pettine, S. (eds.), *Antichità dall'Umbria a Leningrado*. Perugia: Electa Editori Umbri, 92–102.
2002. La tomba dei Cai Cutu e le urne cinerarie perugine di età ellenistica. In Della Fina, G. M. (ed.), *Perugia Etrusca: Atti del IX convegno internazionale di studi sulla storia e l'archeologia dell'Etruria*. (Annali della Fondazione per il Museo 'Claudio Faina' 9). Rome: Edizioni Quasar, 475–95.
- Finke, P. A., Harding, J., Sevink, J., Sewuster, R. J. E. & Stoddart, S. 1994. Site territories and land use. In Malone, C. & Stoddart, S. (eds.), *Territory, Time and State: The Archaeological Development of the Gubbio Basin*. Cambridge: Cambridge University Press, 81–93.
- Finley, M. I. 1975. Archaeology and history. In Finley, M. I. (ed.), *The Use and Abuse of History*. London: Chatto and Windus, 87–101.
- Fiore, I. & Tagliacozzo, A. 2011. I resti ossei faunistici, provenienti dal sito de la Castellina. In Gran Aymerich, J. &

- Domínguez-Arranz, A. (eds.), *La Castellina a sud di Civitavecchia: origini ed eredità: Origines protohistoriques et évolution d'un habitat étrusque* Rome: 'L'Erma' di Bretschneider, 1080–97.
- Fiorini, L. 2005. *Topografia generale e storia del santuario: Analisi dei contesti e delle stratigrafie*. (Gravisca, 1.1). Bari: Edipuglia.
- Fisher, K. D. & Creekmore, A. 2014. *Making Ancient Cities: Space and Place in Early Urban Societies*. New York: Cambridge University Press.
- Fitzsimons, R. D. 2014. Urbanization and the emergence of the Greek polis: the case of Azoria, Crete. In Creekmore, A. & Fisher, K. (eds.), *Making Ancient Cities: Studies of the Production of Space in Early Urban Environments*. Cambridge: Cambridge University Press, 220–56.
- Fiumi, E. 1961. La facies arcaica del territorio volterrano. *Studi Etruschi* 29: 253–92.
- Flannery, K. 1999. Process and agency in early state formation. *Cambridge Archaeological Journal* 9 (1): 3–21.
- Flannery, K. V. 1968. The Olmec and the valley of Oaxaca: a model for inter-regional interaction in Formative times. In Benson, E. P. (ed.), *Dumbarton Oaks Conference on the Olmec*. Washington, DC: Dumbarton Oaks Research Library and Collection, 79–110.
- Flannery, K. V. & Marcus, J. 2012. *The Creation of Inequality: How our Prehistoric Ancestors Set the Stage for Monarchy, Slavery, and Empire*. Cambridge, MA: Harvard University Press.
- Flavell, P., Malone, C. & Stoddart, S. 1987. Nota preliminare sui nuovi scavi a Monte Ingino – 1983 e 1984. In Meloni, G. (ed.), *La rocca posteriore sul monte Ingino di Gubbio: (Campagne di scavo 1975–77)*. Florence: 'La Nuova Italia' Editrice – Perugia: Regione dell'Umbria, 313–32.
- Follieri, M. 1978. Resti vegetali. In Cassano, S. M. and Manfredini, A. 1978. Torrionaccio (Viterbo): scavo di un abitato protostorico. *Notizie degli Scavi alle Antichità* 32: 271.
1981. Significato dei resti vegetali macroscopici. In Negroni Catacchio, N. (ed.), *Sorgenti della Nova: Una comunità protostorica e il suo territorio nell'Etruria meridionale*. Rome: Consiglio Nazionale delle Ricerche.
- Fontaine, P. 1990. *Cités et enceintes de l'Ombrie antique*. Brussels – Rome: Belgisch historisch Instituut te Rome.
- Fontijn, D. R. 2002. Sacrificial landscapes: cultural biographies of persons, objects and 'natural' places in the Bronze Age of the Southern Netherlands, c. 2300–600 BC. *Analecta Praehistorica Leidensia* 2002: 1–392.
- Fortuna, A. M. & Giovannoni, F. 1989. *Il Lago degli Idoli: Testimonianze etrusche in Falterona*. Florence: Le Lettere.
- Fortunelli, S. (ed.). 2005. *Il Museo della città etrusca e romana di Cortona: Catalogo delle collezioni*. Florence: Edizioni Polistampa.
- Francovich, R. (ed.). 1985. *Scarlino I: Storia e territorio*. Florence: All'Insegna del Giglio.
- Frank, A. H. E. 1969. Pollen stratigraphy of the Lake of Vico (central Italy). *Palaeogeography, Palaeoclimatology, Palaeoecology* 6: 67–85.
- Friedman, J. & Rowlands, M. 1977. Notes towards an epigenetic model for the evolution of 'Civilization'. In Friedman, J. & Rowlands, M. (eds.), *The Evolution of Social Systems*. London: Duckworth, 201–75.
- Fugazzola Delpino, M. A. 1976. Problematica protovillanoviana. *Origini* 10: 245–332.
- Fullerton, M. H. 1982. The terracotta sphinx acroteria from Poggio Civitate (Murlo). *Mitteilungen des Deutschen Archaeologischen Instituts Römische Abteilung* 89: 1–34.

- Fulminante, F. 2012. *Settlement Analysis and Urbanization in Latium Vetus (Central Italy)*. Cambridge: Cambridge University Press.
2014. *The Urbanisation of Rome and Latium Vetus: From the Bronze Age to the Archaic Era*. Cambridge: Cambridge University Press.
- Gaffney, V., Stancic, Z. & Watson, H. 1995. The impact of GIS on archaeology: a personal perspective. In Lock, G. & Stancic, Z. (eds.), *Archaeology and Geographical Information Systems: A European Perspective*. London: Taylor and Francis, 211–29.
- Galiberti, A. 1970. *La preistoria del promontorio di Piombino*. (Catalogo della Mostra). Piombino: n.p.
- Gallant, T. 1982. An examination of two island polities in Antiquity: the Lefkas – Pronnoi survey. PhD dissertation, Faculty of Classics, University of Cambridge.
- Galluccio, F. 1999. Volterra etrusca alla luce delle nuove scoperte. *Opuscula Romana* 24: 83–98.
- Gamurrini, G. F., Cozza, A., Pasqui, A. & Mengarelli, R. 1972. *Carta archeologica d'Italia (1881–97): Materiali per l'Etruria e la Sabina*. (Saggi e Studi sull'Antichità). Florence: Olschki.
- Gargana, A. 1929. La necropoli rupestre di S. Giuliano. *Monumenti Antichi* 33: 297–444.
- Gargiullo, S. & Okely, E. 1993. *Atlante archeologico dei mari d'Italia*. Vol. I: *Liguria – Toscana – Lazio*. Formello: Istituto di ricerche ecologiche ed economiche (IRECO).
- Garraty, C. P. 2006. Aztec Teotihuacan: political processes at a Postclassic and early Colonial City-State in the Basin of Mexico. *Latin American Antiquity* 17 (4): 363–87.
- Gastaldi, P. 2000. L'abitato di Petriolo. In Rastrelli, A. (ed.), *Chiusi etrusca*. Chiusi: Luì, 128–43.
2008. Modelli di interazione fra le città dell'Etruria interna nel VI secolo. *Annali della Fondazione per il Museo 'Claudio Faina'* 15: 273–95.
- Gazzetti, G., Gallavotti, D. & Aiello, M. 1992. *Il territorio capenate*. (Guide Territoriali dell'Etruria Meridionale). Rome: Quasar – Regione Lazio Assessorato alla Cultura.
- Gazzetti, G. & Zifferero, A. 1990. Progetto Monti della Tolfa – Valle del Mignone: secondo rapporto di attività (1985–9). *Archeologia Medievale* 17: 435–76.
- Gell, W. 1834–6. *The Topography of Rome and its Vicinity*. London: Saunders and Otley.
- Gennusa, R., Iaia, C., Moroni Lanfredini, A. & Pacciarelli, M. 2008. Sansepolcro (AR). Trebbio. *Notiziario della Soprintendenza ai Beni Archeologici della Toscana* 3: 545–9.
- Germini, F. 2002. Insediamento protostorico. Area frana. Scavo 1998. In De Vecchi, P. (ed.), *Museo civico di Gualdo Tadino. Rocca Flea 2: Materiali archeologici e ceramiche dal XVI al XX secolo*. Perugia: Electa – Editori Umbri Associati, 39–41.
- Germini, F. & Occhilupo, S. 2002. Abitato umbro. In De Vecchi, P. (ed.), *Museo civico di Gualdo Tadino: Rocca Flea 2. Materiali archeologici e ceramiche dal XVI al XX secolo*. Perugia: Electa – Editori Umbri Associati, 42–54.
- Ghisleni, M. 2010. Carta archeologica della provincia di Grosseto: comune di Cinigiano. Dinamiche insediative e di potere fra V e XI secolo nella bassa val d'Orcia e nella media valley dell'Ombro. PhD dissertation, University of Siena.
- Ghisleni, M., Vaccaro, E. & Bowes, K. 2011. Excavating the Roman peasant I: excavations at Pievina (GR). *Papers of the British School at Rome* 79: 95–146.
- Ghizzani Marcia, F. & Megale, C. (eds.). 2009. *Materiali per Populonia* 8. Pisa: Edizioni ETS.

- Gianfrotta, P. A. 1976. *Castrum novum*. (Forma Italiae. Regio VII – Volumen Tertium). Rome: De Luca.
1982. Archeologia sott'acqua: rinvenimenti sottomarini in Etruria Meridionale. *Archeologia Subacquea*, Bollettino d'arte Supplemento 4: 13–36.
- Giardino, C. 1995. *Il Mediterraneo occidentale fra XIV ed VIII secolo a.C.: Cerchie minerarie e metallurgiche*. (BAR International Series 612). Oxford: Tempus Reparatum.
2005. Metallurgy in Italy between the Late Bronze Age and the Early Iron Age: the coming of Iron. In Attema, P., Nijboer, A. & Zifferero, A. (eds.), *Papers in Italian Archaeology VI: Communities and Settlements from the Neolithic to the Early Medieval Period (Proceedings of the Sixth Conference of Italian Archaeology, Groningen 2003)*. Oxford: Archaeopress, 491–505.
- Giordini, P. 2012a. Between land and sea: A GIS based settlement analysis of the ancient coastal lagoon of Piombino (Tuscany, Italy). *eTopoi: Journal for Ancient Studies* 3: 383–9.
- 2012b. Puntualizzazione sul paesaggio antico della pianura di Piombino. In Guarducci, G. & Valentini, S. (eds.), *Il futuro nell'archeologia: Il contributo dei giovani ricercatori*. Atti del IV Convegno nazionale dei giovani archeologi, Tuscania (VT), 12–15 Maggio 2011. Rome: Ancient Mediterranean and Near Eastern Studies (CAMNES) 140–8.
2015. Fra la campagna e il mare: sviluppo e contrazione del popolamento nella piana di Piombino dall'VIII al V secolo a.C. In Paoletti, O. & Bettini, M. C. (eds.), *La Corsica e Populonia*. Atti del XXVIII Convegno di studi etruschi ed italici: Bastia–Aléria–Piombino–Populonia, 25–29 ottobre 2011. Rome: Giorgio Bretschneider editore, 535–50.
- Goody, J. (ed.). 1968. *Literacy in Traditional Societies*. Cambridge: Cambridge University Press.
1977. *The Domestication of the Savage Mind*. Cambridge: Cambridge University Press.
- Goody, J. & Watt, I. 1968. The consequences of literacy. In Goody, J. (ed.), *Literacy in Traditional Societies*. Cambridge: Cambridge University Press, 27–68.
- Gran Aymerich, J. & Domínguez-Arranz, A. 2011. *La Castellina a sud di Civitavecchia: Origini ed eredità – origines protohistoriques et évolution d'un habitat étrusque*. Rome: 'L'Erma' di Bretschneider.
- Grant, A., Rasmussen, T. & Barker, G. 1993. Tuscania: excavations of an Etruscan rural building. *Studi Etruschi* 58: 566–70.
- Grant, E. 1986. Hill forts, central places and territories. In Grant, E. (ed.), *Central Places, Archaeology and History*. Sheffield: University of Sheffield, Department of Archaeology and Prehistory, 13–26.
- Greco, E., Foresta, S., Gagliano, E., Privitera, S. & Voza, O. (eds.). 2015. *Topografia di Atene: sviluppo urbano e monumenti dalle origini al III secolo d. C. Vol. V: Lexicon Topographicum Urbis Athenarum*. Paestum: Pandemos.
- Guaitoli, M. 1977. Considerazioni su alcune città ed insediamenti del Lazio in età protostorica ed arcaica. *Mitteilungen des Deutschen Archaeologischen Instituts-romische Abteilung* 84: 5–25.
1981. Notizie preliminari su recenti ricognizioni svolte in seminari dell'Istituto. *Quaderni dell'Istituto di topografia antica dell'Università di Roma* 9: 79–87.
1982. Gabii: osservazioni sulle fasi di sviluppo dell'abitato. *Quaderni dell'Istituto di Topografia Antica dell'Università di Roma* 9: 23–57.

1984. Urbanistica. *Archeologia Laziale* 6: 364–81.
1985. La bassa e media valle del Fiora: la città e il territorio prima della conquista. In Carandini, A. (ed.), *La romanizzazione dell'Etruria: Il territorio di Vulci*. (Catalogo della Mostra). Milan: Electa, 57–8.
- (ed.). 2003. *Lo sguardo di Icaro: Le collezioni dell'Aerofototeca Nazionale per la conoscenza del territorio*. (Catalogo della Mostra). Rome: Campisano Editore.
- Guérin-Pace, F. 1993. *Deux siècles de croissance urbaine*. Paris: Economica Anthrope.
1995. Rank-size distribution and the process of urban growth. *Urban Studies* 32: 551–62.
- Guidi, A. 1980. Luoghi di culto dell'età del bronzo finale e della prima età del ferro nel Lazio meridionale. *Archeologia Laziale* 3: 148–55.
1985. An application of the rank size rule to protohistoric settlements in the middle Tyrrhenian area. In Malone, C. & Stoddart, S. (eds.), *Papers in Italian Archaeology*. Vol. III: *Patterns in Protohistory*. (British Archaeological Reports – International Series 245). Oxford: British Archaeological Reports, 217–42.
1989. Alcune osservazioni sull'origine delle città etrusche. In Maetzke, G., Marzi Costagli, M. G., Iozzo, M., Paoletti, O. & Shepherd, E. J. (eds.), *Atti del II Congresso internazionale etrusco, Firenze 26 maggio – 2 giugno, 1985*. Rome: Giorgio Bretschneider Editore, 285–92.
1993. *La necropoli veiente dei Quattro Fontanili nel quadro della fase recente della prima età del ferro italiana*. (Biblioteca di Studi Etruschi 26). Florence: Olschki.
- Guidi, R. & Moroni Lanfredini, A. 2001. L'età del bronzo nell'alta valtiberina toscana. In Martini, F. & Nappini, R. (eds.), *Atti della XXXIV Riunione scientifica: Preistoria e protostoria della Toscana, Firenze, 29 settembre – 2 ottobre 1999*. Florence: Istituto Italiano di Preistoria e Protostoria, 427–39.
- Hansen, M. H. (ed.). 2000. *A Comparative Study of Thirty City-State Cultures: An Investigation*. Copenhagen: Kongelige Danske Videnskabernes Selskab.
2006. *Polis: An Introduction to the Ancient Greek City-State*. Oxford: Oxford University Press.
- Harari, M. 1997. Tarquinia e il territorio suburbano nel rilevamento ad alta quota: una lettura topografica. In Bonghi Jovino, M. & Chiaramonte Treré, C. (eds.), *Tarquinia: Testimonianze archeologiche e ricostruzione storica. Scavi sistematici nell'abitato, campagne 1982–1988*. (Tarchna 1). Rome: 'L'Erma' di Bretschneider, 5–17.
- Harrison, A., Rajala, U., Stoddart, S., Witcher, R. & Zubrow, E. 2004. The enhancement of the South Etruria Survey: Phase 1. In Patterson, H. (ed.), *Bridging the Tiber: Approaches to Regional Archaeology in the Middle Tiber Valley*. London: British School at Rome, 29–35.
- Hartmann, N. 1985. The use of iron in 9th and 8th century Etruria. In Malone, C. & Stoddart, S. (eds.), *Papers in Italian Archaeology IV*, part iii: *Patterns in Protohistory*. (BAR International Series 245). Oxford: British Archaeological Reports, 285–94.
- Helbaek, H. 1967. Agricoltura preistorica a Luni sul Mignone in Etruria. Appendice II. In Östenberg, C. E., *Luni sul Mignone e problemi della preistoria d'Italia*. Acta Instituti Romani Regni Sueciae 4°, 25: 279–82.
- Hemphill, P. 1983. Civitella-Cesi survey. In Keller, D. R. & Rupp, D. W. (eds.), *Archaeological Survey in the Mediterranean Area*. Oxford: British Archaeological Reports, 173–5.

- Hencken, H. 1968a. *Tarquinia, Villanovans and Early Etruscans*. Vol I. (Bulletin of the American School of Prehistoric Research, Peabody Museum, Harvard University 23). Cambridge, MA: Peabody Museum.
- 1968b. *Tarquinia, Villanovans and Early Etruscans*. Vol II. (Bulletin of the American School of Prehistoric Research, Peabody Museum, Harvard University 23). Cambridge, MA: Peabody Museum.
- Henderson, J. 1988. Glass production and Bronze Age Europe. *Antiquity* 62 (236): 435–51.
- Heymann, A. J. 2005a. Altre sepolture a Trestina. In Fortunelli, S. (ed.), *Il Museo della città etrusca e romana di Cortona: Catalogo delle collezioni*. Florence: Edizioni Polistampa, 227–34.
- 2005b. Il contesto di Trestina-Tarragoni. In Fortunelli, S. (ed.), *Il Museo della città etrusca e romana di Cortona: Catalogo delle collezioni*. Florence: Edizioni Polistampa, 206–26.
- Hill, J. D. 1995. How should we understand Iron Age societies and hillforts? A contextual study from southern Britain. In Hill, J. D. & Cumberpatch, C. G. (eds.), *Different Iron Ages*. Oxford: British Archaeological Reports, 44–66.
- Hirth, K. G. 1978. Interregional trade and the formation of prehistoric gateway communities. *American Antiquity* 43: 35–45.
- Höckmann, U. 1982. *Die Bronzen aus dem Fürstengrab von Castel San Mariano bei Perugia*. (Staatliche Antikensammlungen München: Katalog der Bronzen 1). Munich: Beck.
- Hodder, I. 1972. Locational models and the study of Romano-British settlement. In Clarke, D. R. (ed.), *Models in Archaeology*. London: Methuen, 887–909.
1979. Simulating the growth of hierarchies. In Renfrew, A. C. & Cooke, K. L. (eds.), *Transformations: Mathematical Approaches to Culture Change*. New York: Academic Press, 117–44.
- Hodder, I. & Orton, C. 1976. *Spatial Analysis in Archaeology*. (New Studies in Archaeology 1). Cambridge: Cambridge University Press.
- Hodges, R. 1987. Spatial models, anthropology and archaeology. In Wagstaff, J. M. (ed.), *Landscape and Culture: Geographical and Archaeological Perspectives*. Oxford: Blackwell, 118–33.
1988. *Primitive and Peasant Markets*. Oxford: Basil Blackwell.
- Hodges, R., Moreland, J. & Patterson, H. 1985. San Vincenzo al Volturno, the Kingdom of Benevento, and the Carolingians. In Malone, C. & Stoddart, S. (eds.), *Papers in Italian Archaeology IV*, part 4: *Classical and Medieval Archaeology*. (British Archaeological Reports International Series 246). Oxford: British Archaeological Reports, 261–85.
- Hodos, T., Cartwright, C. R., Montgomery, J., Nowell, G., Crowder, K., Fletcher, A. C. & Gönster, Y. 2020. The origins of decorated ostrich eggs in the ancient Mediterranean and Middle East. *Antiquity* 94 (374): 381–400.
- Hogg, A. H. A. 1971. Some applications of surface fieldwork. In Jesson, M. & Hill, D. (eds.), *The Iron Age and its Hillforts*. Southampton: University of Southampton, 105–25.
- Hopf, M. 1995. Determinazione dei resti vegetali del ‘Gran Carro’ (Lago di Bolsena, Viterbo): Scavo 1980. In Tamburini, P. (ed.), *Un abitato villanoviano perilacustre: Il Gran Carro sul lago di Bolsena (1959–1985)*. (Tyrrhenica V – Archaeologica). Rome: Giorgio Bretschneider Editore, 336–8.

- Hus, A. 1980. *Les etrusques et leur destin*. Paris: Picard.
- Iaia, C. 1999. *Simbolismo funerario e ideologia alle origini di una civiltà urbana: Forme rituali nelle sepolture 'villanoviane' a Tarquinia e Vulci, e nel loro entroterra*. (Grandi Contesti e Problemi della Protostoria Italiana 3). Florence: All'Insegna del Giglio.
- Iaia, C. & Mandolesi, A. 1993. Topografia dell'insediamento dell'VIII secolo a. C. in Etruria meridionale. *Journal of Ancient Topography* 3: 17–205.
- Iaia, C. & Moroni Lanfredini, A. (eds.). 2009. *L'età del ferro a Sansepolcro: Attività produttive e ambiente nel sito di Trebbio*. Perugia: AMP Edizioni – Aboca Edizioni
- Incitti, M. 1986. Recenti scoperte lungo la costa dell'alto Lazio. *Archeologia Subacquea* 3 (Bollettino d'Arte 38–9): 195–202.
- Irti, U. 1981. Testimonianze dell'età del bronzo ad Ortucchio (Fucino). *Atti della Società Toscana di Scienze Naturali. Memorie, Serie A* 88: 261–86.
- Izzet, V. 1999–2000. Etruscan ritual and the recent excavations at Sant'Antonio, Cerveteri. *Accordia Research Papers* 68: 133–48.
2000. Preliminary report on recent excavations at Cerveteri, 1995–8. *Papers of the British School at Rome* 67: 321–35.
- 2007a. *The Archaeology of Etruscan Society: Identity, Surface and Material Culture in Archaic Etruria*. Cambridge: Cambridge University Press.
- 2007b. Etruria and the Etruscans: recent approaches. In Riva, C., Bradley, G. & Isayev, E. (eds.), *Ancient Italy: Regions without Boundaries*. Exeter: Exeter University Press, 114–30.
- Jakobsen, R. 1960. Closing statement: linguistics and poetics. In Sebeok, T. A. (ed.), *Style in Language*. Cambridge, MA: Massachusetts Institute of Technology Press, 350–85.
- Jarman, H. N. 1976. The plant remains. In Potter, T. W. (ed.), *A Faliscan Town in South Etruria*. London: British School at Rome, 308–10.
- Jefferson, M. 1939. The law of the primate city. *Geographical Review* 29: 226–39.
- Jennings, J. 2016. *Killing Civilization: A Reassessment of Early Urbanism and its Consequences*. Albuquerque: University of New Mexico Press.
- Johnson, G. A. 1972. A test of the utility of Central Place Theory in archaeology. In Ucko, P. J., Tringham, R. & Dimbleby, G. (eds.), *Man, Settlement and Urbanism*. London: Duckworth, 769–85.
1975. Locational analysis and the investigation of Uruk local exchange systems. In Sabloff, J. A. & Lamberg-Karlovsky, C. C. (eds.), *Ancient Civilisation and Trade*. Albuquerque: University of New Mexico Press, 285–339.
1977. Aspects of regional analysis in archaeology. *Annual Review of Anthropology* 6: 479–508.
1980. Rank-size convexity and system integration: A view from archaeology. *Economic Geography* 56: 234–47.
1981. Monitoring complex system integration and boundary phenomena with settlement size data. In Van der Leeuw, S. E. (ed.), *Archaeological Approaches to the Study of Complexity*. Amsterdam: Albert Egges Van Giffen Instituut voor prae- en protohistorie, 143–88.
- Jones, R., Levi, S. T., Bettelli, M. & Vagnetti, L. 2014. *Italo-Mycenaean Pottery: The Archaeological and Archaeometric Dimensions*. Rome: CNR – Istituto di Studi Sul Mediterraneo Antico.
- Judge, W. J., Ibert, J. & Hitchcock, R. K. 1975. Sampling in regional archaeological survey. In Mueller, J. W. (ed.), *Sampling in Archaeology*. Tucson: University of Arizona Press, 82–123.

- Judson, S. & Hemphill, P. 1981. Sizes of settlements in Southern Etruria: 6th–5th centuries B.C. *Studi Etruschi* 49: 193–202.
- Judson, S. & Kahane, A. 1963. Underground drainageways in Southern Etruria and Northern Latium. *Papers of the British School at Rome* 31 (18): 74–99.
- Kahane, A., Murray-Threipland, L. & Ward-Perkins, J. B. 1968. The Ager Veientanus north and east of Veii. *Papers of the British School at Rome* 36: 1–218.
- Kay, S. J. & Witcher, R. E. 2005. The Tiber Valley project: the role of GIS and databases in field survey data integration and analysis. *Archeologia e Calcolatori* 16: 113–27.
- Keller, D. R. & Rupp, D. L. 1983. *Archaeological Survey in the Mediterranean Area*. (B.A.R. International Series 155). Oxford: British Archaeological Reports.
- Kelly, M. G. & Huntley, B. 1991. An 11,000-year record of vegetation and environment from Lago di Martignano, Latium, Italy. *Journal of Quaternary Science* 6: 209–24.
- Kilian, K. 1973. Zum italischen und griechischen Fibelhandwerk des 8. und 7. Jahrhunderts. *Hamburger Beiträge zur Archäologie* 3: 1–39.
1977. Zwei italischen Kammhelme aus Griechenland. *Bulletin de Correspondence Hellenique* 4: 429–41.
- Knappett, C., Rivers, R. & Evans, T. 2011. The Theran eruption and Minoan palatial collapse: new interpretations gained from modelling the maritime network. *Antiquity* 85 (329): 1008–23.
- Kopytoff, I. (ed.). 1989. *The African Frontier: The Reproduction of Traditional African Societies*. Bloomington: Indiana University Press.
- Kowalewski, S. A. 1983. Differences in the site hierarchies below Monte Alban and Teotihuacan: a comparison based on the rank size rule. In Flannery, K. V. & Marcus, J. (eds.), *The Cloud People*. New York: Academic Press, 168–70.
- Kowalewski, S. A., Blanton, R. E., Feinman, G. & Fintsen, L. 1983. Boundaries, scale and internal organization. *Journal of Anthropological Archaeology* 2: 32–56.
- Lacy, L. R. 1985. Gorgoneia. In Stopponi, S. (ed.), *Casa e palazzi d'Etruria*. Milan: Electa, 114–16.
- Langgut, D., Cheddadi, R., Carrion, J. S., Cavanagh, M., Colombaroli, D., Eastwood, W., Greenberg, R., Litt, T., Mercuri, A.-M., Miebach, A., Roberts, N., Woldring, H. & Woodbridge, J. 2019. The origin and spread of olive cultivation in the Mediterranean basin: the fossil pollen evidence. *Holocene* 29 (5): 902–22. Special issue: *The Changing Face of the Mediterranean: Land Cover, Demography and Environmental Change*.
- Lazzeri, C. 1927. Arezzo etrusca: le origini della città e la stipe votiva alla Fonte Veneziana. *Studi Etruschi* 1: 113–27.
- Lee, A. 2020. *Machiavelli: His Life and Times*. London: Picador.
- Leighton, R. & Castelino, C. 1990. Thomas Dempster and ancient Etruria: a review of the autobiography and *De Etruria Regali*. *Papers of the British School at Rome* 58: 337–52.
- Levi, D. 1931. Carta archeologica di Vetulonia. *Studi Etruschi* 5: 13–40.
1933. La necropoli del Lago dell'Accesa. *Monumenti Antichi* 35: 5–135.
1935. Chiusi. Tomba a ziro rinvenuta in località 'Montebello'. *Notizie degli Scavi* 13: 228–58.
- Linington, R. E. 1982. Tarquinia, località Calvario: recenti interventi nella zona del abitato protostorico. In Caporali, G. B. & Sgubini Moretti, A. M. (eds.), *Archeologia nella Tuscia. (Primo incontro di Studio,*

- Viterbo 1980). Rome: Consiglio Nazionale delle Ricerche, 117–23.
- Linington, R. E., Delpino, F. & Pallottino, M. 1978. Alle origini di Tarquinia: scoperta di un abitato Villanoviano sui Monterozzi. *Studi Etruschi* 46: 3–24.
- Linsky, A. S. 1965. Some generalisations concerning primate cities. *Annals of the Association of American Geographers* 55: 506–13.
- Liu, L. 1996. Settlement patterns, Chiefdom Variability and the Development of early States in north China. *Journal of Anthropological Archaeology* 15: 237–88.
- Lo Schiavo, F. 1981. Osservazioni sul problema dei rapporti fra Sardegna ed Etruria in età nuragica. In *L'Etruria mineraria*. Atti del XII Convegno di studi etruschi e italici: Firenze–Populonia–Piombino, 16–20 giugno, 1979. Florence: Olshki, 299–314.
- Lo Schiavo, F. 2010. Uno sguardo dal Mare su Populonia, ieri ed oggi. In Baratti, G. & Fabiani, F. (eds.), *Materiali per Populonia* 9. Pisa: Edizioni ETS, 199–220.
- Lo Schiavo, F. & Romualdi, A. (eds.). 2009. *I complessi archeologici di Trestina e di Fabbrecce nel Museo Archeologico di Firenze*. Rome: G. Bretschneider.
- Lollini, D. 1979. Il bronzo finale nelle Marche. *Rivista di Scienze Preistoriche* 34 (1–2): 179–215.
- Long, L., Gantès, L.-F. & Rival, M. 2006. L'épave Grand Ribaud F. Un chargement de produits étrusques du début du Ve siècle avant J.-C. In Gori, S. & Bettini, M. C. (eds.), *Gli Etruschi da Genova ad Ampurias*. Atti del XXIV Convegno di studi etruschi ed italici: Marseille-Lattes, 26 settembre – 1 ottobre 2002). Pisa: Istituti Editoriali e Poligrafici Internazionali, 455–95.
- Losacco, U. 1944. Il bacino postpiocenico del Val di Chiana. *L'Universo* 25: 45–73.
- Lugli, G. 1922. *Terracina e il Circeo*. (Regione I. Latium e Campania I). Florence: Sansoni.
- Lulof, P. S. 2016. New perspectives on the Acroteria of Caeretan temples. In Thomson de Grummond, N. & Pieraccini, L. C. (eds.), *Caere*. Austin: University of Texas Press, 131–40.
- Lulof, P. S. & Moormann, E. M. 1997. *Deliciae Fictiles II: Proceedings of the Second International Conference on Archaic Architectural Terracottas from Italy Held at the Netherlands Institute in Rome, 12–13 June 1996*. Amsterdam: Thesis Publishers.
- Lulof, P. & Rescigno, C. 2011. *Deliciae Fictiles IV. Architectural Terracottas in Ancient Italy: Images of Gods, Monsters and Heroes*. Proceedings of the international Conference Held in Rome (Museo Nazionale Etrusco di Villa Giulia, Royal Netherlands Institute) and Syracuse (Museo Archeologico Regionale Paolo Orsi), October 21–25, 2009. Oxford: Oxbow.
- Lulof, P. S. & Sepers, M. H. 2017. The Acquarossa memory project: reconstructing an Etruscan town. *Archeologia e Calcolatori* 28 (2): 233–42.
- Macchiarola, I. 1987. *La ceramica appenninica decorata*. Rome: De Luca.
- Macnamara, E. 1984. A note on the background of some Sardinian bronze typologies, and the exchange of some bronze types between Sardinia and her neighbours during the Italian late Bronze and Iron Ages. *Opus* 3: 421–5.
- Maetzke, G. 1982. La Val di Chiana in epoca preromana. *Atti e Memorie della Accademia Petrarca di Lettere, Arti e Scienze* 43: 311–21.
- Maetzke, G., Marzi Costagli, M. G., Iozzo, M., Paoletti, O. & Shepherd, E. J. (eds.). 1985. *Preprints of Atti del Secondo Congresso Internazionale Etrusco, Firenze 26 maggio – 2 giugno, 1985*. Rome: Giorgio Bretschneider Editore.

1989. *Atti del II Congresso internazionale etrusco, Firenze 26 maggio – 2 giugno, 1985*. Rome: Giorgio Bretschneider Editore.
- Maffei, A. 1973. La capanna di Monte Rovello: ricerca della forma e della funzione originaria. *Notiziario dell'Associazione archeologica 'Adolfo Klitsche de la Grange' di Allumiere* 2: 97–103.
1981. Il complesso abitativo proto-urbano di Torre Valdaliga. In *La preistoria e la protostoria nel territorio di Civitavecchia*. Civitavecchia: Associazione Archeologica Centumcellae, 91.
- Maggiani, A. 1973. Coppa fenicia da una tomba Villanoviana di Vetulonia. *Studi Etruschi* 41: 73–95.
1985. Ceramiche con lettere, segni e iscrizioni. In Stopponi, S. (ed.), *Case e palazzi d'Etruria*. Milan: Electa – Florence: Regione Toscana, 148–9.
2001. L'area della città: la vigna parrocchiale. In Moretti Sgubini, A. M., Arancio, M. L. & Berardinetti Insam, A. (eds.), *Veio, Cerveteri, Vulci: Città d'Etruria a confronto*. Rome: 'L'Erma' di Bretschneider, 121–2.
2007. Volterra: nascita di una città-stato. In Cateni, G. (ed.), *Etruschi di Volterra: Capolavori da grandi musei europei*. Milan: Federico Motta Editore, 48–55.
- Maggiani, A. & Rizzo, M. A. 2001. Area sacra in località S. Antonio. In Moretti Sgubini, A. M., Arancio, M. L. & Berardinetti Insam, A. (eds.), *Veio, Cerveteri, Vulci: Città d'Etruria a confronto*. Rome: "L'Erma" di Bretschneider, 143–5.
2005. Cerveteri: le campagne di scavo in loc. Vigna Parrocchiale e S. Antonio. In Paoletti, O. (ed.), *Dinamiche di sviluppo delle città nell'Etruria meridionale: Veio, Caere, Tarquinia, Vulci*. Atti del XXIII Convegno di studi etruschi ed italici: Roma–Veio–Cerveteri–Pyrgi–Tarquinia–Tuscania–Vulci–Viterbo, 1–6 ottobre 2001. Pisa–Rome: Istituti Editoriali e Poligrafici Internazionali, 175–83.
- Magny, M., de Beaulieu, J. L., Drescher-Schneider, R., Vannière, B., Walter-Simonnet, A. V., Miras, Y., Millet, L., Bossuet, G., Peyron, O., Brugiapaglia, E. & Leroux, A. 2007. Holocene climate changes in the central Mediterranean as recorded by lake-level fluctuations at Lake Accesa (Tuscany, Italy). *Quaternary Science Reviews* 26: 1736–58.
- Maiuro, M. (ed.). In press. *Oxford Handbook of Pre-Roman Italy (1000–49 BCE)*. Oxford: Oxford University Press.
- Malone, C. 1985. Pots, prestige and ritual in neolithic southern Italy. In Malone, C. & Stoddart, S. (eds.), *Papers in Italian Archaeology IV*, part ii: *Prehistory*. (British Archaeological Reports International Series 244). Oxford: British Archaeological Reports, 118–51.
1986. Exchange systems and style in the central Mediterranean, 4500–1700 BC. PhD dissertation, Cambridge University.
- Malone, C., McVicar, J. & Stoddart, S. 1994. Introduction. In Malone, C. & Stoddart, S. (eds.), *Territory, Time and State: The Archaeological Development of the Gubbio Basin*. Cambridge: Cambridge University Press, 1–16.
- Malone, C. & Stoddart, S. 1986. The Gubbio Project: the study of the formation of an intermontane polity. *Dialoghi di Archeologia* 2: 201–8.
- (eds.). 1994. *Territory, Time and State: The Archaeological Development of the Gubbio Basin*. Cambridge: Cambridge University Press.
2009. Conclusions. In Malone, C., Stoddart, S., Trump, D., Bonanno, A. & Pace, A. (eds.), *Mortuary Ritual in*

- Prehistoric Malta: The Brochtorff Circle Excavations (1987–1994)*. Cambridge: McDonald Institute, 361–84.
- Malone, C., Stoddart, S., Ceccarelli, L., Cenciarioli, L., Duff, P., McCormick, F., Morales, J., Armstrong, S., Bates, J., Bennett, J., Cameron, J., Cifani, G., Cohen, S., Foley, T., Fulminante, F., Hill, H., Mattacchoni, L., Neil, S., Rosatelli, A., Redhouse, D. & Vollhard-Deerman, S. 2014. Beyond feasting: consumption and life style amongst the invisible Etruscans. In Boyle, K., Rabett, R. & Hunt, C. (eds.), *Living in the Landscape: Essays in Honour of Graeme Barker*. Cambridge: McDonald Institute, 257–66.
- Malone, C., Stoddart, S., Trump, D., Bonanno, A. & Pace, A. (eds.). 2009. *Mortuary Ritual in Prehistoric Malta: The Brochtorff Circle Excavations (1987–1994)*. Cambridge: McDonald Institute.
- Malone, C. 2003. The Italian Neolithic: a synthesis of research. *Journal of World Prehistory* 17 (3): 235–312.
- Manconi, D. 1991. Attic red figured krater. In Corbucci, M. P. & Pettine, S. (eds.), *Antichità dall'Umbria a New York*. Perugia: Electa Editori Umbri, 324–8. (ed.). 2008. *Gubbio: Scavi e nuove ricerche, 1. Gli ultimi rinvenimenti*. Città di Castello: Edimond.
- Manconi, D. & Schippa, F. 1985. Scavi e scoperte: Gubbio (Perugia). *Studi Etruschi* 51: 456–.
- Manconi, D., Venturini, G., Bernardi, M. & Cenciarioli, L. 1991. Indagine archeologiche all'interno del Palazzo Ducale di Gubbio (PG): nuove conoscenze sulla dinamica insediativa medievale e sull'urbanistica del sito. *Archeologia Medievale* 18: 429–76.
- Mandolesi, A. 1999. *La Prima Tarquinia: L'insediamento protostorico sulla cività e nel territorio circostante*. (Grandi Contesti e Problemi della Protostoria Italiana 2). Florence: All'Insegna del Giglio.
- Mangani, E. 1983. *Museo Civico di Asciano. I materiali di Poggio Pinci*. Asciano – Siena: Comune di Asciano – Regione Toscana – Soprintendenza ai beni archeologici per la Toscana – Centrooffset – Edizioni Vision – Edizioni Viella.
- 1985a. Castelnuovo Berardenga. In Stopponi, S. (ed.), *Case e palazzi d'Etruria*. (Catalogo della Mostra). Milan: Electa – Florence: Regione Toscana, 155–63.
- 1985b. Ceramica etrusco-corinzia. In Stopponi, S. (ed.), *Case e palazzi d'Etruria*. (Catalogo della Mostra). Milan: Electa – Florence: Regione Toscana, 78–80.
- Mansuelli, G. 1979. The Etruscan city. In Ridgway, D. & Ridgway, F. (eds.), *Italy before the Romans: The Iron Age, Orientalizing and Etruscan Periods*. London: Academic Press, 353–71.
1985. L'organizzazione del territorio e della città. In Cristofani, M. (ed.), *Civiltà degli Etruschi*. (Catalogo della Mostra). Milan: Electa, 111–20.
- Marazzi, M. & Tusa, S. 1976. Interrelazioni dei centri siciliani e peninsulari durante la penetrazione micenea. *Sicilia Archeologica* 9: 49–90.
- Marchesini, S. 1997. *Studi onomastici e sociolinguistici sull'Etruria arcaica: Il caso di Caere*. (Biblioteca di Studi Etruschi/Istituto Nazionale di Studi Etruschi ed Italici 32). Florence: Olschki.
2007. *Prosopographia etrusca II, 1: Studia: Gentium mobilitas*. Rome: 'L'Erma' di Bretschneider.
- Marconi Cosentino, R. 1995. *Cerveteri e il suo territorio*. (Guide Territoriali dell'Etruria Meridionale). Rome: Quasar.
- Marcus, J. & Feinman, G. (eds.). 1998. *Archaic States*. Santa Fe: School of American Research Press.

- Marcus, J. & Sabloff, J. A. (eds.). 2008. *The Ancient City: New Perspectives on Urbanism in the Old and New World*. Santa Fe, NM: SAR Press.
- Mari, Z., Sperandio, M. & Turchetti, R. 1986. *Thomas Ashby: Un archeologo fotografa la campagna Romana tra '800 e '900*. Rome: De Luca.
- Marinelli, O. 1927. Il problema della ricostruzione delle condizioni fisiche del litorale etrusco nell'antichità. *Studi Etruschi* 1: 353–61.
- Mariotti Lippi, M., Di Tommaso, P. L., Giachi, G., Mori Secci, M. & Paci, S. 2002. Archaeobotanical investigations into an Etruscan farmhouse at Pian d'Alma (Grosseto, Italy). *Atti della Società Toscana di Scienze Naturali (Serie B)* 109: 159–65.
- Mariotti Lippi, M., Giachi, G., Paci, S. & Di Tommaso, P. L. 2000. Studi sulla vegetazione attuale e passata della Toscanameridionale (Follonica – Italia) e considerazioni sull'impatto ambientale dell'attività metallurgica etrusca nel VI–V secolo a.C. *Webbia* 55 (2): 279–95.
- Martelli Cristofani, M. 1978. La ceramica greco-orientale in Etruria. In *Colloques internationaux du Centre national de la recherche scientifique n. 569. Sciences humaines. Les céramiques de la Grèce de l'est et leur diffusion en Occident. Centre Jean Bérard. Institut Français de Naples*, 6–9 Juillet, 1976. Paris–Naples: Editions du Centre National de la Recherche Scientifique – Bibliothèque de l'Institut Français de Naples, 150–212.
1979. Prime considerazioni sulla statistica delle importazioni greche in Etruria nel periodo arcaico. *Studi Etruschi* 47: 37–52.
1981. Scavo di edifici nella zona 'industriale' di Populonia. In *L'Etruria mineraria*. Atti del XII Convegno di studi etruschi e italici: Firenze–Populonia–Piombino, 16–20 giugno 1979. Florence: Olschki, 161–72.
1985. I luoghi e i prodotti dello scambio. In Cristofani, M. (ed.) *La civiltà etrusca*. (Catalogo della Mostra). Milan: Electa, 175–81.
- Martelli, M., Baldeschi, A., Ceccanti, M., Cocchi, D., Cygielman, M., Lippi, G., Maggiani, A., Massa, M., Paribeni, E., Rendini, P., Romualdi, A. & Rossi, D. 1982. Archeologia subacquea in Toscana. *Archeologia Subacquea* (Bollettino d'Arte, Supplemento 4): 37–86.
- Martini, F. 1990. Le ricerche archeologiche sul Monte Cetona. In Martini, F. & Sarti, L. (eds.), *La preistoria del Monte Cetona: Materiali e documenti per una guida del Museo civico per la preistoria del Monte Cetona*. Florence: All'Insegna del Giglio, 33–5.
- Martini, F. & Sarti, L. (eds.). 1990a. *La preistoria del Monte Cetona: Materiali e documenti per una guida del Museo civico per la preistoria del Monte Cetona*. Florence: All'Insegna del Giglio.
- 1990b. Riparo del Capriolo. In Martini, F. & Sarti, L. (eds.), *La preistoria del Monte Cetona: Materiali e documenti per una guida del Museo civico per la preistoria del Monte Cetona*. Florence: All'Insegna del Giglio, 96.
- 1990c. Vetta del Monte Cetona. In Martini, F. & Sarti, L. (eds.), *La preistoria del Monte Cetona: Materiali e documenti per una guida del Museo civico per la preistoria del Monte Cetona*. Florence: All'Insegna del Giglio, 90–2.
- 1990d. S. Maria in Belverde. Scavi: Università di Siena, 1984–1988. In Martini, F. & Sarti, L. (eds.), *La preistoria del Monte Cetona: Materiali e documenti per una guida del Museo civico per la preistoria del Monte Cetona*. Florence: All'Insegna del Giglio, 92–5.
- Mascione, C. & Patera, A. (eds.). 2003. *Materiali per Populonia 2*. Florence: All'Insegna del Giglio.

- (eds.). 2004. *Materiali per Populonia 3*. Florence: All'Insegna del Giglio.
- Mason, K. 1944. *Italy (Volume I)*. Oxford: Oxford University Press for the HMSO.
- Masseria, C. 2001. *10 anni di archeologia a Cortona*. Rome: Giorgio Bretschneider Editore.
- Matteini Chiari, M. 1975. *La Tomba del Faggeto in territorio Perugino: Contributo allo studio dell'architettura funerario con volta a botte in Etruria*. (Quaderni dell'Istituto di Archeologia dell'Università di Perugia 3). Rome: De Luca Editore.
- Matteini Chiari, M. 1979–80. La ricognizione per un'ipotesi di definizione territoriale: il territorio eugubino in età preromana. *Annali della Facoltà di Lettere e Filosofia. Università degli Studi di Perugia* 17: 211–21.
- (ed.). 1995. *Museo comunale di Gubbio: Materiali archeologici*. Perugia: Electa Editori Umbri.
1996. Umbria dal Cielo: La fotografia aerea non al servizio dell'archeologia. In Bonamente, G. & Coarelli, F. (eds.), *Assisi e Gli Umbri nell'antichità: Atti del Convegno internazionale, Assisi 18–21, dicembre 1991*. Assisi: Società Editrice Minerva – Università degli Studi di Perugia – Accademia Properziana del Subbasio di Assisi, 432–81.
- Mazzanti, R. & Pasquinucci, M. 1983. L'evoluzione del litorale lunense-pisano fino alla metà del XIX secolo. *Bollettino della Società Geografica Italiana* 10–12: 605–28.
- Mazzeschi, E. 1979a. Pompana (Murlo). In Cristofani, M. (ed.), *Siena: Le origini. Tesimonianze e miti archeologici*. Florence: Olschki, 209.
- 1979b. Santa Colomba. In Cristofani, M. (ed.), *Siena: Le origini. Tesimonianze e miti archeologici*. Florence: Olschki, 59.
- McIntosh, S. K. & McIntosh, R. J. 1993. Cities without citadels: understanding urban origins along the middle Niger. In Shaw, T., Sinclair, P., Andah, B. & Okpoko, A. (eds.), *The Archaeology of Africa: Food, Metal and Towns*. London: Routledge, 622–41.
- McVicar, J., Backway, C., Clark, G. & Housley, R. 1994. Agriculture. In Malone, C. & Stoddart, S. (eds.), *Territory, Time and State: The Archaeological Development of the Gubbio Basin*. Cambridge: Cambridge University Press, 94–106.
- Mengarelli, R. 1927. Caere e le recenti scoperte. *Studi Etruschi* 1: 145–71.
- Merlino, M. & Mirenda, T. 1990. Caere: un'indagine storico-topografica. In Maffei, A. & Nastasi, F. (eds.), *Caere e il suo territorio da Agylla a Centumcellae*. Rome: Libreria dello Stato, 3–56.
- Michelucci, M. 1979. Talamone. In Santoro, P. (ed.), *I Galli e L'Italia*. Rome: De Luca, 207–17.
1991. Manciano-Marsiliana d' Albegna. *Studi e materiali* 6: 345–6.
1996. Marsiliana d'Albegna (Comune di Manciano, Grosseto). *Studi Etruschi* 61: 465–9.
- Migliorini, E. 1973. *Memoria illustrativa della carta della utilizzazione del suolo del Lazio*. Rome: Consiglio Nazionale delle Ricerche.
- Milani, L. A. 1905. Campiglia Marittima: degli oggetti negli scavi clandestini di Populonia, e specialmente di due insigne hydrie attiche a dorature con la glorificazione di Faone e Adone. *Notizie degli Scavi alle Antichità* 1905: 54–70.
1908. Populonia: relazione preliminare sulla prima campagna degli scavi governativi di Populonia nel comune di Piombino. *Notizie degli Scavi alle Antichità* 1908: 199–231.
- Millett, M., Galluzz, G., Palone, V. & Pitzalis, F. 2010. Scavi sulla sommità nord-orientale del Poggio del Telegrafo (POP): campagne 2007–

2008. In Baratti, G. & Fabiani, F. (eds.), *Materiali per Populonia 9*. Pisa: Edizioni ETS, 7–26.
- Minetti, A. (ed.). 1997. *Museo civico archeologico di Sarteano*. Siena: Protagon Editori Toscani.
2004. *L'orientalizzante a Chiusi e nel suo territorio*. (Studia Archeologica 127). Rome: 'L'Erma' di Bretschneider.
- Minetti, A. E., Moia, C., Roi, G. S., Susta, D. & Ferretti, G. 2002. Energy cost of walking and running at extreme uphill and downhill slopes. *Journal of Applied Physiology* 93: 1039–46.
- Mingazzini, P. 1934. Necropoli in contrada Cerreta. *Notizie degli Scavi alle Antichità*: 27–39.
- Minto, A. 1921. *Marsigliana d'Albegna. Le scoperte archeologiche del Principe Tommaso Corsini*. Florence: Istituto di Edizioni artistiche – Fratelli Alinari.
1922. *Populonia: La necropoli arcaica*. (Pubblicazioni del R. Istituto di Studi Superiori pratici e di Perfezionamento in Firenze: Sezione di Filologia e Filosofia n.s. 4). Florence: Bemporad e Figlio Editori.
1930. Le scoperte archeologiche nell'agro Volterrano dal 1897 al 1899. *Studi Etruschi* 4: 18–28.
1938. Chiusi. Tomba a ziro rinvenuta in località Montebello nella proprietà del Conte Claudio Paolozzi. *Notizie degli Scavi alle Antichità* 16: 120–3.
1940. Le ricerche archeologico-minerarie in Val Fucinaia. *Studi Etruschi* 14: 315–20.
1943. *Populonia*. Florence: Rinascimento del Libro – Tellini.
- Monacchi, D. 1986. Resti della stipe votiva del Monte Subasio di Assisi (Colle S. Rufino). *Studi Etruschi* 52 (3): 77–89.
- Montelius, O. 1895. *La civilisation primitive en Italie depuis l'introduction des métaux*. Stockholm: Imprimerie Royale.
- Morandi Tarabella, M. 2004. *Prosopographia etrusca*. Vol. I. Corpus. 1: *Etruria meridionale*. Rome: 'L'Erma' di Bretschneider.
- Morandini, F. 2011. Le fattorie arcaiche di Pian d'Alma (Scarlino – GR) e Marsiliana d'Albegna (Manciano – GR): modello 'urbano' esportato in campagna o modello 'extra-urbano' radicato nella tradizione? In Ellero, A., Luciani, F. & Ruggiu, A. Z. (eds.), *La città realtà e valori simbolici (Contributi della scuola di dottorato in scienze umanistiche indirizzato in storia antica e archeologia)*. Padova: S.A.R.G.O.N. Editrice e Libreria, 79–100.
- Moresi, F. V. 2014. Inquadramento geologico regionale. In Romagnoli, G. (ed.), *Ferento: La città e il suo suburbio tra antichità e medioevo*. (Metis. Collana di Studi Archeologici 3). Rome: Aracne, 9–17.
- Moretti, M. & Sgubini Moretti, A. M. (eds.). 1983. *I Curunas di Tuscania*. Rome: De Luca Editore.
- Morgan, C. 1990. *Athletes and Oracles: The Transformation of Olympia and Delphi in the Eighth Century BC*. Cambridge: Cambridge University Press.
2003. *Early Greek States beyond the Polis*. London: Routledge.
- Moroni, A. 1990a. Antro del Poggetto. In Martini, F. & Sarti, L. (eds.), *La preistoria del Monte Cetona: Materiali e documenti per una guida del Museo civico per la preistoria del Monte Cetona*. Florence: All'Insegna del Giglio, 79–82.
- 1990b. Grotta della Carbonaia. In Martini, F. & Sarti, L. (eds.), *La preistoria del Monte Cetona: Materiali e documenti per una guida del Museo civico per la preistoria del Monte Cetona*. Florence: All'Insegna del Giglio, 83.
- 1990c. Grotta della Noce. In Martini, F. & Sarti, L. (eds.), *La preistoria del Monte Cetona: Materiali e documenti per una guida del Museo civico per la preistoria del Monte Cetona*. Florence: All'Insegna del Giglio, 76–9.
- 1990d. Grotta delle Tre Tombe. In Martini, F. & Sarti, L. (eds.), *La*

- preistoria del Monte Cetona: Materiali e documenti per una guida del Museo civico per la preistoria del Monte Cetona*. Florence: All'Insegna del Giglio, 84.
- 1990e. Grotta di San Francesco. In Martini, F. & Sarti, L. (eds.), *La preistoria del Monte Cetona: Materiali e documenti per una guida del Museo civico per la preistoria del Monte Cetona*. Florence: All'Insegna del Giglio, 72–5.
- 1990f. Tombetta della strada. In Martini, F. & Sarti, L. (eds.), *La preistoria del Monte Cetona: Materiali e documenti per una guida del Museo civico per la preistoria del Monte Cetona*. Florence: All'Insegna del Giglio, 82–3.
- Morris, I. 1987. *Burial and Ancient Society: The Rise of the Greek City State*. Cambridge: Cambridge University Press.
1992. *Death-Ritual and Social Structure in Classical Antiquity*. Cambridge: Cambridge University Press.
- Morselli, C. & Tortorici, E. 1982. Montalto di Castro: saggi di scavo nell'area di Regisvilla. In Caporali, G. B. & Sgubini Moretti, A. M. (eds.), *Archeologia nella Tuscia*. (Primo incontro di Studio, Viterbo 1980). Rome: Consiglio Nazionale delle Ricerche, 124–7.
- Motti, A. (ed.). 2012. *Il Lago Trasimeno: Un archivio dei cambiamenti geologici ed ambientali del Quaternario*. Perugia: Regione Umbria – Centro Stampa Regionale.
- Mudar, K. R. 1999. How many Dvaravati kingdoms? Locational analysis of 1st millennium A.D. moated settlement in central Thailand. *Journal of Anthropological Archaeology* 18: 1–28.
- Murray, O. 1985. At the Etruscan banquet. *Times Literary Supplement*, 30 August 1985: 948, 960.
- Musti, D. 2008. Il ruolo di Caere nel Mediterraneo. *Mediterranea* 5: 23–51.
- Nardi, G. 1989. Nuovi dati dalla ricognizione a Caere e nelle aree adiacenti: principali vie etrusche dell'entroterra. In Maetzsche, G., Marzi Costagli, M. G., Iozzo, M., Paoletti, O. & Shepherd, E. J. (eds.), *Atti del II Congresso internazionale etrusco, Firenze 26 maggio – 2 giugno, 1985*. Rome: Giorgio Bretschneider Editore, 517–23.
- Nardini, A. 2001. *Chiusdino: Carta archeologica della Provincia di Siena*. Vol. IV. Siena: Nuova Immagine.
- Naso, A. 1990. Osservazioni sullo sviluppo topografico e sulla periodizzazione della necropoli etrusca di Pian di Conserva. In Maffei, A. & Nastasi, F. (eds.), *Caere e il suo territorio da Agylla a Centumcellae*. Rome: Libreria dello Stato, 83–92.
2000. Etruscan and Italic artefacts from the Aegean. In Ridgway, D., Serra Ridgway, F. R., Pearce, M., Herring, E., Whitehouse, R. D. & Wilkins, J. B. (eds.), *Ancient Italy in its Mediterranean Setting: Studies in Honour of Ellen Macnamara*. London: Accordia Research Institute, University of London, 193–207.
2009. Funde aus Milet: Etruscan bucchero from Miletus: Preliminary report. *Archäologischer Anzeiger* 1: 135–50.
- (ed.). 2017. *Etruscology*. Berlin: De Gruyter.
- Naso, A. & Zifferero, A. 1985. Etruscan settlement patterns in the Monti della Tolfa area. In Malone, C. A. T. and Simon, S. K. F. (eds.), *Papers in Italian Archaeology IV: The Cambridge Conference, part 1: The Human Landscape*. (British Archaeological Reports International Series, 243). Oxford: British Archaeological Reports, 239–59.
- Negri, G. 1927. Come si possa ricostruire la fisionomia della vegetazione della Toscana durante il periodo etrusco. *Studi Etruschi* 1: 363–76.
1954. L'ambiente naturale: la vegetazione. In *Le stazioni preistoriche della*

- montagna di Cetona. *Belverde I: Premessa, l'ambiente naturale, topografia e scavi*. Florence: Olschki, 19–28.
- Negroni Catacchio, N. (ed.). 1981. *Sorgenti della Nova: Una comunità protostorica e il suo territorio nell'Etruria meridionale*. Rome: Consiglio Nazionale delle Ricerche.
1995. *Sorgenti della Nova: L'abitato del bronzo finale*. Florence: Istituto Italiano di Preistoria e Protostoria.
- Negroni Catacchio, N. & Cardoso, M. (eds.). 2007. *Sorgenti della Nova: Un abitato tra protostoria e medioevo. Guida allo scavo*. Milan: CSP Onlus.
- Neppi Modona, A. 1977. *Cortona etrusca e romana nella storia e nell'arte*. (Accademia Toscana di Scienze e Lettere 'La Columbaria' Studi 45). Florence: Olschki.
- Neppi Modona, A. & Prayon, F. (eds.). 1980. *Akten des Kolloquiums zum Thema Die Göttin von Pyrgi: Archäologische, linguistische und religionsgeschichtliche Aspekte, Tübingen, 16–17 Januar 1979*. Florence: Olschki – Istituto di Studi Etruschi ed Italici.
- Neri, L. & Pettine, S. (eds.). 1988. *Antichità dall'Umbria in Vaticano*. Perugia: Electa, Editori Umbri Associati.
- Nevett, L. & Whitley, J. (eds.). 2018. *An Age of Experiment: Classical Archaeology Transformed (1976–2014)*. Cambridge: McDonald Institute.
- Nibby, A. 1837. *Analisi storico-topografico-antiquaria della carta dei dintorni di Roma*. Rome: Tipografia delle Belle Arti.
- Nielsen, E. O. 1984. Speculations on an ivory workshop of the Orientalizing period. In Hackens, T., Holloway, N. D. & Holloway, R. R. (eds.), *Papers Delivered at the International Conference on the Archaeology of Early Italy, Haffenreffer Museum Brown University, 8–10 May 1981: Crossroads of the Mediterranean*. (Archaeologica Transatlantica II). Providence, RI: Brown University – Louvain-la-Neuve: Institut Supérieur d'Archéologie et d'histoire de l'Art Collège Erasme, 333–48.
1985. Osso, corno e avorio. In Stopponi, S. (ed.), *Case e palazzi d'Etruria*. (Catalogo della Mostra). Milan: Electa, 94.
1991. Excavations at Poggio Civitate. *Studi e Materiali: Scienza dell'Antichità in Toscana* 6: 245–59.
- Nielsen, E. O. & Phillips, K. M. 1976. Poggio Civitate (Siena): gli scavi del Bryn Mawr College dal 1966 al 1974. *Notizie degli Scavi alle Antichità* 30 (101): 113–47.
1985. Poggio Civitate (Murlo). In Stopponi, S. (ed.), *Case e palazzi d'Etruria*. (Catalogo della mostra). Milan: Electa – Florence: Regione Toscana, 64–9.
- Nijboer, A. J. 2005. La cronologia assoluta dell'età del ferro nel Mediterraneo: dibattito sui metodi e sui risultati. In Bartoloni, G. & Delpino, F. (eds.), *Oriente e Occidente: Metodi e discipline a confronto. Riflessioni sulla cronologia dell'età del ferro in Italia*. Atti dell'Incontro di studi, Roma, 30–31 ottobre 2003. *Mediterranea*, 1 (2004). Pisa: Istituti Editoriali e Poligrafici Internazionali, 527–56.
- Nijboer, A. J., Van der Plicht, J., Bietti Sestieri, A. M. & De Santis, A. 1999/2000. A high chronology for the early Iron Age in central Italy. *Palaeohistoria: Acta et Communicationes Instituti Archaeologici Universitatis Groningae* 41–2: 163–76.
- Occhilupo, S. 2002. Insediamento protostorico: Area tempio – scavo 1995/2001. In De Vecchi, P. (ed.), *Museo civico di Gualdo Tadino. Rocca Flea 2: Materiali archeologici e ceramiche dal XVI al XX secolo*. Perugia: Electa – Editori Umbri Associati, 35–9.

- Olinder, B. & Pohl, I. 1981. S. Giovenale: The semi-subterranean building in Area B. *Acta Instituti Romani Regni Sueciae*, 4°, 26 (2, 4): 1–84.
- Olinder, B. & Pohl, I. 1981. S. Giovenale: The semi-subterranean building in Area B. *Acta Instituti Romani Regni Sueciae*, 4°, 26 (2, 4): 1–84.
- Orton, C. 2004. Mathematical modelling. Internet archaeology 15: http://intarch.ac.uk/journal/issue15/orton_index.html (accessed February 2020).
- Östenberg, C. E. 1967. *Luni sul Mignone e problemi della preistoria d'Italia*. (Acta Instituti Romani Regni Sueciae). Lund: C. W. K. Gleerup.
1975. *Case etrusche di Acquarossa*. (Monografie della Tuscia). Rome: Multigrafica editrice.
- Pacciarelli, M. 1979. Topografia dell'inse-
diamento dell'età del bronzo recente
nel Lazio. *Archeologia Laziale* 2:
161–70.
1982. Economia ed organizzazione del
territorio in Etruria meridionale
nell'età del bronzo media e recente.
Dialoghi di Archeologia 2: 69–79.
1991. Ricerche topografiche a Vulci:
dati e problemi relativi all'origine
delle città medio-tirreniche. *Studi
Etruschi* 56: 11–48.
- (ed.). 1997. *Acque, grotte e Dei: 3000 anni
di culti preromani in Romagna, Marche
e Abruzzo*. Imola: Musei Civici di
Imola.
2000. *Dal villaggio alla città: La svolta pro-
turbana del 1000 a.C. nell'Italia tirre-
nica*. (Grandi Contesti e Problemi
della Protostoria Italiana 4).
Florence: All'Insegna del Giglio.
- Pagliari, V. 1920. *La cittadella preistorica sul
monte Calvo presso Gubbio*. Gubbio:
Oderisi.
- Pallarés, E. 1983. Carta archeologica sotto-
marina dell'Isola d'Elba (1975). *Forma
Maris Antiqui* 11–12: 180–8.
- Pallottino, M. 1937. Tarquinia. *Monumenti
Antichi* 36: 5–594.
1961. Nuovi studi sul problema delle
origini etrusche. Bilancio critico.
Studi Etruschi 29: 3–30.
1962. Proposta di una classificazione e di
una terminologia delle fasi culturali
del bronzo e del ferro in Italia. In
Pallottino, M., Cardini, L. &
Brusadin, D. (eds.), *Atti del VI
Congresso internazionale delle scienze
preistoriche e protostoriche II*. Florence:
Sansoni, 346–402.
1975. *The Etruscans*. London: Allen
Lane.
1984. *Etruscologia*. Milano: Hoepli.
1993. *Origini e storia primitiva di Roma*.
Milan: Rusconi Libri.
- Pallottino, M., Pandolfini Angeletti, M.,
De Simone, C., Cristofani, M. &
Morandi, A. 1978. *Thesaurus linguae
etruscae. I Indice lessicale*. Rome:
Consiglio Nazionale delle Ricerche.
- Palmisano, A., Bevan, A. & Shennan, S.
2017. Comparing archaeological
proxies for long-term population pat-
terns: an example from central Italy.
Journal of Archaeological Science 87: 59–72.
2018. Regional demographic trends and
settlement patterns in Central Italy:
archaeological sites and radiocarbon
dates. *Journal of Open Archaeology
Data* 6 (2): DOI:<http://doi.org/10.5334/joad.43>.
- Paoletti, O. & Bettini, M. C. 2008. *La città
murata in Etruria*. Atti del XXV
Convegno di studi etruschi ed italici:
Chianciano Terme–Sarteano–Chiusi,
30 marzo – 3 aprile 2005. Pisa: F. Serra.
- Paolucci, G. 1986. Note storico-archeolo-
giche sul territorio di Chianciano
Terme. In Rastrelli, A. (ed.), *Le necro-
poli etrusche di Chianciano Terme*.
Montepulciano: Editori del
Grifo, 21–5.
1988. *Il territorio di Chianciano Terme dalla
preistoria al medioevo*. Rome:
Multigrafica.
1993. L'insediamento tardo etrusco di
Poggio Bacherina a Chianciano

- Terme. In Maetzke, G. & Tamagno Perna, L. (eds.), *La civiltà di Chiusi e del suo territorio*. Atti del XVII Convegno di studi etruschi ed italici: Chianciano Terme, 28 maggio – 1 giugno 1989. Florence: Olschki, 421–37.
- (ed.). 1997. *City Archaeological Museum of Thermal Waters, Chianciano Terme*. Siena: Protagon Editori Toscani.
- 2002a. Chiusi: il territorio. In Manganelli, M. & Pacchiani, E. (eds.), *Città e territorio in Etruria: Per una definizione di città nell'Etruria settentrionale*. Giornate di Studio. Colle Val d'Elsa 12–13 Marzo 1999. Teatro dei Varii. Colle Val d'Elsa: Gruppo Archeologico Colligiano, 247–70.
- 2002b. A ovest del Lago Trasimeno: note di archeologia e di topografia. In Della Fina, Giuseppe M. (ed.), *Perugia Etrusca: Atti del IX Convegno internazionale di studi sulla storia e l'archeologia dell'Etruria*. (Annali della Fondazione per il Museo 'Claudio Faina' 9). Rome: Edizioni Quasar, 163–228.
- Paolucci, G. & Francovich, R. (eds.). 2007. *Chianciano Terme: Carta archeologica della Provincia di Siena*. Vol. IX. Siena: Nuova Immagine.
- Paolucci, G. & Rastrelli, A. 1999. *Chianciano Terme*. Vol. I: *Necropoli della Pedata (Tombe 1–21)*. *Necropoli di Via Montale (Tombe 2–4)*. (Quaderni del Museo Civico Archeologico di Chianciano Terme). Rome: Bonsignore Editore – Museo Civico di Chianciano Terme – Soprintendenza archeologica della Toscana.
- Papadopoulos, J. K. & Smithson, E. L. 2017. *The Early Iron Age: The Cemeteries*. (The Athenian Agora 36). Princeton, NJ: American School of Classical Studies at Athens.
- Paribeni, E. 2009. Pian D'Alma (Scarlino): una fattoria tardo arcaica in territorio Vetuloniese. In Bruni, S. (ed.), *Etruria e Italia preromana: Studi in onore di Giovannangelo Camporeale*. (Studia Erudita 4). Pisa: Fabrizio Serra, 667–72.
- Parker, A. J. 1992. *Ancient Shipwrecks of the Mediterranean and the Roman Provinces*. (BAR International Series 580). Oxford: Tempus Reparatum.
- Parkinson, W. A & Galaty, M. L. 2007. Secondary states in perspective: an integrated approach to state formation in the prehistoric Aegean. *American Anthropologist* 109 (1): 113–29.
- Parr, J. 1976. A class of deviations from rank size regularity: three interpretations. *Regional Studies* 10: 285–92.
- Pasquinucci, M. & Storti, S. 1989. *Pisa antica: Scavi nel giardino dell'Arcivescovado*. Pontedera: Bandecchi e Vivaldi.
- Patterson, H. (ed.). 2004. *Bridging the Tiber: Approaches to Regional Archaeology in the Middle Tiber Valley*. London: British School at Rome.
- Patterson, H. & Coarelli, F. (eds.). 2008. *Mercator Placidissimus – The Tiber Valley in Antiquity: New Research in the Upper and Middle Valley*. Rome, 27–28 February 2004. Rome: Quasar.
- Patterson, H., di Gennaro, F., di Giuseppe, H., Fontana, S., Gaffney, V., Harrison, A., Keay, S. J., Millett, M., Rendeli, M., Roberts, P., Stoddart, S. & Witcher, R. 2000. The Tiber Valley Project: the Tiber and Rome through two millennia. *Antiquity* 74 (284): 395–403.
- Patterson, H., Di Giuseppe, H. & Witcher, R. 2004. Three South Etruria 'crises': first results of the Tiber Valley Project. *Papers of the British School at Rome* 72: 1–36.
- Patterson, H. & Millett, M. 1998. The Tiber Valley Project. *Papers of the British School at Rome* 66: 1–20.
- Patterson, H. & Rendeli, M. 2012. Conclusions. In Cascino, R., di Giuseppe, H. & Patterson, H., (eds.), *'Veii: The Historical Topography of the Ancient City': A Restudy of John Ward-*

- Perkin's Survey*. London: British School at Rome.
- Patterson, J. R. 1987. Crisis, what crisis? Rural change and urban development in Imperial Apennine Italy. *Papers of the British School at Rome* 21: 81–117.
- Paynter, R. 1981. *Models of Spatial Inequality: Settlement Patterns in Historical Archaeology*. New York: Academic Press.
- Pellegrini, E. 1992. Nuovi dati su due ripostigli dell'età del bronzo finale del grossetano: Piano di Tallone e 'tra Manciano e Samprugnano'. *Bullettino di Paletnologia Italiana* 83 (1): 341–60.
- Pellegrini, G. 1897. Scoperte di antichità. *Notizie degli Scavi alle Antichità*: 386–7.
1902. Scavi alla Villa di Fabbrecce. *Notizie degli Scavi alle Antichità*: 479–94.
- Perkins, P. 1999a. *Etruscan Settlement, Society and Material Culture in Central Coastal Etruria*. (BAR International Series 788). Oxford: British Archaeological Reports.
- Perkins, P. 1999b. Reconstructing the population history of the Albegna Valley and Ager Cosanus, Tuscany, Italy, in the Etruscan period. In Gillings, M., Mattingly, D. & van Dalen, J. (eds.), *Geographical Information Systems and Landscape Archaeology*. Oxford: Oxbow, 103–16.
- Perkins, P. & Attolini, I. 1992. An Etruscan farm at Podere Tartuchino. *Papers of the British School at Rome* 60: 71–134.
- Perkins, P. & Walker, L. 1990. Field survey of the Etruscan city at Doganella. *Papers of the British School at Rome* 58: 1–144.
- Peroni, R. (ed.). 1961. *Ripostigli del Massiccio della Tolfa*. (Ripostigli delle Età dei Metalli 1). Florence: Sansoni – Istituto Italiano di Preistoria e Protostoria.
- 1963a. Dati di scavo sul sepolcreto di Pianello di Genga. *Archäologischer Anzeiger* 3: 361–403.
- 1963b. *Ripostigli dell'Appennino umbro-marchigiano*. (Ripostigli delle Età dei Metalli 3). Florence: Istituto Italiano di Preistoria e Protostoria. Fasc. 3.
1966. Considerazioni ed ipotesi sul ripostiglio di Ardea. *Bullettino di Paletnologia* 17: 175–97.
1967. Per una revisione critica della stratigrafia di Luni sul Mignone e della sua interpretazione. In *Atti del primo Simposio internazionale di protostoria italiana*. Orvieto: Fondazione per il Museo 'Claudio Faina' – Rome: 'L'Erma' di Bretschneider, 167–73.
1969. Per uno studio dell'economia di scambio in Italia nel quadro dell'ambiente culturale dei secoli intorno al mille a.C. *Parola del Passato* 24: 134–60. (ed.). 1980. *Il bronzo finale in Italia*. Bari: De Donato.
1994. *Introduzione alla protostoria italiana*. Rome–Bari: Laterza.
- Persson, C. B. 1986. Acquarossa. In Wikander, Ö. & Roos, P. (eds.), *Architettura etrusca nel Viterbese: Ricerche svedesi a San Giovenale e Acquarossa 1956–1986*. (Catalogo della Mostra). Rome: De Luca, 40–5.
- Peterson, C., E. & Drennan, R., D. 2012. Patterned variation in regional trajectories of community growth. In Smith, M. E. (ed.), *The Comparative Archaeology of Complex Societies*. Cambridge: Cambridge University Press, 88–137.
- Pfiffig, A. J. 1975. *Religio etrusca*. Graz: Akademische Druck- u. Verlagsanstalt.
- Phillips, K. M. 1970. Speculations on Poggio Civitate. In Phillips, K. M. & Talocchini, A. (eds.), *Poggio Civitate: The Archaic Etruscan Sanctuary*. (Catalogo della Mostra). Florence: Olschki, 79–80.
1985. Ceramica greca. In Stopponi, S. (ed.) *Casa e Palazzi d'Etruria*. (Catalogo della Mostra). Milan: Electa, 74–5.
1993. *In the Hills of Tuscany: Recent Excavations at the Etruscan Site of Poggio Civitate (Murlo, Siena)*. Philadelphia:

- The University Museum of Pennsylvania.
- Phillips, K. M. & Talocchini, A. (eds.). 1980. *Poggio Civitate*. (Catalogo della Mostra). Florence: Olschki.
- Piccardi, S. 1973. La Valdichiana Toscana: ricerche di geografia antropica. *Rivista di Geografia Italiana* 81: 3–38, 209–96.
- Piggott, S. 1985. Review of Timothy Champion, Clive Gamble, Stephen Shennan & Alasdair Whittle: *Prehistoric Europe*. New York and London: Academic Press, 1984. *Antiquity* 59 (226): 145–6.
- Pigorini, L. 1903. Le più antiche civiltà dell'Italia. *Bullettino di Paletnologia Italiana* 29: 189–211.
- Piro, S. 2005. Integrazione di metodi geofisici ad alta risoluzione per l'indagine nei siti archeologici: il caso di Piazza d'Armi – Veio. In Paoletti, O. (ed.), *Dinamiche di sviluppo delle città nell'Etruria meridionale: Veio, Caere, Tarquinia, Vulci*. Atti del XXIII Convegno di Studi etruschi ed italici: Roma–Veio–Cerveteri–Pyrgi–Tarquinia–Tuscania–Vulci–Viterbo, 1–6 ottobre 2001. Pisa–Rome: Istituti Editoriali e Poligrafici Internazionali, 125–34.
- Poggesi, G. 2005. Prato–Gonfienti: lo scavo dell'edificio del Lotto 14 e la prosecuzione delle indagini geofisiche fra Prato e Campi Bisenzio. *Notiziario della Soprintendenza per i Beni Archeologici della Toscana* 1: 80–3.
- Poggesi, G., Donati, L., Bocci, E., Millenacci, G., Pagnini, L. & Pallecchi, P. 2005. Prato Gonfienti: un nuovo centro etrusco sulla via per Marzabotto. In Sassatelli, G. & Gori, E. (eds.), *Culti, forma urbana e artigianato a Marzabotto: Nuove prospettive di ricerca*. Atti del Convegno di studi: Bologna, S. Giovanni in Monte, 3–4 giugno 2003. Bologna: Ante Quem, 267–300.
- Pohl, I. 1977. The Iron Age test habitations in Area E. In *San Giovenale*, Vol. III, Fasc. 3. Acta Instituti Romani Regni Sueciae, 4°, 26 (3): 10–102.
1984. Riassunto generale: risultati e problemi. In Forsberg, S. and Thomasson, B. F. (eds.) *San Giovenale: Materiale e problemi. Atti del Simposio all'Istituto svedese di studi classici a Roma, 6 aprile 1983*. Acta Instituti Romani Regni Sueciae, 4°, 41: 91–6.
- Pollock, S. 1999. *Ancient Mesopotamia*. Cambridge: Cambridge University Press.
- Potter, T. W. 1976. *A Faliscan Town in South Etruria: Excavations at Narce, 1966–71*. London: The British School at Rome.
1979. *The Changing Landscape of South Etruria*. London: P. Elek.
- Potter, T. W. & Stoddart, S. 2001. A century of prehistory and landscape studies at the British School at Rome. *Papers of the British School at Rome* 69: 3–34.
- Pounds, N. J. G. 1969. The urbanisation of the classical world. *Annals of the Association of American Geographers* 59 (1): 135–57.
1990. *An Historical Geography of Europe*. Cambridge: Cambridge University Press.
- Prayon, F. 2005. Lo sviluppo urbanistico del sito etrusco di Castellina del Marangone (Comune di Santa Marinella, Prov. Di Roma). In Paoletti, O. (ed.), *Dinamiche di sviluppo delle città nell'Etruria meridionale: Veio, Caere, Tarquinia, Vulci*. Atti del XXIII Convegno di Studi etruschi ed italici: Roma–Veio–Cerveteri–Pyrgi–Tarquinia–Tuscania–Vulci–Viterbo, 1–6 ottobre 2001. Pisa–Rome: Istituti Editoriali e Poligrafici Internazionali, 665–73.
- Prayon, F. & Gran-Aymerich, J. 1999. Castellina del Marangone (Comune di S. Marinella, Prov. Roma). Vorbericht über die deutsch-französischen Ausgrabungen in der etruskischen Küstensiedlung

- (1995–1998). *Mitteilungen des Deutschen Archaeologischen Instituts Römische Abteilung* 106: 343–64.
- Proietti, G. 1986. *Cerveteri*. Rome: Quasar.
- Prosdocimi, A. 1984. *Le tavole iguvine I*. (Lingue e iscrizioni dell'Italia Antica 4). Florence: Olschki.
- Puccioni, N. 1927. Programma di un'inchiesta sul materiale osteologico per l'antropologia degli Etruschi. *Studi Etruschi* 1: 385–9.
- Pumain, D. 1982. *La dynamique des villes*. Paris: Economica.
- Quilici Gigli, S. 1970. *Tuscani*. Rome: De Luca.
- Quilici, L. & Quilici Gigli, S. 1980. *Crustumium (Latium Vetus III)*. Rome: Consiglio Nazionale delle Ricerche.
- Rafanelli, S. (ed.). 2013. *Vetulonia, Pontecagnano and Capua: Vite parallele di tre città etrusche*. Vetulonia: Museo Archeologico.
- Rajala, U. 2013. The concentration and centralization of late prehistoric settlement in central Italy: the evidence from the Nepi Survey. *Papers of the British School at Rome* 81: 1–38.
2016. Pre-colonial latin colonies and the transition to the Mid-Republican Period in the Faliscan area and South Etruria: orientalizing, archaic and late archaic settlement and funerary evidence from the Nepi Survey. *Papers of the British School at Rome* 84: 1–72.
- Rajala, U., Harrison, A. & Stoddart, S. K. F. 1999. The enhancement of the south Etruria survey: GIS in the study of the research history of the Southern Faliscan area. In Dingwall, L., Exon, S., Gaffney, V., Laflin, S. & van Leusen, M. (eds.), *Archaeology in the Age of the Internet: Computer Applications and Quantitative Methods in Archaeology: Proceedings of the 25th Anniversary Conference, University of Birmingham, April 1997*. (British Archaeological Reports, International Series 750). Oxford: Archaeopress, 82.
- Randall MacIver, D. 1924. *Villanovans and Early Etruscans: A Study of the Early Iron Age in Italy as it Is Seen near Bologna, in Etruria and in Latium*. Oxford: The Clarendon Press.
- Randall-MacIver, D. 1927. The Etruscans. *Antiquity* 1 (2): 159–71.
- Rasmussen, T. 1979. *Bucchero Pottery from Southern Etruria*. Cambridge: Cambridge University Press.
1985. Etruscan shapes in Attic pottery. *Antike Kunst* 28: 33–9.
- 1985–6. Archaeology in Etruria, 1980–1985. *Archaeological Reports* 32: 102–22.
1992. The Etruscans. *The Classical Review* 42 (1): 151–5.
- Rastrelli, A. 1985. Scavi e scoperte. Sinalunga (Siena). *Studi Etruschi* 51: 445.
1986. *Le necropoli etrusche di Chianciano Terme*. (Catalogo della Mostra). Montepulciano: Editori del Grifo.
1990. Il territorio del Monte Cetona in età storica. In Martini, F. & Sarti, L. (eds.), *La preistoria del Monte Cetona: Materiali e documenti per una guida del Museo civico per la preistoria del Monte Cetona*. Florence: All'Insegna del Giglio, 58–60.
2002. Per una definizione della città nell'Etruria settentrionale – Chiusi e la Val di Chiana. In Manganelli, M. & Pacchiani, E. (eds.), *Città e territorio in Etruria: Per una definizione di città nell'Etruria settentrionale. Giornate di Studio. Colle Val d'Elsa 12–13 Marzo 1999. Teatro dei Varii. Colle Val d'Elsa*. Gruppo Archeologico Colligiano, 213–36.
- Rathje, A. 1979. Oriental imports in Etruria in the eighth and seventh centuries BC: their origins and implications. In Ridgway, D. & Ridgway, F. (eds.), *Italy before the Romans*. London: Academic Press, 145–83.
- Redhouse, D. I. & Stoddart, S. K. F. 2011. Mapping Etruscan state formation. In

- Terrenato, N. & Haggis, D. (eds.), *State Formation in Italy and Greece: Questioning the Neoevolutionist Paradigm*. Oxford: Oxbow, 161–78.
- Regoli, E. & Terrenato, N. (eds.). 2000. *Guida al Museo archeologico di Rosignano Marittimo: Paesaggi e insediamenti in Val di Cecina*. Siena: Ministero per i Beni e le Attività Culturali, Comune di Rosignano Marittimo.
- Reimer, P. J., Baillie, M. G. L., Bard, E., Bayliss, A., Beck, J. W., Bertrand, C. J. H., Blackwell, P. G., Buck, C. E., Burr, G. S. & Cutler, K. B. 2004. IntCal04 Terrestrial radiocarbon age calibration, 26–0 ka BP. *Radiocarbon* 46: 1029–58.
- Rellini, U. 1938. Stazione preistorica dell'età del bronzo scoperta a Casa Carletti, Cetona. *Bullettino di Paleontologia italiana* 2: 111–12.
- Rendeli, M. 1985a. L'oppidum di Rofalco nella Selva del Lamone. In Carandini, A. (ed.), *La romanizzazione dell'Etruria: Il territorio di Vulci*. (Catalogo della Mostra). Milan: Electa, 60–1.
- 1985b. Settlement patterns in the Castro area (Viterbo). In Malone, C. A. T. and Simon, K. F. (eds.), *Papers in Italian Archaeology IV*, part 1: *The Human Landscape*. (British Archaeological Series International Series, 243). Oxford: British Archaeological Series, 261–73.
1989. Vasi attici da mensa in Etruria: note sulle occorrenze e sulla distribuzione. *Mélanges de l'Ecole française de Rome* 101 (2): 545–79.
1993. *Città aperte: Ambiente e paesaggio rurale organizzato nell'Etruria meridionale costiera durante l'età orientalizzante e arcaica*. Rome: Gruppi Editoriali Internazionali.
2002. Sviluppo del rapporto tra centro e territorio in Etruria nel VII e VI secolo a.C. In Manganelli, M. & Pacchiani, E. (eds.), *Città e territorio in Etruria: Per una definizione di città nell'Etruria settentrionale*. Giornate di Studio. Colle Val d'Elsa 12–13 Marzo 1999. Teatro dei Varii. Colle Val d'Elsa: Gruppo Archeologico Colligiano, 41–81.
- Renfrew, A. C. 1972. *The emergence of Civilisation*. London: Methuen.
1975. Trade as action at a distance: questions of interaction and communication. In Sabloff, J. A. & Lamberg-Karlovsky, C. C. (eds.), *Ancient Civilisations and Trade*. Albuquerque: School of American Research – University of New Mexico, 3–59.
1980. The great tradition versus the great divide: archaeology as anthropology? *American Journal of Archaeology* 84 (3): 287–98.
1982. Polity and power: interaction, intensification and exploitation. In Renfrew, A. C. & Wagstaff, M. (eds.), *An Island Polity: The Archaeology of Exploitation in Melos*. Cambridge: Cambridge University Press, 264–90.
1983. Geography, archaeology and environment: I, Archaeology. *The Geographical Journal* 149: 316–23.
1986. Introduction: peer polity interaction and socio-political change. In Renfrew, A. C. & Cherry, J. F. (eds.), *Peer-Polity Interaction and Socio-cultural Change*. Cambridge: Cambridge University Press, 1–18.
- Renfrew, A. C. & Bahn, P. G. 1991. *Archaeology: Theories, Methods and Practice*. London: Thames and Hudson.
- Renfrew, A. C. & Level, E. V. 1979. Exploring dominance: predicting polities from centers. In Renfrew, A. C. & Cooke, K. L. (eds.), *Transformations, Mathematical Approaches to Culture Change*. New York: Academic Press, 145–68.
- Renfrew, A. C. & Wagstaff, M. (eds.). 1982. *An Island Polity: The Archaeology of Exploitation in Melos*. Cambridge: Cambridge University Press.

- Renzetti, G. 1953. Vetulonia: carta archeologica della città. *Studi Etruschi* 21: 291–6.
- Repetti, E. 1835. *Dizionario geografico fisico storico della Toscana; contenente la descrizione di tutti i luoghi del granducato, ducato di Lucca, Garfagnana e Lunigiana*. Florence: Presso l'Autore e Editore.
- Ricciardi, L., Costantini, L., Giorgi, J. A. & Scali, S. 1987. Blera. In Cerchiai, C. (ed.), *L'Alimentazione nel mondo antico: Gli Etruschi*. Rome: Istituto Poligrafico e Zecca dello Stato, 83–7.
- Richardson, E. H. 1983. *Etruscan Votive Bronzes: Geometric, Orientalizing, Archaic*. Mainz-am-Rhein: Verlag Philipp von Zabern.
- Richardson, H. W. 1973. The theory of distribution of city sizes: review and prospects. *Regional Studies* 7: 239–51.
- Ridgway, D. 1967. Coppe cicladiche da Veio. *Studi Etruschi* 35: 311–21.
1974. Rapporti dell'Etruria meridionale con la Campania: prolegomena pithecusana. In *Aspetti e problemi dell'Etruria interna: Atti dell' VIII Convegno nazionale di studi etruschi ed italici, Orvieto, 27–30 giugno 1972*. Florence – Orvieto: Olschki – Centro di Studi Etruschi Orvieto – Istituto di Studi Etruschi e Italici, Florence, 281–92.
- Ridgway, D. 1984. *L'alba della Magna Grecia*. Milan: Longanesi.
1992. A southern view of HaB2. *Antiquity* 66: 546–50.
- Ridgway, D. & Ridgway, F., R. 1979. Editorial. In Ridgway, D. & Ridgway, F., R. (eds.), *Italy before the Romans: The Iron Age, Orientalizing and Etruscan Periods*. London: Academic Press, 415–18.
- Rieckhoff, S. & Biel, J. 2001. *Die Kelten in Deutschland*. Stuttgart: Theiss.
- Riva, C. 2005. The culture of urbanization in the Mediterranean c. 800–600 BC. In Cunliffe, B. & Osborne, R. (eds.), *Mediterranean Urbanisation 800–600 BC*. Oxford: Oxford University Press, 203–32.
2010. *The Urbanisation of Etruria: Funerary Practices and Social Change, 700–600 BC*. Cambridge: Cambridge University Press.
- Riva, C. & Stoddart, S. 1996. Ritual landscapes in archaic Etruria. In Wilkins, J. B. (ed.), *Approaches to the Study of Ritual: Italy and the Mediterranean*. London: Accordia, 91–109.
- Riva, C. & Vella, N. (eds.). 2006. *Debating Orientalization: Multidisciplinary Approaches to Change in the Ancient Mediterranean*. London: Equinox Press.
- Rix, H. 1963. *Das etruskische Cognomen: Untersuchungen zu System, Morphologie und Verwendung der Personennamen auf Tuscania Jungeren Inschriften NordEtruriens*. Wiesbaden: Otto Hartassowitz.
1977. L'apporto dell'onomastica alla storia sociale. In *Atti dell'Incontro di Studio: Caratteri dell'ellenismo nelle urne etrusche*. Florence: Olschki, 64–73.
- (ed.). 1991. *Etruskische Texte: Editio Minor*. Tübingen: Gunter Narr.
- Romagnoli, G. (ed.). 2014. *Ferento: La città e il suo suburbio tra antichità e medioevo*. Rome: Aracne.
- Romualdi, A. 1981. *Catalogo del deposito di Brolio in Val di Chiana*. Rome: Istituto poligrafico e Zecca dello Stato.
1985. *Guida Archeologica di Populonia*. Rome: Vision.
- Roncagli, F. (ed.). 1985. *Scrivere Etrusco: Dalla leggenda alla conoscenza. Scrittura e letteratura nei massimi documenti della lingua etrusca*. (Catalogo della Mostra). Milan: Electa.
- Rosen, P. A., Hensley, S., Joughin, I. R., Li, F. K., Madsen, S. N., Rodriguez, E. & Goldstein, R. M. 2000. Synthetic aperture radar interferometry. *Proceedings of the*

- Institute of Electrical and Electronics Engineers* 88 (3): 333–82.
- Rossi, F. 1981. *Bonifica della Val di Chiana: Mostra documentaria*. Florence: Giunti Barbera.
- Rottoli, M. 1997. I resti botanici. In Bonghi Jovino, M. & Chiaramonte Treré, C. (eds.), *Tarquinia: Testimonianze archeologiche e ricostruzione storica. Scavi sistematici nell'abitato, campagne 1982–1988*. (Tarchna 1). Rome: 'L'Erma' di Bretschneider, 92–9.
2005. Le analisi archeobotaniche a Tarquinia: i resti vegetali in due contesti del “complesso monumentale”. In Bonghi Jovino, M. & Chiesa, F. (eds.), *Offerte dal regno vegetale e dal regno animale nelle manifestazioni del sacro: Atti dell'incontro di studio Milano 26–27 giugno 2003*. (Università degli Studi di Milano: Tarchna, Supplemento 1). Rome: 'L'Erma' di Bretschneider, 113–25.
- Rowland, I. D. 1994. Early attestations of the name 'Poggio Civitate'. In De Puma, R. D. & Small, J. P. (eds.), *Murlo and the Etruscans: Art and Society in Ancient Etruria*. Madison: University of Wisconsin Press.
- Rystedt, E. 1985. Acroteri. In Stopponi, S. (ed.), *Casa e palazzi d'Etruria*. Milan: Electa, 70–1.
- Rystedt, E., Wikander, C. & Wikander, O. R. 1993. *Deliciae Fictiles: Proceedings of the First International Conference on Central Italic Architectural Terracottas at the Swedish Institute in Rome, 10–12 December 1990*. Göteborg: P. Åströms Förlag.
- Salomon, F., Goiran, J.-P., Bravard, J.-P., Ballantyne, R., Margiris, E., Keay, S., Earl, G. & Kay, S. 2009. Delta du Tibre. Campagne de cartage 2008. Etude des canaux de Portus. *Melanges de l'Ecole Française de Rome* 121 (1): 60–4.
- Sanders, W. T., Parsons, J. & Santley, R. 1979. *The Basin of Mexico: Cultural Ecology of a Civilisation*. New York: Academic Press.
- Sarti, L. 1990. Il territorio del Monte Cetona nell'età del bronzo. In Martini, F. & Sarti, L. (eds.), *La preistoria del Monte Cetona: Materiali e documenti per una guida del Museo civico per la preistoria del Monte Cetona*. Florence: All'Insegna del Giglio, 47–57.
- Sassatelli, G. & Gori, E. (eds.). 2005. *Culti, forma urbana e artigianato a Marzabotto: Nuove prospettive di ricerca*. Atti del Convegno di studi: Bologna, S. Giovanni in Monte 3–4 giugno 2003. Bologna: Ante Quem.
- Savage, S. H. 1997. Assessing departures from log-normality in the rank-size rule. *Journal of Archaeological Science* 24 (3): 233–44.
- Scarpignato, M. 1989. La stipe votiva di Bettona. In Corbucci, M. P. & Pettine, S. (eds.), *Antichità dall'Umbria a Budapest e Cracovia*. Perugia: Electa Editori Umbri, 124–33.
- Scheffer, C. 1981. Acquarossa: cooking and cooking stands in Italy, 1400–400 BC. *Acta Instituti Romani Regni Sueciae*, 4^o, 38 (2, 1): 9–114.
- Schiappelli, A. 2008. *Sviluppo storico della Teverina nell'età del bronzo e nella prima età del ferro*. (Grandi Contesti e Problemi della Protostoria Italiana 11). Florence: All'Insegna del Giglio.
- Schmandt-Besserat, D. 1980. The envelopes that bear the first writing. *Technology and Culture* 21: 357–85.
1992. *Before Writing*. Vol. I: *From Counting to Cuneiform*. Austin: University of Texas Press.
- Schmiedt, G. 1970a. *Atlante aerofotografico delle sedi umani in Italia*. Florence: Sansoni.
- 1970b. Contributo della fotografia aerea alla ricostruzione dell'urbanistica della città italica ed etrusca preromana. In *Atti del Convegno di studi sulla città etrusca e italica preromana: Studi sulla città antica*. Bologna: Istituto per la Storia di Bologna, 91–107.

- Schmiedt, G. & Caputo, G. 1972. *Il antico livello del mar Tirreno: Testimonianze dei resti archeologici*. Florence: Olschki.
- Scott, J. C. 2017. *Against the Grain: A Deep History of the Earliest States*. New Haven, CT: Yale University Press.
- Secchi Tarugi, G. 1960. La tradizione delle origini etrusche di Montepulciano. *Studi Etruschi* 28: 339–45.
- Sensi, L. 1985. *Itinerari etruschi 3: Umbria*. Milan: Gruppo Editoriale Electa.
- Sestini, A. 1954. L'ambiente naturale: la morfologia. *Le stazioni preistoriche della montagna di Cetona. Belverde I: Premessa, l'ambiente naturale, topografia e scavi*. Florence: Olschki, 7–17.
1981. Introduzione all'Etruria mineraria: il quadro naturale e ambientale. In *L'Etruria mineraria*. Atti del XII Convegno di studi etruschi ed italici: Firenze–Populonia–Piombino, 16–20, giugno 1979. Florence: Olschki, 3–21.
1984. The Appennines and Sicily. In Embleton, C. (ed.), *Geomorphology of Europe*. London: Macmillan Publishers, 341–54.
- Sewell, J. P. & Witcher, R. E. 2015. Urbanism in ancient peninsular Italy: developing a methodology for a database analysis of higher order settlements (350 BCE to 300 CE). *Internet Archaeology* 40.
- Sgubini Moretti, A. M. 1991. *Tuscania: Il museo archeologico*. (Guide Territoriali dell'Etruria Meridionale). Rome: Quasar.
- Shefton, B. 2014. Brochette di tipo rodio di Trestina. In Paoletti, O. & Bettini, M. C. (eds.), *Gli Umbri in età preromana*. XXVII Convegno di studi etruschi ed italici: Perugia–Gubbio–Urbino, 27–31 ottobre 2009. Pisa–Rome: Fabrizio Serra Editore, 63–92.
- Shipley, L. 2017. *The Etruscans: Lost Civilisations*. London: Reaktion Books.
- Simon, H. A. 1955. On a class of skew distribution functions. *Biometrika* 42: 425–40.
- Smith, A. T. 2003. *The Political Landscape: Constellations of Authority in Early Complex Politics*. Berkeley–London: University of California Press.
- Smith, C. A. 1976a. Analysing regional social systems. In Smith, C. A. (ed.), *Regional Analysis*. Vol. II: *Economic Systems*. New York: Academic Press, 3–20.
- 1976b. Exchange systems and the spatial distributions of elites. In Smith, C. A. (ed.), *Regional Analysis*. Vol. II: *Economic Systems*. New York: Academic Press, 309–74.
- 1976c. Regional economic systems: linking geographical models and socio-economic problems. In Smith, C. A. (ed.), *Regional Analysis*. Vol. I: *Economic Systems*. New York: Academic Press, 3–63.
- Smith, M. E. 1979. The Aztec marketing system and settlement patterns in the Valley of Mexico: a central place analysis. *American Antiquity* 44: 110–25.
- (ed.). 2012. *The Comparative Archaeology of Complex Societies*. Cambridge: Cambridge University Press.
- Snodgrass, A. M. 1980. *Archaic Greece. The Age of experiment*. London: Dent.
1985. The new archaeology and the classical archaeologist. *American Journal of Archaeology* 89: 31–7.
1986. Interaction by design: the Greek city state. In Renfrew, A. C. & Cherry, J. F. (eds.), *Peer Polity Interaction and Socio-political Change*. Cambridge: Cambridge University Press, 47–58.
- Soffredi, A. 1970. La necropoli del Colle del Capitano nel quadro del protovillanoviano in Italia. *Studi Etruschi* 38: 345–59.
- Sorrentino, C. 1981. Appendix: La fauna in San Giovenale. In Olinder B. & Pohl, I., S. Giovenale: The semi-subterranean building in Area B. *Acta Instituti Romani Regni Sueciae*, 4°, 26 (2, 4): 85–9.

1986. La fauna. In Bonghi Jovino, M. (ed.), *Gli Etruschi di Tarquinia*. (Catalogo della Mostra). Modena: Panini, 200–2.
- Spencer, N. (ed.) 1995. *Time, Tradition, and Society in Greek Archaeology: Bridging the 'Great Divide'*. London: London.
- Spivey, N. 1988. The armed dance on Etruscan vases. In Christiansen, J. & Melander, T. (eds.), *Proceedings of the Third Symposium on Ancient Greek and Related Pottery, Copenhagen, August 31–September 4 1987*. Copenhagen: Nationalmuseet – Ny Carlsberg Glyptotek – Thorvaldsens Museum, 592–603.
- Spivey, N. & Stoddart, S. 1990. *Etruscan Italy*. London: Batsford.
- Spivey, N. J. 1987. *The Micali Painter and his Followers*. (Oxford Monographs on Classical Archaeology). Oxford: Clarendon Press.
- Spivey, N. S. 1986. Review of Etruscan exhibition volumes. *Journal of Roman Studies* 75: 281–6.
- Stefani, E. 1922. Gualdo Tadino: scoperta fortuita di antichi sepolcri. *Notizie degli Scavi alle Antichità*, Serie quinta 19: 76–9.
1924. Gualdo Tadino: scoperta fortuita di antichi sepolcri. *Notizie degli Scavi alle Antichità*, Serie quinta 21: 33–4.
1926. Gualdo Tadino: scoperta fortuita di antichi sepolcri. *Notizie degli Scavi alle Antichità*, Serie sesta (51) 2: 402–3.
- 1935a. Gualdo Tadino: avanzi di antiche costruzioni lungo l'antica Flaminia. *Notizie degli Scavi alle Antichità* 11 (60): 164–6.
- 1935b. Gualdo Tadino: scoperta di un antico sepolcro in contrada Malpasso. *Notizie degli Scavi alle Antichità* 11 (60): 160–4.
- 1935c. Gualdo Tadino: scoperta fortuita di un sepolcro e di una fornace sopra l'acropoli di Tadinum. *Notizie degli Scavi alle Antichità* 11 (60): 167–9.
- 1935d. Gualdo Tadino: scoperte varie. Resti di un'antico edificio sopra l'altezza di Mori. *Notizie degli Scavi alle Antichità* 11 (60): 155–60.
- 1935e. Gualdo Tadino. Trovamenti sporadici. *Notizie degli Scavi alle Antichità* 11 (60): 170–3.
1944. Scavi archeologici a Veio, in contrada Piazza d'Armi. *Monumenti Antichi* 40: 178–293.
- 1955–6. Gualdo Tadino: scoperta di antichi sepolcri nella contrada S. Facondino. *Notizie degli Scavi alle Antichità*, Serie ottava 9 (80): 182–94.
- Stella, A. 1927. Alcune osservazioni sui minerali di ferro e di stagno dell'antica Etruria. *Studi Etruschi* 1: 421–5.
- Steponaitis, V. 1981. Settlement hierarchies and political complexity in non-market societies: the formative period in the valley of Mexico. *American Anthropologist* 83: 320–63.
- Stevens, C. 2000. Plant remains. *Papers of the British School at Rome* 67: 330–3.
- Stoddart, S. 1979–80. Un periodo oscuro nel Casentino: la validità dell'evidenza negativa? *Atti e Memorie dell'Accademia Petrarca di Lettere, Arti e Scienze* 43: 197–232.
1981. Popular archaeology in Italy. *Popular Archaeology* 3 (2): 38–40.
1987. Complex polity formation in North Etruria and Umbria 1200–500 BC. Unpublished PhD thesis, University of Cambridge.
1990. The political landscape of Etruria. *The Journal of the Accordia Research Centre* 1: 39–51.
1995. The domestication of the proto-villanovan mind. *Antiquity* 69 (263): 411–14.
1999. Urbanism and State Formation. In Barker, G. & Grant, A. (eds.), *Encyclopedia of Archaeology*. London: Routledge, 908–49.
- (ed.). 2000. *Landscapes from Antiquity*. Cambridge: Antiquity Publications Limited.

2006. The physical geography and environment of Republican Italy. In Rosenstein, N. & Morstein-Marx, R. (eds.), *Companion to the Roman Republic*. Oxford: Blackwell, 102–21.
2007. The impact of landscape and surface survey on the study of the Etruscans. *Etruscan Studies* 10: 239–45.
- 2007–8 (2009). The Etruscan body. *Accordia Research Papers* 11: 137–52.
2010. Boundaries of the state in time and space: transitions and tipping points. *Social Evolution & History* 9 (2 (September)): 28–52.
2012. Between text, body and context: expressing Umbrian identity in the landscape. In Cifani, G., Stoddart, S. K. F. & Neil, S. (eds.), *Landscape, Ethnicity and Identity in the Archaic Mediterranean Area*. Oxford: Oxbow, 173–86.
2014. A view from the south (west). Identity in Tyrrhenian Central Italy. In Popa, C. N. & Stoddart, S. (eds.), *Fingerprinting the Iron Age: Approaches to Identity in the European Iron Age – Integrating South Eastern Europe into the Debate*. Oxford: Oxbow, 266–82.
2016. Power and place in Etruria. In Manuel Fernández-Götz, M. & Krause, D. (eds.), *Eurasia at the Dawn of History: Urbanization and Social Change*. Cambridge: Cambridge University Press, 304–18.
- 2017a. The apparent invisibility of the non-elite and rural settlement north of the Tiber in the age of Tarquin. In Smith, C. J. & Lulof, P. S. (eds.), *The Age of Tarquinius Superbus: Central Italy in the Late 6th Century. Proceedings of the Conference ‘The Age of Tarquinius Superbus, A Paradigm Shift?’, Rome, 7–9 November 2013*. (Babesch Supplements 29). Leuven: Peeters Publishers, 187–94.
- (ed.). 2017b. *Delicate Urbanism in Context: The Case of Pre-Roman German Urbanism*. Cambridge: McDonald Institute.
- In press. The creation and maintenance of powerful places in Etruria. In Gyucha, A. & Salisbury, R. B. (eds.), *What If We Build This Here? Spatial Patterns, Community Organization, and Identity at Nucleated Settlements*. (IEMA Distinguished Monograph Series). Buffalo: SUNY Press.
- Stoddart, S., Baroni, M., Ceccarelli, L., Cifani, G., Clackson, J., Ferrara, F., della Giovampaola, I., Fulminante, F., Licence, T., Malone, C., Mattacchioni, L., Mullen, A., Nomi, F., Pettinelli, E., Redhouse, D. & Whitehead, N. 2012. Opening the frontier: the Gubbio – Perugia frontier in the course of history. *Papers of the British School at Rome* 80: 257–94.
- Stoddart, S. & Neil, S. 2012. Endnote: situating ethnicity. In Cifani, G., Stoddart, S. K. F. & Neil, S. (eds.), *Landscape, Ethnicity and Identity in the Archaic Mediterranean Area*. Oxford: Oxbow, 287–93.
- Stoddart, S. & Redhouse, D. 2014. The Umbrians: an archaeological perspective. In Aberson, M., Biella, M. C., Wulfschleger, M. & Di Fazio, M. (eds.), *Entre archéologie et histoire: Dialogues sur divers peuples de l'Italie préromaine*. Geneva: Université de Genève – Faculté des Lettres – Département des Sciences de l'Antiquité, 107–24.
- Stoddart, S. & Whitley, J. 1988a. 20. Gubbio, loc. Monte Ansciano (Perugia). *Studi Etruschi* 65: 379–82.
- 1988b. The social context of literacy in archaic Greece and Etruria. *Antiquity* 62 (237): 761–72.
1994. Rituals without texts. In Malone, C. & Stoddart, S. (eds.), *Territory, Time and State: The Archaeological Development of the Gubbio Basin*. Cambridge: Cambridge University Press, 142–52.

- Stoddart, S., Woodbridge, J., Palmisano, A., Mercuri, A.-M., Mensing, S., Colombaroli, D., Sadori, L., Magri, D., di Rita, F., Giardini, M., Mariotti Lippi, M., Montanari, C., Bellini, C., Florenzano, A., Torri, P., Bevan, A., Shennan, S., Fyfe, R. & Roberts, N. 2019. Tyrrhenian central Italy: Holocene population and landscape ecology. *Holocene*. Special issue 29 (5): 761–75. DOI:10.1177/0959683619826696.
- Stoddart, S., Palmisano, A., Redhouse, D., Barker, G., di Paola, G., Rasmussen, T., Samuels, T and Terrenato, N., Witcher, R. In press. Patterns of Etruscan urbanism. In Fulminante, F., Hanson, J. W., Ortman, S. G., Bettencourt, L. M. A. (eds.), *Where Do Cities Come from and Where Are They Going To? Modelling Past and Present Agglomerations to Understand Urban Ways of Life Frontiers*. Digital Humanities (Digital Archaeology).
- Stopponi, S. 1985. Il santuario del Belvedere a Orvieto. In Colonna, G. (ed.), *Santuari d'Etruria*. Milan: Electa – Regione Toscana, 80–3.
2011. Campo della Fiera at Orvieto: new discoveries. *Journal of Roman Archaeology* 581: 16–44.
- Street, B. V. 1984. *Literacy in Theory and Practice*. Cambridge: Cambridge University Press.
- Strøm, I. 1971. *Problems Concerning the Origin and Development of the Etruscan Orientalizing Style*. Odense: Odense Universitetsforlag.
- Strong, D. 1968. *The Early Etruscans*. London: Evans Brothers Limited.
- Tabolli, J. & Cerasuolo, O. 2019. *Veti*. Austin: University of Texas Press.
- Tagliacozzo, A. 1990. I resti ossei faunistici di Musarna. *Mélanges de l'École Française de Rome* 102 (1): 479–80.
- Tainter, J. 1988. *The Collapse of Complex Societies*. Cambridge: Cambridge University Press.
- Talocchini, A. 1981. Ultimi dati offerti dagli scavi vetuloniesi (Poggio Pelliccia e Costa Murata). In *L'Etruria mineraria: Atti del XII Convegno di studi etruschi e italici (Firenze-Populonia-Piombino, 16–20, giugno 1979)*. Florence: Istituto di Studi Etruschi ed Italici-Olschki, 99–138.
- Tarantini, M. 2009. Nascita e istituzionalizzazione della 'paleoetnologia' in Italia, tra archeologia, scienze e politica (1860–1877). In Vai, G. B. (ed.), *Il diamante e Scarabelli' (Atti del convegno internazionale) Comitato Promotore per le Celebrazioni Scarabelliane*. Imola: Comitato Promotore per le Celebrazioni scarabelliane, 67–86.
- Tarugi, G. 1979. Interrogative archeologici sui primi abitatori dei territori attorno a Montepulciano (Politorium). *Annuario dell'Accademia Etrusca di Cortona* 18: 523–35.
- Tascio, M. 1989. *Todi: Forma e urbanistica*. (Città Antiche in Italia). Rome: 'L'Erma' di Bretschneider.
- Terrenato, N. 1992. La ricognizione della Val di Cecina. In Bernardi, M. (ed.), *Archaeologia del paesaggio*. Florence: All'Insegna del Giglio, 561–5.
1996. Visibility and site recovery in the Cecina Valley Survey, Italy. *Journal of Field Archaeology* 23: 91–109.
1998. Tam Firmum Municipium: the Romanisation of Volterrae and its cultural implications. *Journal of Roman Studies* 88: 94–114.
2019. *Early Roman Expansion into Italy: Elite Negotiation and Family Agendas*. Cambridge: Cambridge University Press.
- Terrenato, N. & Saggin, A. 1994. Ricognizioni archeologiche nel territorio di Volterra. *Archeologia Classica* 46: 465–82.
- Thomas, N. J. 1991. *Entangled Objects: Exchange, Material Culture and*

- Colonialism in the Pacific*. Cambridge, MA: Harvard University Press.
- Thomson de Grummond, N. & Pieraccini, L. C. (eds.). 2016. *Caere*. Austin: University of Texas Press.
- Timperi, A., Berlingò, I., Gallavotti, D. & Aiello, M. 1994. *Bolsena e il suo lago*. (Le Guide Territoriali dell'Etruria Meridionale). Rome: Quasar – Regione Lazio.
- Toms, J. 1986. The relative chronology of the Villanovan cemetery of Quattro Fontanili at Veii. *Annali del Dipartimento di Studi del Mondo Classico e del Mediterraneo Antico. Archeologia e Storia Antica* 8: 42–97.
- Torelli, M. 1967. Terza campagna di scavi a Punta della Vipera (S. Marinella). *Studi Etruschi* 35: 331–53.
1983. Polis e palazzo: architettura, ideologia e artigianato greco in Etruria tra VII e VI sec. a.C. In *Architecture e société: De l'archaïsme grec à la fin de la république romaine. Actes du Colloque international organisé par le Centre national de la recherche scientifique et l'École française de Rome. (Rome 2–4 décembre 1980)*. Paris–Rome: Centre National de la Recherche Scientifique – École Française de Rome, Palais Farnese, 471–99.
1985. Introduzione. In Stopponi, S. (ed.), *Case e palazzi d'Etruria. (Catalogo della Mostra)*. Milan: Electa, 21–32.
1992. Iconologia selvaggia ed altro. *Ostraka. Rivista di Antichità* 1 (2): 295–301.
2000. The Etruscan city state. In Hansen, M. H. (ed.), *A Comparative Study of Thirty City-State Cultures: An Investigation*. Copenhagen: Kongelige Danske Videnskaberne Selskab, 189–208.
2001. Stata Mater in agro veientano: la 'riscoperta' di un santuario rurale veiente in loc. Casale Pian Roseto. *Studi Etruschi* 64: 117–34.
2002. Appunti sulla genesi della città nell'Etruria centro-settentrionale. In Manganelli, M. & Pacchiani, E. (eds.), *Città e territorio in Etruria: Per una definizione di città nell'Etruria settentrionale. Giornate di Studio. Colle Val d'Elsa 12–13 marzo 1999. Teatro dei Varii*. Colle Val d'Elsa: Gruppo Archeologico Colligiano, 21–31.
2011. Bellum in privatum curam (Liv. II, 49, 1). Eserciti gentilizi, sodalitates e insonomia aristocratica in Etruria e Lazio arcaici. In Masseria, C. & Loscalzo, D. (eds.), *Miti di guerra, riti di pace: La guerra e la pace, un confronto interdisciplinare*. Atti del Convegno di Studi (Torgiano 4 maggio 2009 e Perugia 5–6 maggio 2009). Bari: Edipuglia, 225–34.
2016. The history. In de Grummond, N. T. & Pieraccini, L. C. (eds.), *Caere*. Austin: University of Texas Press, 1–13.
- Torelli, M. & Gros, P. 1988. *Storia dell'urbanistica: Il mondo romano*. Bari: Laterza.
- Torelli, M., Rasmussen, T., Boitani, F. & Lilliu, G. 1971. Gravisca (Tarquinia): scavi nella città etrusca e romana, campagne 1969 e 1970. *Notizie degli Scavi alle Antichità* 25 (96): 195–299.
- Torelli, M., Ward-Perkins, J. & Murray Threipland, L. 1970. A semisubterranean etruscan building in the Casale Pian Roseto (Veii) area. *Papers of the British School at Rome* 38: 62–121.
- Tracchi, A. 1978. *Dal Chianti al Valdarno*. (Riconsezioni Archeologiche in Etruria 3). Rome: Consiglio Nazionale delle Ricerche.
- Trotta, A. 1990. Cortona: i rinvenimenti di Via Vagnotti. In Corbucci, M. P. & Pettine, S. (eds.), *Antichità dall'Umbria a Leningrado*. Perugia: Electa Editori Umbri, 103–12.

- Tuck, A. S. 2000. Architecture and community at Poggio Civitate. *Etruscan Studies (Detroit, Michigan)* 7: 109–12.
- Tuck, A. S., Brunk, J., Huntsman, T. & Tallman, H. 2006. An archaic period well from Poggio Civitate (Murlo). www.ase.tufts.edu/archaeology/murlo/ (accessed October 2006).
- Turchetti, R. & Bartoloni, F. 1995. Notizie preliminari sulle ricognizioni a Capena e nel territorio. In Christie, N. (ed.) *Settlement and Economy in Italy, 1500 BC – AD 1500: Papers of the Fifth Conference of Italian Archaeology*. Oxford: Oxbow Books, 413–20.
- Turchin, P. 2006. *War and Peace and War: The Life Cycles of Imperial Nations*. New York – London: Pi Press – Pearson Education.
- Tusa, S. 1980. Problematica sui luoghi di culto nel Lazio dal neolitico all'età del bronzo. *Archeologia Laziale* 3: 143–7.
- Uccelli Gnesuta, P. 1977. L'abitato delle Sorgenti della Nova. In *Atti della XXI Riunione scientifica: Il bronzo finale*. Florence: Parenti – Istituto Italiano di Preistoria e Protostoria, 328–35.
- Usai, A. & Lo Schiavo, F. 2009. Contatti e Scambi. In *Atti della XLIV Riunione scientifica: La preistoria e la protostoria della Sardegna (Cagliari, Barumini, Sassari, 23 novembre – 28 novembre 2009)*. Vol. I: *Relazioni generali*. Florence: Istituto Italiano di Preistoria e Protostoria, 271–86.
- Vaccaro, E., Campana, S., Ghisleni, M. & Sordini, M. 2009. Maglie insediative della valle dell'Ombrone (GR) nel primo millennio d.C. In Macchi Jánica, G. (ed.), *Geografie del popolamento: Casi di studio, metodi e teorie*. Siena: Edizioni dell'Università, 285–98.
- Vaccaro, E., Ghisleni, M., Arnoldus-Huyzendveld, A., Grey, C. & Bowes, K. 2013. Excavating the Roman peasant II: excavations at Case Nuove, Cignano (GR). *Papers of the British School at Rome* 81: 129–79.
- Vagnetti, L. (ed.). 1982. *Magna Grecia e mondo miceneo: Nuovi documenti*. Atti del XXII Convegno di studi sulla Magna Grecia: Taranto, 7–11 ottobre, 1982. Taranto: Istituto per la Storia della Magna Grecia.
- Valenti, M. 1995. *Carta archeologica della Provincia di Siena*. Vol. I: *Il Chianti senese (Castellina in Chianti, Castelnuovo Berardenga, Gaiole in Chianti, Radda in Chianti)*. Siena: Nuova Immagine.
1999. *Carta archeologica della Provincia di Siena*. Vol. III: *La Val d'Elsa (Colle Val d'Elsa e Poggibonsi)*. Siena: Nuova Immagine.
- Van Andel, T. H. & Runnels, C. N. 1988. An essay on the 'emergence of civilization' in the Aegean world. *Antiquity* 62 (235): 234–47.
- Van der Leeuw, S. E. 2000. Land degradation as socio-cultural process. In McIntosh, R. J., Tainter, J. A. & McIntosh, S. K. (eds.), *The Way the Wind Blows: Climate, History and Human Action*. New York: Columbia University Press, 357–83.
- Van Effenterre, H. 1984. *La cité grecque: Des origines a la défaite de Marathon*. Paris: Hachette.
- Vansteenhuyse, K. 2002. Political strategies and the settlement pattern in early Iron Age Philistia. *Bulletin voor Antieke Beschavingen* 77: 1–8.
- Vanzetti, A. 2004. Risultati e problemi di alcune prospettive di studio della centralizzazione e urbanizzazione di fase protostorica in Italia. In Attema, P. (ed.), *Centralization, Early Urbanization and Colonization in First Millennium BC Italy and Greece*. Leuven: Peeters, 1–28.
- Vernarecci, A. 1901. Frontone: statuetta di bronzo trovata sul Monte Catria. *Notizie degli Scavi alle Antichità* 1901: 416–17.
- Vertova, L. 1986. Bicentenary of the Accademia, Florence. *The Burlington Magazine* 128 (995): 172–5.

- Vianello Cordova, A. P. 1968. Una tomba protovillanoviana a Veio. *Studi Etruschi*: 295–306.
- Vitali, D. (ed.). 1983. *Monterenzio e la valle dell'Idice: Archeologia e storia di un territorio*. (Catalogo della Mostra). Monterenzio: Casa di Cultura.
1985. Ripostiglio di San Francesco. In Cristofani, M. (ed.), *Civiltà degli Etruschi*. Milan: Electa, 73–5.
- Vitali, D., Brizzolara, A. M. & Lippolis, E. 2001. *L'acropoli della città etrusca di Marzabotto*. (Università di Bologna, Dipartimento di Archeologia 18). Imola: University Press Bologna.
- Von Hase, F. 1979. Zur Interpretation villanovazeitlicher und frühetruskischer Funder in Griechenland um der Agais. *Kleine Schriften aus dem Vorgeschichtlichen Seminar Marburg* 5: 62–99.
- von Thünen, J. H. 1826. *Der isolierte staat in beziehung auf landwirthschaft und nationalökonomie, oder, Untersuchungen über den einfluss, den die getreidepreise, der reichthum des bodens und die abgaben auf den ackerbau ausüben*. Hamburg: F. Perthes.
- Voss, O. 1988. The iron production in Populonia. *PACT. Journal of the European Study Group on Physical, Chemical, Biological and Mathematical Techniques Applied to Archaeology* 21: 91–100.
- Wagstaff, J. M. 1987. *Landscape and Culture: Geographical and Archaeological Perspectives*. Oxford: Basil Blackwell.
- Walker, L. 1985a. The site at Doganella, in the Albegna valley: spatial patterns in an Etruscan landscape. In Malone, C. & Stoddart, S. (eds.), *Papers in Italian Archaeology IV*, part 3: *Patterns in Protohistory*. (British Archaeological Reports International Series, 245). Oxford: British Archaeological Reports, 243–54.
- 1985b. Un esperimento di ricognizione urbana. In Carandini, A. (ed.), *La romanizzazione dell'Etruria: Il territorio di Vulci*. (Catalogo della Mostra). Milano: Electa, 114–15.
1986. Survey of a settlement: a strategy for the Etruscan site at Doganella in the Albegna valley. In Haselgrove, C., Millett, M. & Smith, I. (eds.), *Archaeology from the Ploughsoil*. Sheffield: Department of Archaeology and Prehistory, University of Sheffield, 87–94.
- Walsh, K., Berger, J.-F., Roberts, N., Vanniere, B., Ghilardi, M., Brown, A. G., Woodbridge, J., Lespez, L., Estrany, J., Glais, A., Palmisano, A., Finné, M. & Verstraeten, G. 2019. Holocene demographic fluctuations, climate and erosion in the Mediterranean: A meta data-analysis. *The Holocene* 29 (5): 864–85.
- Ward-Perkins, J. B. 1955. Notes on southern Etruria and the Ager Veientanus. *Papers of the British School at Rome* 23: 44–72.
1959. Excavations beside the north-west gate at Veii, 1957–58. *Papers of the British School at Rome* 27: 38–79.
1961. Veii: The historical topography of the ancient city. *Papers of the British School at Rome* 29: 1–123.
- Warden, P. G. 1984. The colline metallifere: prolegomena to the study of mineral exploitation in central Italy. In Hackens, T., Holloway, N. D. & Holloway, R. R. (eds.), *Papers Delivered at the International Conference on the Archaeology of Early Italy, Haffenreffer Museum Brown University, 8–10 May 1981: Crossroads of the Mediterranean*. Providence, RI–Louvain-la-Neuve: Brown University – Institut Supérieur d'Archéologie et d'Histoire de l'Art Collège Erasme, 349–64.
1985. Bronzi e ferri. In Stopponi, S. (ed.), *Case e palazzi d'Etruria*. (Catalogo della Mostra). Milan: Electa, 88–9.

- Wells, P. S. 1984. *Farms, Villages and Cities: Commerce and Urban Origins in Late Prehistoric Europe*. London: Cornell University Press.
- Wells, P. S., Rebay-Salisbury, K. & Haselgrove, C. (eds.). 2018. *The Oxford Handbook of the European Iron Age*. Oxford: Oxford University Press.
- Wetter, E. 1969. Ricerche topografiche nei territori circostanti Acqua Rossa. *Opuscula Romana* 1969: 109–36.
- Whitcher Kansa, S. & MacKinnon, M. 2014. Etruscan economics: forty-five years of faunal remains from Poggio Civitate. *Etruscan Studies* 17 (1): 63–87.
- Whitehead, J. K. 1994. Survey and excavations of the Etruscan foundation, 1989–1991: La Piana, Mocali and Ripostena. *Etruscan Studies* 1: 123–50.
- Whitley, J. 1991. *Style and Society Dark Age Greece: The Changing Face of a Pre-literate Society 1100–700 BC*. Cambridge: Cambridge University Press.
2001. *The Archaeology of Ancient Greece*. Cambridge: Cambridge University Press.
- Wickham, C. 1988. *The Mountains and the City: The Tuscan Appennines in the Early Middle Ages*. Oxford: Clarendon Press.
- Wikander, Ö. 1986. Acquarossa. Vol. 6. The Roof-tiles. Part 1. Catalogue and architectural context. *Skrifter Utgivna av Svenska Institutet i Rom* 38 (6): 13–285.
- Wikander, Ö. & Roos, P. (eds.). 1986. *Architettura etrusca nel Viterbese: Ricerche svedesi a San Giovenale e Acquarossa 1956–1986*. (Catalogo della Mostra). Rome: De Luca.
- Wilson, J. P. 1997. The nature of Greek overseas settlements in the Archaic period: Emporion or Apoikia? In Mitchell, L. G. & Rhodes, P. J. (eds.), *The Development of the Polis in Archaic Greece*. London: Routledge, 199–207.
- Witcher, R. & Craven, M. 2012. ‘Much has long been hidden ...’: reconstructing the survey methodology. In Patterson, H., Cascino, R. & di Giuseppe, H. (eds.), *Veii: The Historical Topography of the Ancient City. A Restudy of John Ward-Perkins’s Survey*. London: British School at Rome, 9–24.
- Wright, H. T. 1977. Recent research on the origin of the State. *Annual Reviews in Anthropology* 6: 379–97.
- Wright, H. T. & Johnson, G. A. 1975. Population, exchange and early state formation in south-western Iran. *American Anthropologist* 77: 267–89.
- Zanini, A. 1994. L’età del bronzo finale nella Toscana interna alla luce delle più recenti acquisizioni. *Rivista di Scienze preistoriche* 46 (1): 87–144.
1995. La necropoli del Bronzo finale di Sticciano Scalo (GR). *Studi Etruschi* 60: 3–45.
1999. Rapporti fra Veneto ed Area Medio-Tirrenica nel bronzo finale: nuovi contributi per la definizione del problema. *Protostoria e Storia del ‘Venetorum Angelus’*. Atti del XX Convegno di studi etruschi ed italici (Portogruaro – Quarto d’Altino, Este, Adria, 16–19 ottobre 1996). Pisa: Istituti Editoriali e Poligrafici Internazionale, 307–25.
2000. L’abitato de ‘I Forti’ a Chiusi (SI): un centro artigianale protostorico dell’Etruria Interna. *Padusa* 36: 111–19.
- Zei, M. 1967. Notiziario. Parrano (Provincia di Terni). *Rivista di Scienze Preistoriche* 12 (2): 444–5.
- Zifferero, A. 1985. Il periodo etrusco. *Archeologia Medievale* 12 (520–524).
1990. Città e campagna in Etruria meridionale: indagine nell’entroterra di Caere. In Maffei, A. & Nastasi, F. (eds.), *Caere e il suo territorio da Agylla a Centumcellae*. Rome: Libreria dello Stato, 60–70.

1991. Miniere e metallurgia in Etruria meridionale: per una lettura critica di alcuni dati archeologici e minerari. *Studi Etruschi* 57: 201–41.
- 2002a. Attività estrattive e metallurgiche nell'area tirrenica. Alcune osservazioni sui rapporti tra Etruria e Sardegna. In Paoletti, O. & Tamagno Perna, L. (eds.), *Etruria e Sardegna centro-settentrionale tra l'età del bronzo finale e l'arcaismo*. Atti del XXI Convegno di Studi etruschi ed italici: Sassari–Alghero–Oristano–Torralba, 13–17 ottobre 1998. Pisa–Rome: Istituto Editoriali e Poligrafici Internazionali, 179–212.
- 2002b. The geography of ritual landscapes in complex societies. In Attema, P., Burgers, G.-J., van Joolen, E., van Leusen, M. & Mater, B. (eds.), *New Developments in Italian Landscape Archaeology*. Oxford: British Archaeological Reports, 246–65.
2006. Confini e luoghi di culto nel suburbio e nell'agro populoniese: un contributo alla ricerca. In Aprosio, M. & Mascione, C. (eds.), *Materiali per Populonia* 5. Pisa: Edizioni ETS, 391–428.
2010. Nuovi dati dall'agro vulcente: il Progetto Marsiliana d'Albegna (2002–2009). New data from the territory of Vulci: the Marsiliana d'Albegna Project (2002–2009). *Archeologia Uomo Territorio* 29: 1–44.
- Zifferero, A., Pieragnoli, G., Sanchirico, C. & Tofani, G. 2009. Un sito artigianale con anfore da trasporto tipo Py 3B a Marsiliana d'Albegna (Manciano, GR). *Officina Etruscologia. Semestrale d'Archeologia (I Mestieri del Fuoco)* 1: 101–26.
- Zipf, G. K. 1949. *Human Behaviour and the Principle of Least Effort*. Cambridge, MA: Addison-Wesley.

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View of Orvieto from the West. Simon Stoddart. c. 1990