CHAPTER 2

 PATTERNS AND PROCESSES

1 INTRODUCTION

The archaeological themes investigated in this thesis are to a large extent those of the individual projects I have been part of since 1994. The nature of changes in settlement and land use patterns spanning the Iron Age / Roman transition in an outlying part of Britain has been the subject of the Wroxeter Hinterland project; the comparison, from the late Bronze Age to the Roman Empire, of long-term processes of centralization, urbanization, and colonization in the three Italian regions of the Pontino, the Salento Isthmus, and the Sibaritide has been the aim of the Regional Pathways to Complexity project.

Such aims require the careful definition and detailed description of the core concepts and processes involved, of the available general explanatory frameworks for socio-political change, and a justification of the chosen methodology to approach this aim. The interpretation of the available archaeological and historical evidence in terms of processes of centralization, urbanization, and colonization (Hellenization, Romanization) taking place in ancient Italian societies must rely heavily on appropriate middle range theory – the theory concerning the cultural transformations and formation processes giving rise to the archaeological record. Our methods of collecting and interpreting the raw data themselves must be studied in order to assess the tendency of the methodology employed both by us and by previous researchers to produce spurious patterns in those data; we cannot avoid taking this step if we want to feel secure in our interpretations.

The current chapter is therefore devoted to a review of the concepts, theories, and methods employed later on in the case studies. A crucial part of the theoretical discussion also concerns the basis for interregional comparison. What makes us think that the historical trajectories of the three study regions can be compared at all? If we feel they can profitably be compared, what yardsticks are we going to use?

2 REGIONAL SETTLEMENT DYNAMICS

A review of the current consensus among Anglophone researchers regarding the settlement dynamics of the three study regions provides the basis for a discussion of the core concepts and terms being used to describe and understand the presumptive societal processes operating in 1st Millennium BC. We begin with a brief chronological review of the main settlement dynamics in the three study areas. In a second section, the interrelating concepts and processes central to the RPC project are reviewed; this is followed by a consideration of the continued significance of the traditional concepts of ‘Hellenization’ and ‘Romanization’.
2.1 SETTLEMENT DYNAMICS OF THE STUDY AREAS

THE PONTINE REGION

The study area of the Pontine Region Project is located about 60 km south of Rome and comprises part of the volcanic landscape of the Alban Hills, the limestone range of the Monti Lepini and the coastal plain of the Agro Pontino bordering on the Tyrrhenian sea. Surveys in this area focus on the 1st millennium BC (Latial protohistory and Roman Republican period), though the Bronze Age and the Imperial period are considered as well. In the first five years of the project (1987-1993) research mainly focused on the pre-Roman landscape. In addition to extensive transect surveys and environmental research, three protohistoric settlement areas were intensively surveyed. In a follow-up program (1994-1997) the impact of early Roman colonization on the protohistoric landscape was investigated in three sample areas. The final publication for this is in preparation. The research of the PRP was carried out in close collaboration with the Latial Pottery Research Group and the Satricum excavation team, both at the GIA.

The Tyrrhenian coast of central Italy is generally believed to be the area where the earliest urbanization within Italy took place. Settlements begin to nucleate during the final Bronze Age and early Iron Age, with differentiation in grave goods indicating the growth of social hierarchies (Peroni 1994: 221-5). At this early stage, the settlements are ‘proto-urban’ in the sense that many will later develop into urban settlements and the cores of early states. Attema (1993:217) suggests that Satricum and Caracupa in the Pontine region began their existence in the early Iron Age as gathering places with cultic and territorial marker functions for transhumant groups claiming rights in the winter pastures of the Pontine plain, and

![Figure 1 – The Pontine Region, with indication of the main surveys and excavations which had been undertaken by the Groningen Institute of Archaeology before the start of the RPC project.](image-url)
only later developed into settlements. In this scenario, urbanization in south Lazio only began in the 8th century BC and culminated with the large Archaic centers of the 6th century. Urbanization and large scale trade in agricultural products developing in the Archaic period are preceded by an approximately threefold population growth during the Orientalizing period (7th century BC), allowing Etruscan settlements to be classified into a hierarchy of types (Perkins 1999:104-6).

The term ‘colonialism’ may under some circumstances be interpreted as indicating a conscious movement, a policy. The early (5th and 4th century) colonies in southern Latium may have been part of such a strategic movement on the part of the early Roman state, aiming to secure the disputed borderlands of Latium Vetus, and was certainly represented by later writers (esp. Livy) as such. The strategic value of a colony was expressed with admirable clarity by Machiavelli in The Prince (translation Bondanelli 1984:10)

“The other and better solution [to securing new territory] is to send colonies into one or two places that will act as supports for your own state (…) Colonies do not cost much, and with little or no expense a prince can send and maintain them; and in doing so be hurts only those whose fields and houses have been taken and given to the new inhabitants, who are only a small part of that state; and those that be hurts, being dispersed and poor, can never be a threat to him, and all others remain on the one hand unharmed (and because of this, they should remain silent), and on the other afraid of making a mistake, for fear that what happened to those who were dispossessed might happen to them.”

But Livy may have been telescoping events that took place almost two centuries apart, and we should not discount the possibility that the reality of the earliest Romanization of Latium Vetus was much more haphazard and unplanned, and contingent on historical circumstances than he suggests. In contrast, Roman colonies established in the later 4th century BC appear to have been more systematic and “urban” ventures. According to Attema (1993:13) they expressed a territorial organization totally different from the Archaic patterns of settlement and land use, involving such structural innovations as the putting into place of a system of rural villas for olive culture on the Lepine footslopes, centuriation of agricultural land near Terracina, and drainage and road-building (the Via Appia through the Pontine marshes). Olive culture requires a large investment in establishing plantations, but perhaps the villages could exploit an existing (less intensive) agricultural system by the Archaic and post-Archaic Latial peoples. These colonial towns must each have had rights over parts of the Lepine upland and the Pontine plain, up to the Via Appia or even beyond, possibly even including fishing and fowling rights in the coastal environment. But, since recent intensive surveys in marginal landscape units within the Pontine region indicate that a large measure of settlement continuity may have been present between the Archaic and Republican periods (see chapters 9 and 10), the impact of 4th century colonization may have been restricted to selected ‘core’ parts of the region. Especially strategic locations on the Lepine margin.

In this scenario, two temporal gaps remain to be accounted for. Firstly, what happened in between the historical establishment of the colonies around 500 BC and their first archaeological appearance around the middle of the 4th century BC? And secondly, why was the apparent establishment of systematic olive culture in the Lepine margins delayed for more than a century after the 4th century colonization? There is no archaeological evidence for the presence of Roman colonists in this region in the Archaic or post-Archaic periods. It appears that the early process of colonization by Rome was either largely unplanned and long drawn-out, or it ran into unexpected difficulties and was discontinued. However, recent field surveys indicate that a densely settled Archaic (and, less clearly, post-Archaic) landscape existed in at least

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1 In view of the new radiocarbon dates and improved understanding of site formation processes at these sites, this process must be dated some 50 – 100 years earlier.

2 Pollen evidence indicates that olive culture on a substantive scale began in the 3rd century BC in this region (Haagsma, in Attema 1993).
two ‘marginal’ parts of the Pontine region, with no evidence for the displacement of this indigenous population by Romans in the later 3rd century BC (chapters 9 and 10).

Judging from the urban architectural remains at Setia (Sezze) and the late 4th century infill of its immediate rural surroundings (ager), Roman colonization here took place as much as two centuries earlier than in the coastal landscape near the Fogliano lagoon. Clearly, if there was a planned or sustained Roman policy of agricultural colonization in the 4th century BC, it extended only over limited and specific areas. If aerial photographic indications for a 4th century centuriation of the central part of the Pontine graben between Sezze and Terracina, predating the construction of the Via Appia about 326 BC, are correct (Cancellieri 1990), then the area colonized would have mostly consisted of previously marginal land – the macchia of pre-Roman Setia. Agricultural production in the Pontine region became less important to the expanding Roman empire after 200 BC anyway, and there are indications that the coastal area may at that time have specialized in fish farming for the market at Rome (Attema et al. 2001).

Later instances of colonization by Rome took place at a much greater pace and left abrupt changes in the archaeological record; it is generally believed that, once the expanding Roman Republic had acquired sufficient experience from its earlier attempts at colonization, it was capable of planning and executing a rapid colonization policy ‘package’. But even then, local circumstances would influence the speed and success of the process. In the case of Wroxeter, after a very brief military phase in the middle of the 1st century AD, local elites were co-opted into the political and administrative structures of the Roman state such that the processes of centralization, urbanization and romanization were essentially complete within the next 25 years (chapter 3).

THE SALENTO ISTHMUS

Research in the Salento Isthmus (in the heel of Italy) was started in 1981 by Prof. Dr. Joh. Boersma and Dr. D.G. Yntema of the AIVU, in close collaboration with the Scuola di Specializzazione in Archeologia Classica e Medievale of the University of Lecce. Its aim was to elucidate the development of regional settlement patterns in the Brindisi region in the context of the integration of native society into the Roman world. AIVU surveys have covered a total area of some 90 square km, incorporating various environmental zones. Between 1981 and 1983 surveys were concentrated on an area of circa 63 square km around the town of Oria, the roots of which go back to well within the Bronze Age. In 1989 and 1990 another team conducted a field survey in an 18 square km large transect between the Adriatic and the ancient fortified site of Valesio. The AIVU has been engaged in a complete survey and partial excavation of its walled area since 1984; this being the first systematic urban survey in the area.

In 1991 the Brindisino research was extended to include the Taranto plain, and renamed the Salento Isthmus Project, under the direction of Drs. Gert-Jan Burgers and subsidized by NWO. Four complex settlement areas and their surroundings were incorporated into the regional survey project - Muro Tenente, Muro Maurizio, Li Castelli di San Pancrazio, and Cellino San Marco. Through intensive total coverage surveys of these more or less urban settlements their chronology, extent, lay-out, occupational density and nature was studied. From 1993 onwards the AIVU has been engaged in large scale excavations at Muro Tenente.
In the Late Bronze Age (14<sup>th</sup>-12<sup>th</sup> centuries BC) of the Salento peninsula, a preference for coastal locations is suggested by the presence of large enclosed promontory settlements such as the one at Masseria Risieddi (see chapter 11). These settlements are thought to be located here for easy participation in overseas communication networks (D’Andria 1991:403). On the basis of the lack of finds in surveys conducted by the AIVU, and the predominantly coastal location of the known sites of the FBA and Early Iron Age (11<sup>th</sup>-9<sup>th</sup> centuries BC), Burgers concludes that the pattern of a relatively empty inland Salento landscape continued (1998:173), although some inland sites are known from this period (Oria and Monte Salete).

The question of continuity or discontinuity in settlement dynamics at the end of the Late Bronze Age and the beginning of the FBA has been a subject of intense debate. Some have emphasized a continuous process of increasing complexity (notably Peroni 1979), while others insist on radical cultural disruption and a subsequent invasion of tribal elements from Illyria, typified by violent destruction, abandonment or restructuring of Late Bronze Age settlements (De Juliis 1988: 9-19). Still others recognize a relative continuity in interregional networks, emphasizing instead the collapse of overseas exchange with the Mycenaean world which could have been the cause of a decreasing complexity of society in general (Yntema 1990:38-39, Yntema 1993:154). Coastal communities at this time ‘were probably autarchic, while the inland may have been exploited for extensive pastoralism, if at all’ (Burgers 1998:174 and note 95).

In the Iron Age (9<sup>th</sup> and 8<sup>th</sup> centuries BC), native communities were ‘engaged … in settlement expansion, territorial reorganization, demographic growth, increasing rural use of the interior of Salento, and overseas contacts’ in order to ‘enhance internal power positions’ (Burgers 1998:296). Demographic growth and influx from the Balkan area are thought to have driven a strong development of the village system and a gradual occupation of all available agricultural land in southern Puglia (D’Andria 1998:108). This crystallization of a settlement system developing since the 9<sup>th</sup> century BC was interrupted on the western side of the Isthmus at the start of the 7<sup>th</sup> century by the establishment of the colony of Taras which carved out its chora. The origins of the early Hellenistic fortified sites in the Brindisi region and the larger Salento peninsula could still be traced by Burgers (1998:293-6) to the Iron Age, because ‘the earliest diagnostic artefacts found are Iron Age matt-painted ceramics’. The founding of these settlements is thought to be an expression of a larger gradual process of landscape reorganization, accelerating from the late 8<sup>th</sup> century BC to include the interior of the peninsula and other outlying regions such as the area around Ostuni (chapter 11). By the 6<sup>th</sup> century BC a two-level hierarchy (or, following Semeraro...
had come into existence, with three large towns (Oria, Cavallino, and Ugento) surrounded by a larger number of small villages.

Urban features, such as the growth in size of single dominant settlements, social and economic hierarchies, and the construction of monumental buildings, were all appearing in southern Italy between the 6th and the early 4th century BC, a process of urbanization which accelerated in the early Hellenistic period (later 4th and 3rd centuries; Lomas 1993, Burgers 1998:293). A settlement system emerged that was dominated by a series of fortified towns. In the later Hellenistic period this system disintegrated as the region became increasingly involved in supra-regional conflicts. Integration of the Salento into the expanding Roman state started with the defeat of the Tarentine/Messapian allies in the first half of the 3rd century BC, and was spearheaded by the colony of Brundisium (founded 245 BC). 3rd Century wars, and especially the 2nd Punic war, resulted in massive disruption of the old native/Greek culture, but recent research indicates that it was not everywhere replaced by an exploitative large-scale colonial economy – instead, differences can be attested within the region (Burgers 1998:30-31). For the native elites of the Salento Isthmus, close association with the Roman state and way of life became the means to further oneself. Towns away from the central axis of the Via Appia decline, while Brundisium becomes the focus of Roman and native surplus production. The increased market orientation in the production of olive oil and wine caused rationalization and concentration of farm labor both locally and, regionally, near the Via Appia (Burgers 1998:303-7).

THE SIBARITIDE

The Sibaritide, consisting of a coastal flat and its surrounding hills, has been the subject of research by the GIA since 1990. The main object of study has been a system of Bronze Age hilltop sites, one of which, near the town of Francavilla Marittima, consists of a low hill called 'Timpone Motta' with a sanctuary on top and settlements of huts and houses on three lower 'plateaus'. It also includes the general catchment of this hill and connected areas such as the adjacent Iron Age Macchiabate necropolis, part of which was excavated in the 1960s by Paola Zancani-Montuoro. Following a 20 year gap, the project was revived by M. Kleibrink with test campaigns in 1990/91 in order to research the problem of native Enotrian versus Greek settlement and colonization activities - particularly the relationship with the nearby Greek colony of Sybaris. This new research brought to light a number of huts from the Middle Bronze Age and early Iron Age, as well as a 8th - 7th century cult activity area and a 6th century 'colonial' village on the lower slopes of the Timpone Motta (Maaskant Kleibrink 1993; for recent publications containing further references, see Kleibrink 2000 and Kleibrink & Sangineto 1999).

The recent mapping and discussion of pre- and protohistoric settlement in northern Calabria by Peroni and Trucco (1994) has served to modify the old 'textbook' view of a largely pastoral society in the Apennine period (Puglisi 1959). One set of more elevated settlements, situated on calcareous outcrops and connected most likely with specialized transhumant pastoralism since they lie along routes still used today to reach the higher mountain ranges, is now thought to have been "under the control" of another set of larger, lower-lying settlements. Following Barker (1985), Peroni points to the spread of dry farming in the Middle Bronze Age period in the higher valleys as the causative factor for the development of this latter set. Because many of its settlements are situated on old fluvio-marine terraces, consisting of conglomerate and/or sand, Peroni could plausibly argue that settled Middle Bronze Age society preferred well

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3 Peroni proposed the following chronology for the Bronze Age and early Iron Age: Middle Bronze Age 1600 – 1300 (300 years), Recent Bronze Age 1300 – 1150 (150 years), Final Bronze Age 1150 – 900 (250 years), and Early Iron Age 900 – 700 (200 years).

4 This is an unfortunate turn of phrase in my view, which is also used by other authors. A more neutral expression would be: “are part of the same system as”.
defensible hills and terraces on which to practice dry farming of cereals and vegetables (Peroni & Trucco 1994:37). In the excavations at Broglio di Trebisacce Peroni saw signs of increasing demographic pressure in the course of the protohistoric period. The presence, in the Broglio excavations, of Mycenaean wares dating to the 15th – 12th centuries BC has been seen as an indication that Greek potters were present in the Sibaritide at that time, which would argue for an early hierarchization of indigenous society, in which elites maintain long-distance contacts and channel tribal surpluses into the acquisition of prestige goods. In the Late Bronze Age, Torre Mordillo became a major settlement with a defensive wall (agger) encircling the highest plateau (Arancio et al. 1994), Late Bronze Age layers at Torre Mordillo, Broglio and Francavilla Marittima contain Italo-Grey ware of different fabric qualities indicating local ceramic production, and evidence for wider use and cultivation of the olive tree (Peroni & Trucco 1994:45). This evidence for Late Bronze Age exchange of objects and technology indicates that overseas contacts with the Aegean must have been frequent (Peroni 1994:24) and presumably profitable for both sides. The Late Bronze Age in the central Mediterranean is therefore seen as ‘a clear case of expansion of people, technology, ideas and products’ (Kleibrink forthcoming par. 3.2), with autonomous settlements occupying all viable river-delimited territories in the Sibaritide, and powerful leaders controlling the means of production and redistribution (idem, par. 3.6/7).

As in the Salento, overseas and possibly supra-regional contacts broke down during the FBA, but the settlement system continued to crystallize. The occurrence of pairs of defensible hilltop sites of unequal size and agricultural potential has been interpreted by Peroni in terms of a defensive strategy, with the smaller and higher of the pair having little agricultural potential and a role in defending the lower settlement and its agricultural riches in which a large section of the population would have lived. One example of such a pair, brought to light by surveys, is the following:
1. **Monte San Nicola**, a site overlooking both the Raganello valley and the Sibari plain, at about 500 m asl. Potsherds were found here on a plateau of circa 1 ha; the encircling terraces lower down are much larger and together form an area fit for cultivation of circa 25 ha (Peroni & Trucco 1994, no 31).

2. **Monte Spirito Santo**, a site situated about 1 km northwest of Monte San Nicola at an elevation of circa 510 m asl; it is located on a much smaller plateau and without a view over the plain. The site is connected with the steep slopes of the Raganello near Civitá and on its southern end with similar steep terraces of the Eiano (Peroni & Trucco 1994, no 30).

By the beginning of the Late Iron Age, the two most important settlements in the Sibaritide appear to have been located at Torre Mordillo and at Francavilla Marittima, and it is thought that these were respectively the economic and cultic centers of the region.

Large sections of the coastal landscape may have been of marginal significance to the indigenous tribal societies, so that the establishment in the late 8th century BC of a Greek trading emporium which later evolved into a colony need not be seen in terms of conflicting interests at all. The earliest indications of classical ‘colonial’ influence in the Sibaritide are the Aegaeon style temples built on the Timpone della Motta presumably with the active help of early Greek traders (Kleibrink, in Attema et al. 1998:127), but it is only in the mid-7th century that Greek colonists would finally claim the sanctuary as theirs by rebuilding it in a fully Greek style. From about 640 BC, Greek and colonial pottery became the dominant gift both at the cult center on the Timpone della Motta of Francavilla Marittima and in grave inventories of the nearby Macchiabate necropolis. It is noteworthy that the first indications for the rural spreading of Greek pottery out into the Sibaritide foothills date to the 6th and 5th centuries BC, making it likely that the chora of Sybaris did not yet extend beyond the coastal plain around 600 BC (see chapter 12). If Kleibrink is correct in dating the latest rich burials at Macchiabate to the first decades of the 6th century, then we may suppose that the local elite by that time found it opportune to relocate themselves to Sybaris – a sign that the nearest indigenous polities of the foothills were rapidly being absorbed by the colony by then.

Historical sources claim that Sybaris, in its (6th century) heyday, ruled over four tribes and 25 towns (Strabo VI, 1, 13). Certainly it was instrumental in founding a further colony as far away as Metapontion, and dominating others as far away as Laos on the opposite coast of the Calabrian peninsula. By the middle of the 6th century BC the town shows an enormous expansion from Stombi to the outer walls, and regular plan buildings must have appeared as at Amendolara and elsewhere. Pottery production became standardized. For example, there is no difference between the local soft ware productions at Sibari, Amendolara and Francavilla (Attema et al. 1997/98) and, whilst the 7th century BC matt-painted tradition at Francavilla still showed a peculiar and original development, the 6th century BC brings standardization in both architecture and pottery. By then, over one century of acculturation between natives and Greeks must have created a new social structure in which Sybaris (and later Thurioi) became the regional urban administrative and economic center for an expanding rural hinterland of villages and isolated farms with associated rural sanctuaries and cemeteries. While the settlement history of the plain must remain largely unknown because of later substantial alluviation, surveys indicate that farmsteads began to appear in the foothills, some 15 km away from the urban center itself, sometime in the 6th or 5th century. Clear evidence for settlement expansion in the foothills becomes available only with late 4th century Hellenistic fine wares; by the 3rd century, isolated Hellenistic farms even occur far into the highlands at elevations up to 1000 m asl.

It would appear that the inhabitants of the Timpone della Motta managed to adapt to the presence of the powerful Greek colony without losing their social structure. The site was only finally abandoned in the 5th century BC, possibly because it lost its function as an extra-urban sanctuary when Sybaris was destroyed by the Crotonides in 510 BC. Since its pan-Hellenic successor colony Thurioi was not established until 443 BC, and surveys have barely been able to identify any material from this period, something of a ‘dark age’ lurks between the late 6th century BC and the onset of the Hellenistic rural expansion phase in the late 4th century BC.

As around Poseidonia, and unlike the Metapontino where the process happened already in the 6th century, a major increase in settlement density appears to occur in the Sibaritide only in the late 4th century.
BC. De Neef (1998:105, 110) suggests that this may in part be related to the marshy nature of both plains, the large scale drainage of which would only have been possible in the 4th century, but it seems equally likely that the rural colonization of the chora of Sybaris had already begun in the 6th century but was interrupted by the conflict with Croton before it had time to reach the archaeologically visible foothill zone. Large-scale drainage of the plain in the 4th century, directed from Thurioi, could still be invoked as an early phase in the Hellenistic colonization process, leading to a late 4th century rural expansion into the foothills and explaining the preponderance of Greek material culture from that period and area (see also chapter 12).

Historians report that, during the 4th century BC, there was constant warfare with the Lucanians and Bruttians, and Thurioi became a voluntary Roman dependency. Like the Salento, it then became involved in the 3rd century struggles of the Romans against Pyrrhus and Hannibal and their Italian allies. After the 2nd Punic war the Romans attempted to revive the town by replanting it as the colony of Copiai in 194 BC, but according to the ancient historians it was not successful and quickly dwindled to insignificance (Appianus, BGiv. 5.56). Even less is known of a second Roman colony at Interamnium, depicted on the Peutinger Map and identified with the modern town of Castrovillari on the upper Coscile.

2.2  CORE CONCEPTS AND TERMS

It is obvious that the three processes of Centralization, Urbanization and Colonization cannot be seen as wholly independent of each other. Centralization and urbanization are two ways in which early societies can become more complex; colonization comes into play at a later stage when societal structures become organized at a wider (interregional) scale, and bring other forms of urbanism. However, the terms centralization, urbanization, and colonization have been used to encompass such a wide and ill-defined range of processes, that they can not provide a reliable basis for comparing regional histories. For example, Burgers (RPC in prep.) regards pre-Roman urbanization as part of a supra-regional process of social differentiation involving most of the Mediterranean basin and affecting all of the landscape including ‘marginal’ areas. Perhaps wisely, therefore, Attema (1993:17) did not even attempt to provide a formal definition of urbanization in his discussion of the settlement history of the Pontine region.

Neither, in my opinion, can 'urbanization' or 'colonization' be regarded as neutral concepts. Urbanization and urbanism play a central role in the expansion of the Greek colonial and, later, Roman polities in Italy, because the town was the focus of the classical conceptual landscape (Laurence 1994:139). Both the later Greek colonists in Magna Graecia and the expanding Roman state were possessed of a mindset in which the town was the center of life – and colonization would, ipso facto, have meant urbanization. To accept the classical definition of urbanism is therefore tantamount to accepting a teleological view of history, in which the historical urban forms of classical Greek and Roman society represent the ideal or standard by which archaeological reality is measured. Such a view ignores the potentially different evolution of indigenous settlement systems. Similar objections may be raised with regard to the use of the term 'colonization', which is colored not just by its origins in and treatment by the ancient historians but also by 19th century western colonialism seeking justification of its 'civilizing' activities elsewhere, and assumes that there is a fundamental inequality between the external colonizing party and the indigenous 'receiving' party. To describe the 1000 years of history of settlement and land use in the study regions in these terms is therefore to invite a 'classicist' bias.

These issues have recently become part of a wider ‘revisionist’ trend regarding the role of the Greeks and Romans in initiating and dominating ‘civilizing’ processes in early historic central and southern Italy. For instance, regarding the relation between colonization and urbanization, opinions expressed in the recent literature range from McIntosh’s (1991) “urbanization was a development initiated by the colonizing Greeks” to Van Dommelen’s (1997, 1998) “indigenous urbanization was, in some instances, influenced by colonists”. However, most importantly, we should not expect any of the three processes to lead to

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5 In my view, this identification is incorrect; see my argument in chapter 12, note 9.
uniform results irrespective of the time, place, and local history of the study area. Attema, Burgers, Kleibrink and Yntema (1998:131), in their presentation of case studies introducing the RPC project, noted:

> “[b]ow] important the indigenous perspective is in the study of centralization, early urbanization and colonization processes in Central and Southern Italy, and bow regional cultures and landscapes underwent these processes at different points in time, in different ways, with different intensities and with different results. It is clear that the natural environment, technological level, subsistence and ideological strategies of the local populations and the degree of early external contacts and colonization movements were all important influences on internal regional developments.”

CENTRALISATION

The concept of centralization is applicable to societies from the tribal stage onwards, and thus plays a role in both the protohistoric and the early historic periods. ‘Centralization’ in the context of such early societies may be defined as the process by which societal functions, and the power and control derived from them, become geographically concentrated at a small number of locations and, socially, in a small number of individuals. Since it is such an all-encompassing concept, archaeological evidence for centralization may be derived in almost any context, from evidence for social differentiation in cemeteries to evidence for the spatial concentration of settlement across a wide region. The latter type of evidence provides a direct link with the concept of urbanization, which may be viewed as a particular type of centralization. For example, to account for the lack of identifiable settlements in the Early and Middle Bronze Ages of both Greece and southern Italy, a system of shifting cultivation has been proposed for these periods; whereas the Late Bronze Age (Bronzo Recente, Bronzo Finale) saw the population move to live together in villages, each with its field system and associated manuring spread.

The development of centralized settlement during the later Bronze Age and early Iron Age (but beginning already in the Middle Bronze Age in some areas) cannot be explained by simple ‘external’ monocausal factors such as overseas contacts with a higher (Mycenean, Phoenician, Greek) civilization resulting in a core-periphery transfer. Not only would this by itself have been unlikely to cause such a fundamental shift in the organization of prehistoric societies, but dating evidence as well indicates that developments in Italy were not lagging (sufficiently) behind those in the eastern Mediterranean to allow for this kind of causation. Another factor which has been advanced to explain the development of centralized settlement is that of ‘defensibility’. In my view the significance of this should not be overstated; although it is true that Late Bronze Age centralized settlements occur in relatively defensible positions (e.g., ‘capes’ and hilltops), such locations also have other desirable qualities such as exposure to cooling breezes and large viewsheds. It is to be considered unlikely a priori that a society could experience (or survive) such a long period (3 to 5 centuries) of insecurity as to base its settlement structure on it.

One can imagine a competitive ‘big man’ or chiefdom society in which defense is needed from the ritualized raiding familiar from the Irish sagas… but in such a case the settlements should be interpreted in terms of strength – as strongholds expressing the wealth of a tribal unit and prowess of its leaders – rather than in terms of defense against attacks. In such a perspective, what could be the reason for Late Bronze Age settlements in the Salento peninsula to be located on the edge of the Murge rather than within it, as in the Early Iron Age? It is possible that the competitive structure based on pastoral wealth, which required territories composed of coastal as well as upland components, was gradually replaced by one in which agricultural wealth played a larger role. This could have been expressed in a progressive ‘carving up’ of the Murge upland zone into agro-territories centered on hilltop settlements; an idea supported by the more or less regular distances of circa 12 km separating Early Iron Age settlements in the Murge and other south Italian upland areas, as recently mapped by D’Andria (N.D., fig. 9; see also my chapter 11, fig 1).
A completely different type of argument about centralization stresses the effects of research and discovery biases, and suggests that the currently known settlements represent only the most obtrusive remains of a much more extensive and complex settlement system. Prospection and research has tended to focus on relatively easily discovered sites with substantial structural remains, even if these are of a later date, while equally large sites lacking such features and lying outside areas of interest remain undiscovered unless a systematic survey happens to hit on them (as with the several hectares of clearly visible Middle Bronze Age impasto discovered during the Ostuni 99 survey, chapter 11). If it is accepted that this effect plays an important role, then our whole frame of reference changes to one where we try to understand why the rank-size hierarchy of protohistoric settlement developed in the way it did.

URBANISATION

Definitions of the concept of ‘urbanization’ (the process) in the archaeological and human geographic literature abound. Many of these make no clear distinction with the related concept of ‘urbanism’ (the state). Since we are here concerned solely with the diachronic process of town formation (Formazione delle città), we will use with minor modification the definition given by McIntosh (1991:208): urbanization is ‘a process of regional transformation by which a rural landscape of undifferentiated villages and hamlets with homogeneous populations transforms into a settlement network in which an agricultural hinterland supports a few population agglomerations to which specialists are attracted.’

Note that this definition gives both quantitative (the number and size of agglomerations) and qualitative (the presence of specialists) characteristics by which to recognize the process of urbanization; in my discussion of methodology I will specify how these – and additional – characteristics are employed to model the dynamics of the settlement history in the three study regions. The process of urbanization is characterized by the growth of large(r) population centers, economic specialization, markets, and services; the state of urbanism is characterized by the physical presence of a town, of its symbols (towers, walls, temples), and of an urban hierarchy (plebs, skilled workers, and political/religious elites). The question of whether something is a town must be therefore be decided by the application of physical and social functional criteria (such as economic specialization, hierarchization, spatial differentiation, central market and religious function). The term ‘proto-urban’ has been widely used to designate nucleated settlements during the early stages of the urbanization process, when it may be expected that a candidate archaeological site does not meet all the criteria set out above. The related term ‘semi-urban’ has also been used to describe settlements that do not (clearly) meet a sufficient number of these criteria. Since such pre-urban settlements may exhibit a whole range of divergent forms (McIntosh 1991), no single set of characteristics can be given to define this concept with.

The use of the term ‘proto-urban’ carries two potential dangers. Firstly, with hindsight it is tempting to see processes of centralization and urbanization in proto- and early historic Italy as inevitable. There is thus a potential teleological element to the use of the term ‘proto-urban’, suggesting that urbanization is a natural progressive development for any society and that settlements that are not completely urban are in some sense ‘not there yet’ or even ‘failed’. We should instead use the term to indicate that no clear urban character could be established. Secondly, the term can be used to ‘demote’ native settlements which do not display the characteristics of Roman or Hellenistic urban forms (Lomas 1996:142); it is therefore important to guard against in-built Greek or Roman biases in the definition of what constitutes ‘urban’.

Of course urbanization is a form of centralization (both physical and social), and hence carries implications for the level of organization of a society. Since in true towns social organization is no longer exclusively based on kinship, early urbanization can only take place when societies are moving from a segmented, tribal structure to a hierarchical, early state (McIntosh 1991). Pre-Greek urbanization in the south, and pre-Roman urbanization in central Italy, would therefore indicate an indigenous development toward early states in a manner at least partly independent of external forces. A priori it is unlikely, for example, that (proto-) urban development in the Iron Age and the Archaic of south Lazio was restricted to Rome itself, although it may well have been limited to those coastal areas which had sufficient external contacts to generate wealth from trade.
COLONISATION

A widely used definition of colonialism by Prochaska (1990, quoted in Van Dommelen 1997:306) sees “the presence of one or more groups of foreign people in a region at some distance from their place of origin (the ‘colonizers’) and the existence of asymmetrical socio-economic relationships of domination or exploitation between the colonizing groups and the inhabitants of the colonized region” as its two fundamental characteristics. Note that the characteristic of asymmetry is here linked to a dominant role for the colonizers. Both the presence of ethnic foreigners and the asymmetry of economic relationships are very difficult to prove as long as all arguments are based on the material culture of the colonizer rather than that of the native population. The dominant role of the colonizer, at least in the early stages of the process, appears to be more of an assumption than an argument based in fact.

In contrast, the term ‘colonization’ has been used to describe a number of disparate processes occurring in different archaeological and historical contexts. When we speak of Greek and Roman ‘colonization’ of parts of central and southern Italy, we lump together processes ranging from the undirected ‘internal’ cultivation of previously uncultivated land to the plantation of colonists whose activities form an integral part of the economic and military strategies of the state. The historical process of colonization, by Greeks, Phoenicians, and Romans, has traditionally been a focus of interest and study within Mediterranean archaeology. Since it began to be studied at a time (the mid-19th century) when western powers were colonizing many other parts of the world, it was naturally seen from the colonizers’ perspective as a benign, civilizing process. For the same reason, the terms ‘colonialism’ and ‘colonization’ are often used with the implicit connotation of asymmetric power relations between the colonizer and colonized, with the connotation that the ‘native’ can only act within a space determined by the colonial power (Rowlands 1998:329); but there is no reason to assume such asymmetry in many actual instances of Greek and Roman colonization. Guzzo (1982), for example, argues that the Greek colonies of southern Italy were established in coastal areas that were only marginally exploited by the indigenous populations, whose settlement system had developed in the hilly hinterland. In the first years, contact with nearby indigenous people would have been crucial for the development of the incipient colony, while increased trade with and through the colony would cause the focus of the indigenous settlement pattern to shift gradually toward the colony in later decades and centuries.

Even if the asymmetric character of the colonial situation is without doubt, the indigenous party may perceive it as providing opportunities rather than posing restrictions. In an article on aspects of romanization in the hinterland of the Roman civitas capital at Wroxeter (Shropshire) for example, Roger White and I proposed a detailed model for the relatively smooth changeover from the decentralized pre-Roman Iron Age tribal society of the Cornovii to the urbanized Roman civitas (Van Leusen & White 1997; chapter 3). In this instance, the colonizer opened up political and economic possibilities previously inaccessible to a land-locked indigenous Cornovian society.

It appears likely that no single definition of either colonialism or colonization can be applicable across the three study regions and the five centuries between 800 and 300 BC, and the nature of both must therefore be defined separately for each instance. Within the context of the RPC project the goal has not been to define Greek and Roman colonization as such, but rather to gauge the influence of these processes on native development in the three Italian study regions. Were the Greek and Roman colonies and urban developments dominant forces in this development (creating center-periphery relations), or did they create equal polities integrated within indigenous society (creating peer polity interaction)? Herring, in his study of socio-political change in the south Italian Iron Age and Classical period (1991), argues for the existence of the latter up to, at least, the 6th century BC, while Whitehouse and Wilkins address the former in their review of the archaeological evidence for Greek - native relations in south-east Italy (1989). In general, it is easy to overemphasize the colonizers’ perspective, because of the near exclusive role of late classical authors in providing historical sources about the colonization process. Similarly, the highly identifiable remains of classical cult may have led De Polignac (1994, 1995) to put too much stress on the

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6 However, it has been pointed out (eg, by Carter 1993) that much of the archaeological proof for this kind of development is very sensitive to the dating and interpretation of archaeological remains.
use of ‘cult politics’ in claiming and securing colonial territory – more detailed investigation as at Francavilla Marittima (Kleibrink 1997:69) has highlighted weaknesses in his argument.

If the strategies of ancient colonizers were, at times, less coherent than previously imaged, then comparisons with early modern instances may be instructive. Attema (1999) suggests that a fruitful comparison may be made between some instances of early Greek and Roman colonization, and the 18th century colonization of Australia, where the presence of ‘debatable land’ – that is, land on which no clear ownership claims rested – allowed colonization by the English not because those lands were unused but because the natives’ and colonizers’ concepts of ownership differed too widely. A similar scenario may be invoked to model early (7th century BC) Greek colonization in southern Italy; there, the colonies and their initial agricultural base were established in a part of the landscape – alluvial deposits in the coastal plain – considered of marginal importance by the indigenous populations whose societies focused on the low hills and plateaus surrounding the plain (see chapter 12).

Another instructive comparison may be made with the early 16th and 17th century colonization of the North American east coast by Europeans, where colonists depended upon trade with the indigenous tribes for their survival. Native tribes had some decided advantages when it comes to living off the land:

“England’s attempts to establish colonies on the mainland in the sixteenth century failed completely. In the early seventeenth century, the English succeeded only because neighboring Indians assisted the newcomers. The English colonies prospered by learning to grow such unfamiliar crops as corn and tobacco and by developing extensive trading relations with Native Americans. … To achieve their first goal – feeding themselves – they had to adopt agricultural techniques suited both to the new crops and to an alien environment. Their second goal – maintaining lucrative trade networks – required them to deal regularly on a more or less equal basis with people who seemed very different from them and who were far more familiar with America than they were.” (Norton et al. 1991:2)

Obviously the historic instances of colonization by the Greek city states and by Rome did not take place in an environment that was very different from what the colonizers were used to at home, nor were communications with the homeland as difficult and time consuming, but one may still wonder (on the one hand) how much help the colonists needed before they could fend for themselves, and (on the other) how the relative freedom from the mother country might have afforded the colonists room for experimentation with the organization of society (Rowlands 1998:330).

In other instances the process of colonization proceeded along very different lines. For example, the Romans arrived in the Salento only after their military defeat of the Tarentines and their associates, while in Lazio they progressively dominated a pre-existing urban structure and established new colonies in strategic areas; a spontaneous process of urbanization during the Iron Age and Archaic became directed urbanization under the Romans.

Whereas traditionally ‘colonization’ has been a concept inextricably linked to the superior and civilizing role of Greeks and Romans in the indigenous societies of Italy, research over the last decades has made clear that the earliest phases of Greek and Roman presence in indigenous landscapes were characterized by unobtrusive and small contingents of trader/settlers (Burgers 1999, Yntema 1999). There is no reason to assume any kind of conflict existed between Greeks and natives of the Salento and Sibaritide at this stage, and no reason to assume that their role in society became preponderant until the late 7th century. But the Greeks arrived in a society which had already established a settlement system centering on large defended villages in the foothills by the Late Bronze Age, and the Romans took over a landscape already
substantially settled by the native Archaic Latial tribes. If ‘colonization’ is taken to signify the bringing into productive use of a previously wild landscape, these natives were the ones who colonized Italy, and who had established certainly by the late Iron Age a system of ‘proto-urban’ top-ranking settlements in places considered as marginal as the Salentine Murge.

The traditional view as, for example, formulated by Piero Guzzo and François de Polignac, denies this native (‘Oenotrian’) dynamic of settlement and land use. In Guzzo’s view the Greek colonies, all founded in coastal plains, led the Oenotrians to live in villages on the hilltops around, not the other way around (Guzzo 1983:14-151). In De Polignac’s view the Greeks founded sanctuaries along the border of their colonial territories to offer indigenous societies an opportunity to display wealth and influence, thereby civilizing them (De Polignac 1984). Any ‘native’ progression to urbanized life and organized cult in this view only emerged under Greek domination and coaching. The archaeological evidence, however, indicates that the indigenous society came under the domination of Sybaris only much later when, in the 6th century BC, the historically attested ‘imperium’ of Sybaris became fact (e.g., Greco 1996:236).

The driving force behind both the native and the Greek colonization of the coastal plains of southern Italy could well have been the same - demographic increase caused by the growing importance of agricultural and arboricultural land uses since the Late Bronze Age and the restoration of supra-regional contacts in the Early Iron Age, both of which led to a flowering of native elite-led redistributive societies organized as chiefdoms (De Neef 1998:101-105; cf. Crielaard 1999).

The odious (because supremacist) terms of 'hellenization' and 'romanization' can, as we have seen, be avoided in all this by the use of a neutral term such as 'acculturation'. While this begs the question of what, precisely, was the relative contribution of both sides to this process, it has the advantage of lacking an in-built pro-Greek or pro-Roman bias in the interpretation of the archaeological evidence.

3 TOWARDS INTERREGIONAL COMPARISON

The aim of the RPC project is to compare the settlement dynamics of the Pontine region, the Salento Isthmus, and the Sibaritide from late protohistory until the early Roman empire. I intend to approach this goal via a circuitous route, first discussing the theoretical basis for making such comparisons, then deriving a methodology from that, and lastly pointing forward to the case studies implementing them (chapter 13).

3.1 WHY, HOW AND WHAT TO COMPARE?

Before we begin our attempt to compare the settlement dynamics of the study regions, we need to establish a theoretical and methodological basis for such a comparison, answering the questions of why we think these regions can be compared at all; and, if they are comparable, of how to compare them. Implicit in both these questions is the definition of comparanda, that is, which are the things we will be comparing?

A starting point for answering the question of why the study regions should be comparable may be found in similarities and differences in their respective physical landscapes. To begin with what all the regions have in common, they all consist of coastal plains with a mountainous hinterland and transitional foothill zones; each of them is a self-contained physical geographical unit of sorts. In a general sense the regions are also similar because they are relatively close to each other – a well-known maxim in Geography says that ‘everything is related to everything else but, all things being equal, closer things are more strongly related to each other’. As to the differences between the regions, all three are situated on different coasts of
the Italian peninsula, although the Salento and Sibaritide are very much closer together and the Pontine region is both very near Rome, and beyond the farthest point reached by Greek colonists. Unlike the relatively open geography of the Pontine region and the Salento Isthmus, the physical geography of the Sibaritide (an isolated alluvial plain surrounded by foothills) may be compared to that of the plain of Poseidonia (Paestum; De Neef 1998:101-105), neither of the latter two has any evidence for substantial human activity in the plain until the 7th century BC.

One can also compare the regions by looking specifically at the cultural processes taking place in each of them, and this is the approach taken within the context of the RPC project. During the 1st millennium BC all three regions witnessed processes of settlement nucleation and urbanization (Formazione delle città), and were subjected to one or more colonizing movements emanating from outside the region itself. On the other hand, the Pontine region came under the early influence of Rome, and both were part of the same Latin culture, whereas the early colonizers in the south were Greeks bringing a much more foreign culture. Why did the Greek colonization of the Salento take a different route to that of the Sibaritide? Were processes of centralization (urbanization) running similar courses in each region before they were altered/truncated by outside factors? Culturally, the Sibaritide was also much more isolated from neighboring areas than the Latial tribes in the Pontine region, and this might have affected the rate and direction of cultural evolution within these two regions.

COMPARANDA

In reply to the question of what to compare and how, I take the phrase ‘dynamic settlement models’ to imply the modeling of processes rather than states; this is a strong definition, akin to that of simulation. A less strict definition, more descriptive of current practice, is one whereby static models are placed within a dynamic narrative.

It should be noted here that interregional comparison entails the explanation of differences between regions, not the explanation of societal change itself. Thus, Bintliff’s (1997:17-33) models for regional development provide explanations for what has been the outcome of the comparison between regions of Greece. Can we indeed explain why things went differently in the long durée / conjoncture of the three study regions, without being forced to explain the fact of the occurrence of the processes themselves as well? Perhaps what we should be explaining is the phenomena in terms of the underlying processes, e.g. the hypothesis of craft specialization can explain certain archaeologically visible phenomena in terms of an underlying process of centralization of society.

As the operation of the core processes in our study regions cannot be attested directly by archaeological proof, centralization and urbanization might as well be seen in the way biological evolution was seen in the past, i.e. as stages in a progressive development of societies (for example, Guidi writes about the general evolution of chiefdoms into early states in the Alban hills in the central Tyrrhenian area from 1200 to 700 BC)? From a pragmatic point of view, processes encompassing all three study regions may be argued to be outside the scope of this study, and need not be explained here either. This then leaves us free to concentrate on the comparison, between the regions, of archaeological expressions of these underlying processes.

ISSUE OF SCALE

The potential for any type of question, including geographical analysis, of archaeological data is dependent on the scale at which that data was collected. At the regional scale, unless extensive surveying has taken place, the bulk of the record will consist of point-like observations relating mostly (in Italy) to easily observable structural remains of the Classical period. By their very nature such data present a mainly classical Roman and Hellenistic landscape of towns, roads, necropolis, and villas, overlaying a protohistoric landscape of hillforts and tombe principesche. Such data are exemplified by the early volumes in the Forma Italia series of publications; later volumes are much more detailed and include mapping of non-visible zones (Cambi & Terrenato 1994:152).
A combination of demographic growth and technological change may be assumed to be the ultimate driving factor behind many of the processes of change in early Italy, but as we shall see explanatory models of socio-political change tend to concentrate on more proximate factors. Among these, quantitative/geographical models have gone out of favor since the 1970s, and have since been replaced by sociological models closer to the humanistic outlook of most archaeologists. However I would like to reiterate that, at sufficiently coarse geographical and temporal resolutions, physical parameters such as geographical boundaries and the availability of natural resources may provide sufficient explanation for the historical outcome of the processes we study (cf. Diamond 1998). Thus, biogeographical similarities explain why crops, animals, and lifestyles could be communicated across the Mediterranean basin with relative ease. Matthews (1999), in a volume dedicated to a discussion of models of late prehistoric and Romano-British rural settlement in North West England, provides some useful pointers to non-archaeological models, in particular to anthropological models of population density and forms of organization (Kosse 1990, Bekker-Nielsen 1989) and Christaller’s geographical models of settlement hierarchy (Collis 1986). He argues that such models have unjustly gone out of favor with the demise of New Archaeology.

While archaeological explanations of socio-political change in classical Italy were originally driven by a classicist perspective, the current literature, dominated by Italian prehistorians and Anglophones, is almost exclusively expressive of the ‘revisionist’ trend that emerged in the 1970s. The ‘new archaeology’ is seen by many (e.g., Trigger 1989:294-303) as the force that finally put native populations on a par with the conquering military and administrative population, and authors such as Herring, Whitehouse and Wilkins, and Burgers, accordingly reject the traditional ‘literary’ Hellenophile approach. Recently indications are mounting that the pendulum has reached its maximum: Jones (1997), in his review of the historiography of Roman Imperialism, describes the rise of revisionism and its recent slowing down as ambiguities in the archaeological record are recognized (see also Rowlands 1998:328).

In the archaeological literature about the structure of protohistoric and early historic societies of southern Italy (and generally of Europe), two types of explanatory models were advanced in the mid-1980s to replace the earlier ‘advance of classical civilization’ model. The Peer Polity Interaction model, introduced by Renfrew and Cherry (1986), sees change brought about by the interaction and competition between a large number of independent and initially approximately equally matched polities; the Core-Periphery model advanced at almost the same time by Rowlands (Rowlands et al. 1987), describes change as driven by unequal interacting parts of single systems. In the two sections below, the specific application of these two explanatory models to the south Italian evidence is given; however, it is not my intention here to argue for or against either – rather, these models act as the backdrop against which testable hypotheses about the patterning of the archaeological record in our three study regions may be developed. The value of explanatory models, as is particularly clear from the discussion of the Core-Periphery model by Whitehouse and Wilkins, is in how well they are able to predict the occurrence of certain archaeological evidence; my purpose here is to derive specific testable hypotheses about the spatial scale and distribution of archaeological features. The tests themselves are then conducted by transforming these hypotheses into a form conducive to GIS analysis.

PEER POLITY INTERACTION

Herring (1991:35-6, 42-9), discussing peer polity interaction in the south Italian Iron Age and Classical period, aimed ‘to show how communications (on all levels) between the different communities could have been a major dynamic to socio-political change’. He argues that the Greek colonies were themselves tribal societies and therefore peer polities to the native tribes, and attempts to fit the available archaeological evidence into Renfrew’s (six) characteristics of peer polity interaction. Herring concludes that the peer polity model ‘works well between the late 8th century to sometime in the 6th century’, while later on one can see two systems of peer polity interaction (one indigenous, one colonial Greek) existing in southern Italy at the same time. The change-over being brought about by ‘exogenous change’. Herring struggles to avoid lapsing into the old hellenization idea when arguing that in the later period, while
new ideas and products came from Greece through the Greek colonists to the natives, this was an exchange between equals rather than one between a dominant and a subservient partner.

Peer polity models for the organization of pre- and protohistoric societies have enjoyed a growing popularity with students of Bronze Age and Iron Age hillforts, especially those working with GIS, because the underlying assumption of equality between hillforts belonging to the same system allows the application of a number of spatial analytical techniques. Hillforts formed the top of the settlement hierarchy in the tribal societies of the Bronze Age and early Iron Age in large parts of Europe, but very little is known about the living systems they were part of. Since many of them were only investigated from a topographic point of view, and dates are in many cases only available where diagnostic surface finds could be made, assumptions must be made about their contemporaneity in order to be able to treat them as the foci of interacting peer polities. The polities themselves might best be viewed as tribal subdivisions or ‘cantons’ with a population ranging from a few hundred to a few thousand, as in the case of the tribal area of the Cornovii in north-western Britain (Van Leusen & White 1997).

CORE – PERIPHERY INTERACTION

Since the original volume edited by Rowlands and others, the core-periphery model has been applied to many comparative studies by prehistorians (see, for example, the volume edited by Champion 1995). Whitehouse and Wilkins (1991) employ its theoretical framework to study the south Italian archaeological evidence, discussing in turn the archaeological evidence, the Greek cities, the relationship between Greek and natives, and changes in the native communities. These authors conclude (1991:123) “We have tried to demonstrate that an analysis of the development in south-east Italy in terms of a center-periphery model can give important insights into the precise forms of social and economic relations through which the native communities were brought into contact with the Greeks, and we have highlighted the specific importance of prestige goods for the transformation of native economies and social organization.” However, as noted in a review by Yntema (1996), there is an in-built assumption that the native hinterland must perforce be the periphery to the Greek coastal centers; the reverse is not being investigated. Whitehouse and Wilkins (op. cit.: 107-115) tabulate the expected differences in evidence between the rival hypotheses of Greek control and co-existence, but their discussion of the artefactual evidence is marred by ignoring the strong biases that are present. They come down clearly in favor of the co-existence model, and explain the occurrence of predominantly ‘Greek’ sanctuaries in the native area by reference to a prestige-goods system, in which the sanctuaries functioned as emporia for the trading of native products (wool) for Greek prestige objects.

When discussing direct Greek control of Italian territory in the Archaic period, Whitehouse and Wilkins want to emphasize the small amount of land held directly by the colonies – only 15 by 15 km in the case of Metapontion, and perhaps four times as much for Taras. However, this just about uses up all of the available coastal plain and raises the interesting question of just what might have been the role these plains could have played in the native economies – a question that is also relevant to the Sibaritide in the Archaic period! The native settlements outside this area were perhaps ‘allowed to continue to flourish’, but if so they would have to do it on a different economic basis from that of the colonies themselves…

MODEL AND REALITY

Both Peer Polity and Core-Periphery explanatory models for dynamic interaction predict specific regional and supra-regional patterns of archaeological correlates, but only for idealized homogeneous spaces and societies. It is therefore doubtful that they can be tested through landscape archaeological fieldwork. Similarly, static regional locational models such as gravity or central place models apply only to certain types of interaction within hierarchical settlement patterns. For example, a successful application of central place models is possible only in the study of retail distribution within physiographically homogeneous regions such as river valleys (Crumley 1979:152). Such models are not applicable to dynamic and open societies, which have a hétéroclitique organization.
3.3 DETECTING MACRO-ARCHAEOLOGICAL QUANTITATIVE PATTERNS

Human action is structured in space and time; hence the archaeological record is patterned in space and time. Unfortunately the processes by which the archaeological record is preserved, recovered and described (constructed) are themselves also non-random; hence the result is a second set of patterns superimposed on those within the archaeological record itself. The general theoretical approach followed in this thesis is that of the French Annales school as applied in archaeology (Bintliff 1991, Knapp 1992); this is most suited to deal with the nature (mostly undiagnostic surface material) and temporal scale of the material studied (from about 1400 BC to about AD 300). The case studies involving field work and GIS analysis are all based on the theoretical premises of landscape archaeology – that human actions may occur, and leave an essentially continuous ‘blanket’ of traces, anywhere in the landscape, that the resulting surface record is a palimpsest of such traces through time, and that patterns in this record may be explained in part by the in turn limiting and enabling qualities of the landscape. These principles are extended into the realm of spatial extrapolation and cultural resource management using the theory of spatial sampling (which says that properties of a properly selected sample have a specific likelihood of also being properties of the parent population).

A model for interregional quantitative pattern analysis is provided by Bintliff’s (1997) comparison of diachronic site counts from surveys in Greece. He shows that more intensive surveys yield larger numbers of Geometric and Archaic sites. It is therefore possible that part of the geographical shift in the period of demographic take-off is due to the fact that areas where, at best, only extensive surveys took place will show a sudden increase in site numbers for the period in which the first easily recognizable material is present – that is, the classical/Hellenistic period. By the same reasoning, inasmuch as the more intensive surveys have concentrated on the heartland of classical Greece, these areas will show the clearest evidence of protohistoric settlement activity. Bintliff’s hypothesis of shifting demographic take-off and conclusion (1997:14) that, ‘by and large, the “evidence on the ground” is broadly comparable to political history’ is therefore, I feel, not well supported by the evidence he adduces and must be strengthened by a more detailed study of potential biases. From his very brief statement of method (1997:2) it is not clear how successful he was in ‘unbiasing’ his data.

SAMPLING IN ARCHAEOLOGICAL SURVEYS

Approaches to pattern detection in archaeological data are contingent on the methods used to collect those data. The study of questions relating to how to collect sample data in order to allow generalizations about a sampled population with a specific degree of certainty is the domain of sampling theory. Once data have been collected, other approaches are needed to determine whether patterns may be present. A very popular approach, especially with the advent of GIS, has been to measure the correlation between the sample data and explanatory variables, but this has generally been tied up with the discrete, site/non-site approach to the archaeological record (for a further discussion of these methods, see chapter 4). Geostatistics and signal processing theory are two alternative approaches to consider when studying continuous survey data.

The type of sample taken during archaeological surveys depends on the type and scale of patterning one expects in the archaeological record, but is restricted by available time and funding. Thus catchment studies may sample nearly all of the immediate surroundings of some central place or village in order to establish the existence of a microregional pattern, or they may sample a small part of a physiographic region such as a watershed basin in order to establish regional patterns of settlement and land use.

SOPHISTICATION IN SPATIAL ANALYSIS

One of the most popular approaches in archaeological pattern detection and explanation since the 1960s has been to demonstrate a correlation between two or more variables - for example, the presence of farm sites and the agricultural productivity of the soil. The bulk of GIS work in the 1990s has concerned exactly such work. Unfortunately, the analysis of spatial (geographical) data has always been complicated by the fact that real-world spatial variables exhibit a large amount of autocorrelation (near things are more
similar), and variables are also spatially correlated. A measure of spatial correlation between two variables has been developed from the formula for autocorrelation. This issue is dealt with in more detail in chapter 5.

Geostatistics are a body of theory and methods designed for the analysis of spatially correlated, geographical variables. Despite the reservations expressed by Barceló and Pallarés (in their discussion of the theory and method of social space, 1998: 65) that geostatistical methods do not perfectly fit archaeological purposes because social action and, with it, social space is discrete rather than continuous, I believe that the construction of geopedological units on the basis of point measurements (corings) and areal observations (geomorphological units) is sufficiently similar to the construction of meaningful archaeological entities (e.g., site catchment areas and urban manuring zones) on the basis of excavations and surveys to warrant a further exploration of the potential of geostatistics including such spatial extrapolation techniques such as Kriging. Any underlying assumptions (e.g., the normal distribution of the variables) should of course be born in mind when applying geostatistical methods to archaeological data.

BIAS MODELING

The theory behind bias modeling is that the factors and processes causing bias can be measured and modeled, thus taken into account when analyzing and interpreting survey data. This line of research is the subject of chapter 5 of this thesis.

SIGNAL PROCESSING

Recording archaeological surface material as one or more gridded surfaces of counts, weights, or densities of object or material types results in a data type – gridded continuous variables – that is, as we have seen, conducive to storage and processing in a GIS. However, it also suggests that principles and techniques from the field of signal and image processing may be applicable as well. If, as many authors argue, we should no longer employ the concept of ‘site’ at the heart of our survey designs, field procedures, and analysis, we must identify an alternative concept.

If, as is argued by most landscape archaeologists, we can regard the surface archaeological record as an essentially continuous variable, though varying in density, then perhaps we can escape from some of the confines and confusions of established archaeological terminology (‘site’, off-site, non-site, etc) by temporarily adopting the vocabulary and some of the techniques of a related field – that of signal processing. In order to do this effectively, I would like to argue first that we should view the surface record not as one single signal or variable, but as a potentially large number of overlapping signals, each representing the land use intensity of a particular period. This is in agreement with the generally accepted view of the surface record as a palimpsest of past uses. Each of these signals in itself may be continuous. Rather than predefining the nature of these signals, for example as representing archaeological activity types (‘subsistence farming’ would be one example), we can adopt more pragmatic methods that allow us to analyze the signals without establishing their nature first.

If the surface record can be viewed as a series of overlapping signals of varying frequency and amplitude, then we may be able to use frequency filtering techniques such as Fourier analysis in our attempt to define and separate these signals. And we may be able to employ non-archaeological definitions of what constitutes a signal (and therefore of what constitutes noise) to aid in the quantitative processing of data generated by surface survey. These two possibilities are discussed below. A number of fairly strong assumptions about the type of patterning present in the archaeological record underlie the following discussion, and I will refer to these where-ever necessary.

Frequency filtering

Although the surface record is an essentially two-dimensional data set, assumptions of isotropy (see section 3.1) allow us to consider a one-dimensional ‘slice’ through this surface first. The total density of the record is the signal, and it is made up out of a number of patterned human activities. We postulate that these are distributed regularly in space (frequency) and in density (amplitude); for example, an
area settled by small farmers in the Roman Republican period will, other things being equal, be represented in survey data by a regularly spaced occurrence of ceramic scatters of some typical density. Each of these scatters in turn has a typically bell-shaped density distribution. If a data set consists of a number of signals of differing frequency and/or amplitude, standard signal processing techniques can be used to separate these signals.

Fourier analysis of discrete two-dimensional data is a well-known technique in image processing, discussed for example in the handbook by Lillesand & Kiefer (1994:563-566). The data are mathematically described by a combination of sine and cosine functions transformed into two arrays containing the real and imaginary components of its frequency space, which can then be masked so as remove unwanted frequencies or select frequencies of interest. Its uses within archaeology have so far been limited mainly to noise removal or reduction in aerial and satellite imaging, and its potential for the analysis of archaeological survey data has, as far as I have been able to establish, not been investigated. In theory, GIS software containing tools for Fourier analysis can be used to split up the results of a survey into a series of maps, each representing a different frequency. The criteria for this splitting can be purely empirical, that is, based on signal strength only, or they can be derived from field measurements of observed frequencies such as those of plough furrows and ridge-and furrow, or they can be derived theoretically. For example, if an archaeological landscape is hypothesized to consist of modular units centered on a single family farmstead, the theoretical diameter of the modules (e.g., 400 m) may be used as the frequency of interest. In a further step, a frequency or set of frequencies may be subtracted from the original data, leaving only the residuals for further modeling and analysis.

**Signal vs. Noise**

Much of the debate has centered on the question of ‘signal vs. noise’ or, in archaeological terms, site vs. off-site. Although it is now generally agreed that all surface finds can contribute to our knowledge of the archaeology of an area (and in that sense there is no noise), the use of statistical noise levels can help to distinguish meaningful variation from meaningless variation in the surface record. For example, a ‘site’ might be defined as any area that has a significantly higher surface sherd density than its surroundings (e.g., Gallant 1986), with ‘significant’ indicating that a certain level of random variation will be present in the data and should not lead to the definition of a site. Similarly, the definition of what constitutes a ‘manuring spread’ will have to include some way of dealing with statistical noise levels (Wilkinson 1982). The concept of statistical variance must be introduced here, because it provides a means of specifying the probability that data constitute ‘noise’ rather than a ‘signal’.

These issues can best be illustrated by examining Bintliff’s recent reanalysis of the results of the 1980s survey campaigns conducted by him and Snodgrass around the Greek city of Thespiae (Boeotia), in combination with the results of the RPC project’s recent surveys (Bintliff & Howard 1999). The Boeotia project team is now looking for low-density patterns that may have been hidden by the general late Archaic/early Hellenistic ‘blanket’ of ceramics resulting from intensive manuring practices during the demographic heyday of the city. Among their early results are the discovery of a prehistoric landscape consisting of Early/Middle Bronze Age small short-lived farmsteads, and the realization that localized areas of low ceramic density, if combined with finds of certain pottery types, indicated the presence of cemeteries; of especial interest here is their use of numeric correction procedures to re-assess the presence of Greek and Roman sites in the light of expected ‘off-site’ finds densities in the chora of Thespiae. The approach taken by Bintliff and Howard is to use GIS to model the distribution of identifiable off-site material (the manuring scatter emanating from Thespiae itself, and the scatters surrounding rural farm sites) using a cost surface based on terrain slope and distance to historically known trackways. They then subtract the ‘expected’ manuring finds density from the recorded finds density in order to interpret the

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7 Low frequencies are in the centre and high frequencies near the edges of these arrays.
8 GRASS 4.1 uses the fast forward and inverse Fourier transforms.
9 A position taken, for example, by Kuna (2000:42).
residuals. However, the recorded finds densities result from material collected during uncontrolled gridded site surveys (i.e., neither the type nor the number of finds collected is necessarily representative of the area surveyed) and it is therefore unclear that the residuals reflect actual variation in the density of archaeological materials on the surface. Furthermore, Bintliff and Howard’s assumption (1999:60) that manuring will, over time, result in a smooth blanket of ceramics seems untenable; rather, there will be peaks and troughs (noise) that are the accidental by-product of the historical manuring process. The expected pattern of manuring may also be different from the one modeled by Bintliff and Howard, leading to a different pattern of residuals; for example, might there be an inverse relation between soil fertility and manuring practice? For such methods to become generally accepted, we must develop better ways of calculating expected off-site densities and their residuals, perhaps using standard deviations and confidence levels rather than absolute densities. And our trust in the correctness of the residuals and ‘noise’ levels should be expressed by establishing formal statistical levels of confidence.

If we compare this to the RPC project approach to low finds density, two comments may be made. Firstly, the re-survey in 1999 of parts of the 1998 Fogliano survey area has demonstrated that very low finds densities cannot be disregarded as ‘noise’ or ‘off-site’ – they may well be related to low visibility conditions and that revisits/excavations have the potential to substantiate the ‘one sherd can indicate a site’ idea. Low finds densities therefore have to be problematized. On the other hand, it should be recognized that even intensive ‘general’ surveys cannot hope to collect representative samples of low density, low visibility categories such as the prehistoric impasto in the Sibaritide 2000 survey (chapter 12); this will need a targeted re-survey. Finally, the recording of low densities can also be an artefact of the classification process; some periods can only be recognized if diagnostic forms or decorations are present. If these are rare or absent, finds will be classified into broad undiagnostic categories, or even as ‘indeterminate’.

Secondly, our interpretation of the protohistoric off-site ceramic ‘carpet’ during the Ostuni survey is different from Bintliff’s interpretation of the carpet of classical material around Thespiae. The protohistoric (Middle Bronze Age) impasto carpet of OST99 is explained by assuming a relatively short period (150 years) of shifting cultivation which transformed a large percentage of the area into a ‘site’; in contrast, the Classical period carpet around Thespiae is explained as the result of a relatively brief period of manuring from the town.

4 DISCUSSION

The brief review of current archaeological opinion regarding the settlement and land use history of the three Italian regions, presented in section 2.1 above, immediately tempts us to make comparisons and define similarities and differences. However, the question arises of whether these similarities and differences are properties of the regional archaeological records themselves, or of the explanatory frameworks being used. Since this allegation has been made repeatedly of the traditional classicist Greek-and Roman-centered narrative, it is incumbent on the current generation of researchers to demonstrate that they have not just replaced this with a ‘native-centered’ explanatory framework. The following should therefore be regarded as a preliminary comparison only:

• In both central and southern Italy, a nucleation of permanent settlement out of a previous (presumed) system of pastoralism and shifting cultivation becomes archaeologically apparent by the Late Bronze Age. Whilst the same set of causative factors has been adduced to explain this phenomenon in both areas, I have argued above that this may be caused by our use of ‘catch-all’ explanations when we have a poor understanding of the true causes.

• Both the Greeks in the Late Iron Age Salento and Sibaritide, and the Romans in Archaic southern Latium, encountered a developed indigenous tribal society which had already colonized all but the most marginal landscape units and who lived in a range of settlements from isolated farms to ‘proto-
urban’ settlements. In both cases the process of acculturation took some 150 years before the native culture was fully submerged into the new supra-regional material culture of the Hellenistic and Roman Republican periods.

It would be better if we could make comparison of quantitative aspects of the regional archaeological records, and here the example of Alcock’s (1993) and Bintliff’s (1997) work on Classical to Roman Greece provides a valuable point of departure. However, as noted in section 3.3 above, this approach must be refined in order to allay doubts about their methodological justification. The greatest potential for resolving these doubts lies in limiting the geographical scope of our comparison to an infra- or even micro-regional level; this potential is further explored in chapter 13.

In the end, one must agree with Bintliff’s (2000:214) opinion that

Field survey is an incomplete guide to regional settlement systems, but it is an illusion to suppose that excavation or historical source control is a firmer basis – these approaches are probably even more inadequate for regional settlement reconstruction than large-scale intensive survey. In combination however I believe that these three approaches can create Piggott’s ‘cumulative credibility’; many of the more intractable problems of settlement and population reconstruction and interpretation may be assisted considerably through a dialectic in the field involving information from all three sources of regional information.

This sentiment is supported by Millert’s (2000) convincing argument that surface (surveyed) and stratified (excavated) assemblages are complementary in content, and therefore have a complementary role in archaeological explanation.

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