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Settlement Patterns

JOHN BINTLIFF

Introduction

This chapter examines historic and later prehistoric Mediterranean settlement locations and functions at different spatial scales, ranging from the placing of settlements in micro-landscapes, then up to the region and the macro-region, finally returning to the internal plan of a community. The Mediterranean countries, with their complex long-term past, offer an unparalleled laboratory for gaining insights into the interplay of social, economic, political and military factors in the formation and patterning of past communities across the landscape.

Micro-locations

The most effective technique for locating past settlement systems is intensive field-by-field surface survey, complemented by ancient texts and scientific aids (for example, air-photography and large-scale geophysical survey). I conducted such a survey in the hinterland of the ancient city of Hyettos, central Greece, which identified 17 sites in three square kilometers. Concentrations of broken pottery on the surface revealed past farms and villages, from Neolithic through to postmedieval times, which were then gridded for detailed study of the function and chronology of each settlement. The Greco–Roman city of Hyettos was itself gridded into 700 study units to measure the expansion and contraction of the town and define its functional sub-areas.

Comprehending why people in the past selected a particular spot for their settlement is assisted by an archaeological approach termed Catchment Analysis (Vita-Finzi and Higgs, 1970). The investigator walks the terrain around the site in increasing distances up to the likely borders with the territory associated with the nearest contemporary sites of the same scale, describing the elements of economic importance that could be used by its occupants. Let us take a deserted medieval village of several hectares, one of our survey sites near Hyettos. The same location had

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also been a significant Bronze-Age and classical-Greek to Roman settlement focus. So why did repeated cultures choose this spot?

The village lies on both sides of a shallow valley, where springs arise due to a layer of impermeable metamorphic rocks in the valley floor. Alluvial soils with a high water table would have allowed the inhabitants to cultivate irrigated crops in the valley bottom. To the north the geology changes at the valley edge into a sandy flysch which provides excellent, easy-to-work water-retentive soils suitable for cereals, vines and olives, while to the south the slopes rise to a plateau of old terra rossa limestone soils appropriate for cereals. The area also possesses some rugged limestone outcrops where goats could graze, whilst the cultivated dry-farmed areas would have given pasture for sheep from fallow land and stubble grazing. All this on offer for a balanced mixed-farming economy focused on land within a ten-minute-radius walk from the village.

The fission-fusion model

Until early modern times most Mediterranean people were agriculturalists and shepherds, so the analysis just cited will shed insight on the vast majority of past settlements, even where a significant proportion of communities practiced other full-time or seasonal employment in craft, trade or administration. But the spread of communities across the landscape is rarely the consequence of one village getting too large for its resources, rather it seems that in many pre-Modern societies colonization of the countryside occurred as the result of other processes. One which is documented in global communities across the ages is a response to social rather than ecological pressures. Biological and social anthropologists have identified limiting factors to social integration in the absence of state controls, and even within state societies. Humans appear physically adapted to form face-to-face social networks of 150 people or fewer, and in numerous historically-documented communities settlements try to remain at this scale by exporting surplus numbers to found new villages (this figure is close to the average number of Facebook contacts). Archaeologists have inferred the same processes at work within prehistoric farming societies, noting the recurrence of small-scale settlements despite abundant resources still underused in their landscapes. A good example is the hundreds of stable early Neolithic farming settlements in Greek Thessaly.

Despite the attractive properties of these fissioning settlement systems, they have a fundamental disadvantage: anthropologists suggest that healthy gene pools require minimum populations of 500–600 intermarrying individuals, or some four face-to-face villages. Normally neighboring communities cross-marry to avoid close-kin offspring, and this tends to create elaborate webs of property ownership across the landscape due to the scattering of inheritance. However, if a village overcame its preference for relative personal equality (the fission model) through creating an alternative governing infrastructure, either through recognizing semi-independent sub-communities (horizontal divisions such as clans) or allowing a vertical power structure to rule (leading families, a chief) then social limits to community size can be broken and much larger settlements develop, allowing the subsequent emergence of towns or small cities (the fusion model). At that point local ecological sustainability becomes a more significant controller of settlement size.

These modifications to the political organization of settlements are observable as a process of gradual social evolution from the early farming communities of the Mediterranean (the Neolithic) into the clearly more politically-stratified societies which mark the Bronze and especially the Iron Ages and the later historic societies of the macro-region. But the release of constraints on settlement size, allowing much larger settlements, is only part of a more significant effect of increases in community size. Social anthropologists and historians have discovered that settlements which reach a scale where most marriages occur internally (endogamy) have a pronounced tendency to internalize their political, social, cultural and economic affairs. Such "corporate communities" behave like city-states. By removing the high degree of dependence on neighbors, external relations grow more aggressive. This process is central to the rise of city-states in societies as diverse as proto-historic Egypt and the Levant in the fourth to third millennia BCE, in Spain and Italy or Archaic Greece in the first millennium BCE, as well as in high medieval Italy from around 1000 CE, but anthropologists have indicated that aspects of corporate community life continue to be observed in rural communities throughout the recent Mediterranean world whenever they grow to a certain size.

This harmonizes with the insights of historical geographer Ernst Kirsten, who observed that the extraordinary multiplicity of Classical Greek city-states reflected their predominantly tiny scale, calling them village-towns. Subsequently his insight was confirmed quantitatively by Hansen (2004). We now know that the majority of Greek cities had populations of a few thousand and territories no more than one to two hours' walking distance from the "polis" agglomeration, where indeed in the Aegean it seems often 70–80% of the citizens actually lived, commuting out to their estates.

Markets, administrative and military foci

We have already mentioned the composition of settlements in terms of their occupants' professions. Until the early modern era, the proportion of Mediterranean population living in rural farms and villages compared with townsfolk was frequently 70–90% of total population. Greek city-states inverted this due to a cultural preference to live in towns, made possible through the special accessibility of urban dwellers to their countrysides, which allowed these predominantly farmer inhabitants to maintain intensive land use. Current research suggests that Roman landscapes were more typical, with perhaps a 20% urban population in Early Imperial Italy.

Over time in the Mediterranean lands, and especially during the Bronze Age, not only had society developed a political hierarchy of elites, but also classes of semi- or fully-professional artisans and traders. From this time on, we can observe a parallel hierarchy of settlements, with constellations of rural farms and villages associated with proto-urban and urban centers in which were concentrated the residences of elites and of a large non-agricultural service sector. Nonetheless, pre-nineteenth century Mediterranean rural populations still strove to relative self-sufficiency in food production and the basic crafts of artifact production (ceramics, wood, metal), so that it was rather that many raw materials and finer specialist products as well as legal services were mostly accessed through markets and offices at the urban foci. Since these tended to be the seats of the ruling classes, a convergence occurred between the administrative,

and economic, service territories radiating out from ever denser networks of towns (Bintliff, 2002a).

Archaeologists have used the term "central place" for such regional settlement systems, without implying that they conformed to the geometrically-precise ideal models of geographer Christaller in the 1930s. Since the 1950s geographers have also pointed to cross-cultural regularities in the size and spacing of market towns in medieval and Early Modern societies. To optimize the maximum human catchment with the least effort of daily travel they suggest that a two–three hour radius, or a 10–15 kilometer walk on flat terrain, might have acted as a constraint on the area served by a market town, allowing rural populations to make a day-return visit. It has independently been suggested (Wilkinson, 1994) that early states, which were typically focused on a dominant urban community and its elite, also tend to arise within the same pedestrian constraints (note that a horse, pack-animal and cart vary little in their long-distance speed from someone on foot, according to nineteenth century CE reports in the Mediterranean). In the same fashion, Roman practice to place military stations at a day's march to allow swift relief operations and offer each night protection to troops on the move, created a common spacing of some 40 kilometers between them; when, as often, such forts developed associated civilian settlements or were converted into them, most of their natural service regions of 20 km lay within the market radius of 15 km.

If we consider maps of official towns in historic societies, however, such as that for the western Roman Empire and Italy, the spacing of cities varies dramatically between provinces, suggesting the need to classify these different networks into contrasted functional roles. Clearly in those regions with a very thin network of widely-spaced towns, market functions could not have been exercised alone through legally-defined towns. Clearly there will have existed a denser underlying network of unofficial agglomerations, not recognized by the imperial classification but essential for providing their districts with comparable services. Currently research is focusing on the roles of potential candidate agglomerations known as *vici*, as well as imperial road-stations. In some imperial systems however, population density and economic growth may have been insufficient to call into being an effective system of market towns. In sixteenth-century CE Anatolia, Faroqhi (1990) argues for the absence of a completely functional urban network in the early Ottoman period, so that important regional officials such as the *kadi* had to be based in genuine villages.

Sustaining radii: their transformation over time, and the density of central places

If catchment analysis illuminates the viability of settlements of all sizes in their chosen district to supply themselves with food from their immediate surroundings, and the logistics of human movement provide constraints on the effective range of "central places" in the landscape, we have yet to introduce a significant dynamic to these parameters. Over time, from the origins of Mediterranean agro-pastoralism in the Neolithic some 11 000 years ago, up until the post-medieval centuries, there have arisen and diffused a continuous series of innovations which have elevated the productivity of mixed farming and hence the levels of population supportable in town and country (Bintliff, 2011). Time-transgressive around the Mediterranean basin during

the Neolithic and into the Copper and early Bronze Ages were spread the knowledge of making dairy products, woolen textiles, the scratch (ard) plough and the use of animals for plough and cart-traction. Between the later Bronze Age and the Roman era, in suitable areas, the heavy plough was diffused, as was the use of bronze then iron for functional tools, and improved forms of animal stock and domestic cereals were widely bred. Irrigation technology became a common boost to farming in semi-desert as well as less arid regions by Roman times throughout the macro-region, and took on even more elaborate forms wherever the Islamic conquests of the seventh to sixteenth centuries brought advanced applications from the Middle East into the farthest corners of the Mediterranean lands. New crops also accompanied this Islamic "Green Revolution" and were followed in the early post-medieval period by New-World introductions such as maize, tomatoes and potatoes.

The relevance of this flowing package of agricultural innovations was to raise the ceiling of production by several factors from major era to major era in large parts of our study-zone. Thus, for example, if we "guesstimate" the quantitative scale of such novel practices, through calculating how large an area would be needed to feed a town of a certain size, as I undertook (Bintliff, 2002b) by comparing Bronze-Age with Iron-Age-Roman times, then we might predict a potential doubling or even trebling of rural population density and of the size of a standard town for many parts of the Mediterranean between the two eras. The number and size of rural settlements and urban sites do appear to increase at the scale predicted.

Commerce and empire, settlements and industry, consumer and producer cities

Thus far we have discussed the settlements of the dominant sector in pre-modern times, either communities where farmers and herders have been housed, or where they were serviced from, for administrative or market functions. However the ties to suitable farming or grazing land or dependent surrounding rural populations can be broken when a community exists on a different basis, the most significant being centers of extra-regional empires, and centers of industry and trade.

The first case, that of an imperial capital city, may still be fulfilling the traditional role of a service center, but one where the region supplying the central place far exceeds that settlement's directly exploitable catchment as well as market radius. This is normally due to a "command economy" where an imperial focus can control food supply by military or political force over a vastly enlarged hinterland. In classical Greece, for example, whereas most city-states were largely self-sufficient in foodstuffs owing to their small territorial scale and a deliberate balance of products, the imperial city of Athens outgrew even its abnormally large countryside and had to rely on major food imports from the distant cereal lands around the Black Sea, from Egypt and elsewhere. Imperial Rome's food-supply critically depended on a direct tax in food surpluses and state-sponsored commercial fleets providing its swollen population with grain, olive oil and wine (Fulford, 1992), while an equally sophisticated centrally-administered system brought staggering quantities of animals and plant surpluses to Istanbul during its comparable sixteenth–seventeenth century CE population peak, when it served as the capital of the Ottoman Empire.

Ernst Kirsten set such urban foci apart in Mediterranean urban history, dubbing them *megalopoleis* or giant cities, unable to survive solely on their immediate countryside. During the twentieth century CE the Mediterranean has seen the uncontrolled explosion of a small number of far larger *megalopoleis*, such as Cairo and Istanbul. Their growth is driven by the in-migration of rural peasants, forced off the land by agricultural mechanization, or mobilized by the simple desire to escape poverty, but it poses immense problems to their enclosing states. Cairo, over 13 million people, represents a situation akin to the ancient capitals we were just discussing, where urban employment is inadequate for such numbers, but here the state—unlike the earlier imperial capitals—appears unable or unwilling to subsidize their maintenance (several million alone live in two vast cemeteries).

Modern Istanbul is in a different category of city, which is a convenient way to introduce our second major form of exception to the purely catchment- or market-based settlement type. Here central places can be significantly sustained by being foci in themselves of manufacturing and commerce. We inevitably now touch on a very long-ranging debate, which has revolved around opposing concepts of pre-Modern Mediterranean towns, especially in the Greco–Roman era. Were they generally "consumer towns," largely existing as centers of political, legal and cultural servicing for surrounding rural communities, and as residences of the wealthier landowners and administrators, producing only minor specialist manufactures or acting as minor markets for foreign imports? Or were they usually "producer towns," in which the proportion of urban population specializing in craft manufacture and external import and export was large enough to be the leading sector? As noted earlier, the abnormal status of the typical Greek city-state we have recognized as a third class, where town and country did not exist as separate entities or communities, since most rural farmers commuted from an urban base: here the term "agro-town" is appropriate. However, the coining of this term derives from another exceptional settlement form of post-medieval southern Italy and Sicily, let us say a fourth class, where extensive rather than intensive great-estate farming (*latifundia*) by major landowners was linked to a dependent labor force crowded into swollen towns distant from its place of labor (Blok, 1969).

The ancient historian Moses Finley believed that Greco–Roman towns were essentially "consumer cities" and did not harbor major craft and trade communities. Greek cities as we have seen were actually either a curious variant of the producer town or of the consumer town, since their occupants were mostly concerned with the primary production of food products. A clear exception was the megalopolis city and port of Imperial Athens–Piraeus where, under a not uncommon political arrangement, the resident population may well have been largely composed of foreigners whose main function, since they were banned from owning land, was craft and trade. Roman towns in contrast have generally been considered as consumer towns, acting as the residence of landowning elites, officials and service sectors and as the basis for regional markets for surrounding rural populations.

A reaction has, however, set in against the Finley position, due to increasing archaeological information on the location and scale of ancient manufacturing and commercial activity. The very thorough examination of the Roman port town of Leptiminus in Tunisia through surface survey and test excavation has led David Mattingly and colleagues (Stone, Mattingly and Ben Lazreg, 2011) to consider the

city as fundamentally geared towards the processing and packaging of the produce of its hinterland, especially olive oil, fish conserves and wine, for an interregional market. In their view Leptiminus is primarily "producer."

It seems likely however that such maritime outlets were exceptional even in Roman times, whilst more typical inland market towns, at 20 to 30 kilometer intervals from each other, would have offered a suitable residence for a local elite of wealthier landowners, providing regional legal, political and cultural functions unavailable in villages and farms, and offering a source for the minority of manufactures (including luxuries) not usually available in the countryside.

To add to this characterization we can note that many items not made in rural settlements may also have been obtained at seasonal fairs and religious festivals (de Ligt, 1993), as is still the case in the rural Mediterranean today, whilst archaeology is discovering that many production centers were located in the countryside on major roads and beside natural harbors as well as in urban agglomerations. The contrast in the average degree of urbanization between classical Greece and Roman Italy referred to earlier, thus appears to be based primarily on the relative absence of practical farmers from the latter communities.

During medieval times we can observe a clearer shift in the balance of urban functions and the dominant occupation of their inhabitants. Italian port cities like Gaeta, Amalfi, and Genoa on the west Italian coastline with rugged hinterlands developed, even before 1000 CE, remarkably extensive commercial links between the western and eastern Mediterranean, subsequently to be eclipsed by Venice in its strange Adriatic lagoonal world, all-but isolated from its mainland until well into its glorious imperial history. By 1200 CE a different spectrum of economic specialization brought north Italian, especially Tuscan cities to the fore: Florence, Siena, and Pisa, where intensive manufacturing (especially in textiles) became linked to a novel global phenomenon—a fully-developed financial capitalism. From northern Italy the model of towns with their leading sectors in commerce, manufacturing and finance was to diffuse throughout western and central Europe and ultimately the world, inspired both by their example and even more effectively through the activities of Italian business communities sent as branch offshoots abroad.

Gateway and entrepreneurial communities

However, we are rapidly realizing that entrepreneurial settlements primarily functioning for trade already existed in Greco–Roman times, even if they were exceptional. In early historic Italy the Etruscan city-states were keen to adopt Archaic Greek culture, but its practitioners were to be kept at arm's length: at least two ports of trade were permitted on the coast, Pyrgi and Gravisca. A similar strategy was adopted by the Egyptian Pharaohs during their final centuries of rule before Persian conquest in the sixth century BCE: Greek imports, traders and mercenaries were welcome but only through a circumscribed entrepôt and colony at Naucratis on the Nile delta. In a later parallel, from the late first millennium CE onwards the Byzantine Empire was gradually undermined economically by the aggressive trading and financial dealing of the Italian mercantile cities, which were assigned controlled enclaves in Constantinople; that of the Genoese outside the city and across the Golden Horn waterway became an independent fortified town which was finally more prosperous than the city itself by

the time of the 1204 CE Crusader sack of the capital. This scenario was to repeat itself in the nineteenth century when western banking and politics came to dominate life in the same city, renamed Istanbul, and from the same Galata-Pera suburb.

Most intriguing is the case of the tiny Aegean island of Delos, which changed character from a sacred island to a precocious offshore-tax haven and commercial center under Roman control (nominally awarded by Rome to Athens but actually promoted for the advantage of Italian businessmen). The offshore anchorage is shallow but the evidence for commercial transactions and ancient texts indicate that Delos was a major center for Mediterranean trade in slaves, basic products and financial services. It has been suggested that most business was virtual, through deals struck on the island and marked by paper contracts, with the objects transacted remaining offshore or even distant from the island.

Regional growth trajectories

If we take the long-term perspective for Mediterranean prehistory and history it is apparent that some regions ("heartlands") remain at the center of population highs and innovation, or political power over many eras, whilst others appear rarely in these roles and have more marginal places in these respects. Most regions though seem to fluctuate through boom-bust cycles of demographic growth and depopulation, centrality and marginality. The Mediterranean macro-region as a whole underwent relative marginalization once the Portuguese and Spanish Empires redirected east and west trade to the Atlantic and around Africa, a process taken further as a result of the industrial and agricultural revolutions of the seventeenth to nineteenth centuries which were focused on northwestern Europe. Settlement systems are a primary reflection of these ups and downs of population, economy and political power and show us the effects of historical processes "on the ground" and in a quantifiable form.

Historians possess a range of useful theories and insights to account for these processes. Already in medieval times, Ibn Khaldun, the great Arab historian and philosopher who finished his *Introduction to History* in 1377, described the conflict of the "desert and the sown" to highlight the often destructive effects of marginal pastoralist groups on the agricultural heartlands of the Middle East and North Africa. It has been argued that intensive settlement of the Negev Desert in southern Palestine and the semi-desert of Libya in Imperial Roman times, which depended primarily on elaborate water-management systems, was uneconomic but sponsored by Rome to provide a settler bulwark against the incursions of nomadic tribes into the more heavily-populated and productive farming heartlands of Palestine and coastal Cyrenaica.

Le Roy Ladurie (Le Roy Ladurie and Goy, 1982) has emphasized the pattern of demographic cycles which appear to punctuate European history during the last 1000 years, employing an approach derived from the pioneer eighteenth-century CE population theorist Thomas Malthus. Climatic fluctuations, overpopulation, crop pests and the inevitable decline of exhausted soils and pastures before modern chemical treatments and other agro-pastoral innovations, in Le Roy Ladurie's view condemned pre-modern societies which were primarily dependent on the land to recurrent waves of "boom-bust." Destructive prolonged warfare, whether due to purely political events or an indirect result of the preceding pressures, also could precipitate widespread depopulation. For our purpose these cycles would be manifest in the filling and

emptying of the countryside and the rise and fall of minor towns, especially in more marginal landscapes. Certain periods in the Mediterranean appear to exhibit one or more of these factors causing a positive or negative wave of settlement levels: problems around 2200–2000 BCE, 1200–900 BCE, 550–800 CE, 1340–1450 CE and 1600–1750 CE, growth stimuli around 800–200 BCE, 200–600 CE, 900–1200 CE, 1450–1600 CE and 1800–1900 CE. Not surprising for us to learn that some of these eras are also linked to global changes in climate.

The study of deserted villages, pioneered in north-west Europe, is gradually becoming a significant element in the history of Mediterranean settlement, offering a very large resource of time capsules for particular eras, in terms of settlement and house forms, material culture and the evidence of land use, social organization and commerce. In southern Greece for example, a combination of over-exploited soils due to unsustainable population levels and possible localized extreme weather events led to a dramatic abandonment of the majority of rural settlements in late Hellenistic times (*c.* 200 BCE–0), following the classical-early Hellenistic era when it seems that population exceeded even modern levels. In the same region a positive climate phase and a generally-secure political and economic context, as well as a landscape of soils little exploited, and rested after centuries of abandonment in the post-Roman "Dark Age," witnessed an outburst of new villages during the middle-late Byzantine florescence of *c.* 900–1300 CE. In the fourteenth century CE, however, almost all these rural communities were abandoned due to a toxic combination of the Black Death, a deterioration in climate, and persistent warfare.

Apart from these generic factors affecting each region directly, we must also take account of interactions between regions. Problems in one area may cause populations to migrate, a phenomenon highlighted by Wilkinson (2003) for the later prehistory and early history of the Near East. But more generally, historians and archaeologists have shown considerable interest in two linked theories of inter-regional interaction, World System and Core-Periphery models.

The first is associated with its inventor, Immanuel Wallerstein (1974), who promoted a stimulating contrast between societies which were bound together by a political overarching structure but incompletely integrated economically (world empires), and those which were economic units whether or not (and often not) they formed a single political unit (world economies). In his long-term view, ancient states and empires were the former kind—world empires, and only once did a world economy arise—the birth and spread of Western capitalism in the early post-medieval era from the fifteenth century onwards, which has systematically transcended state borders to penetrate every part of the globe. The second, closely-related theory of Core-Periphery interactions seeks to identify regions of unusual political, military, economic or cultural growth which, to differing extents, attempt to draw neighboring regions into their own activities and lifestyle. This theory can be applicable to both a world empire and a world economy. Despite Wallerstein's own chronological limits, numerous scholars have sought to extend world economies to the pre-capitalist world, and extreme world system practitioners even argue for extended economic and cultural networks encompassing most of the globe from late prehistoric times.

On a practical level, it seems, however, widely agreed that integrated economies comparable to early modern capitalism did not exist in medieval times or earlier, although as already observed, subsectors of such pre-modern economies could show

signs of proto-capitalist activity on a wide scale, usually *within* world empire contexts (such as the Imperial Roman sphere). More useful is the concept of Core-Periphery, where it is indeed frequently documented, both from history and archaeology, that core heartland zones of intense development radiated effects around them often over considerable distances. The Bronze Age Minoan and Mycenaean civilizations of the Aegean for example clearly owe much to gradually-intensifying political, economic and cultural contacts with older and more elaborate civilizations in Egypt and the Levantine coast, ultimately sharing in a *koine* or shared complex of social and cultural ideas by the late Bronze Age *c.* 1250 BCE. The impact of the precociously-developed city-state federation of the Etruscans on the rise of Rome and other native Italian state systems in the archaic to classical eras, *c.* 900–400 BCE, is profound, whilst in contemporary Greece I have suggested that early complex societies in the south-east mainland, from *c.* 800–400 BCE, created political and economic change in increasing radii over time, finally encompassing much of the mainland and adjacent islands (Bintliff, 1997). In late Bronze to early Iron Age Spain, precocious state societies in the south of the peninsula had a significant effect on political evolution to the north, as well as acting as a channel of additional factors for change introduced by the concentration of Phoenician colonies and emporia around the southern Iberian coasts. The effects on settlement systems can be measured in a rise in the number, size and hierarchical elaboration of communities initially in the heartlands and subsequently in its peripheries.

At the same time, this scenario almost restates the discredited nineteenth to early twentieth century concept of diffusionism, which assumed that local societies have no capacity for internal development, awaiting the arrival of ideas or colonizers from more "advanced" societies elsewhere (traditionally the Middle East). This is implausible, and disprovable by citing regions with an essentially autonomous development of complex societies in the Mediterranean past: there is no need to assume that the long series of Bronze-Age Levantine city-states required Mesopotamia or Egypt to create them, and the same goes for Copper-Age complex proto-towns in southern Spain and Portugal (compare Doumanis, this volume). The rise of proto-historic state societies in north-central Italy occurs before major Greek colonial influence could be held responsible; and as for the rise of Rome to become a Mediterranean power, once free of its acknowledged tutorship as an outlying town of the Etruscan league, its expansion over Italy and then throughout the Mediterranean only tardily assimilated the existing institutions and culture of the two other dominant power-blocs in the macro-region, the east Mediterranean Hellenistic kingdoms and the west Mediterranean Phoenician world. In early- to high-medieval times, the rise of the mercantile and then industrial-financial city-states of Italy cannot be attributed to imitation of other contemporary political or economic systems in Christian Europe or the Islamic world of the south and east Mediterranean. If anything those city-states emerged as innovative communities, both by manipulating the economic potential of lying between such larger and more conservative political and economic systems, and by rejecting those systems' norms.

Some regions, usually more marginal in terms of economic potential for high population, may undergo boom-bust cycles due to their own "predation" on heartland neighbors with better long-term resources, as Viazzo (1989) suggests for Alpine communities, elaborating on an idea of Malthus. For the Mediterranean lands

examples might include the short-lived florescence of the mountainous Aetolian and Epirote regions in Hellenistic Greece, and the wide-ranging piracy practiced from the rugged coastlands of Adriatic Croatia and Anatolian Cilicia in the later Roman Republic (see also Backman, this volume). Even the maritime commercial empire of Venice between 1200 and 1600 CE inverted the normal arrangement by dominating regions of surplus food production in the Mediterranean and Black Sea to sustain its swollen city, which lacked a significant productive hinterland for its needs. Significantly when its empire contracted due to the expansion of the Ottoman Empire, Venice expanded its power inland into the fertile expanses of the Italian mainland.

It seems preferable to study regions in their own right, balancing their internal trajectories with their relations to a wider world, in order to reach a nuanced analysis of the rise and fall of settlement systems and their associated societies. Le Roy Ladurie's cycles seem a recurrent feature of Mediterranean landscapes, and it is possible that pre-Modern societies contained inherent unsustainable elements which could be triggered by combinations of negative processes.

Warfare

We have already referred to military considerations affecting settlement locations and hierarchies, a traditional theme in historical geography. Current research examines how distortions to settlement systems, due to strategic decisions, still allow societies to feed themselves.

For example, with the violent collapse of the late Bronze-Age civilizations of the Mycenaeans and Minoans in Greece, population declined severely and most settlements were abandoned, either temporarily or permanently. On Crete a whole series of new communities was created in the hills and mountains in the final Bronze Age and early Iron Age (*c.* 1200–900 BCE), often in clearly less-accessible, rugged terrain as human refuge sites. Once the disturbances had died down, most of these settlements were abandoned for more accessible, lower-lying locations. Previous scholarship had considered these refugia as remote and based on upland herding or even transhumance, in the latter case imagining that populations spent part of the year in the lowlands with their stock but preferred to place their main residence in greater security. In fact, as Wallace (2010) has shown, the refuge sites combined farming and local herding at no great distance from their village locations, and it is unnecessary to postulate long-distance transhumance for their economy.

A second "Dark Age" occurs widely at the end of antiquity throughout the Mediterranean basin wherever barbarian tribes had invaded and settled in the former Roman Empire, from the fourth through to the eighth centuries CE. In Italy (Francovich and Hodges, 2003) and Greece, much of the open countryside away from the surviving walled towns is abandoned in favor of hilltop refuges, many fortified. Whereas some are less accessible to farmland and may only have previously been used in earlier insecure times such as the Bronze Age and early Iron Age, many were merely existing hilltop settlements (including *acropoleis* of ancient cities), where population became concentrated for safety reasons. When political stability returns in both Italy and Greece, in the ninth to tenth centuries CE, once again many of these hilltops cease to be significant communities. A divergent outcome appears between the two countries, however, as in Italy some survive in use to become the core of small

centers of power, a process known in Italy as *incastellamento* and related to the creation of a feudal-style society. In Greece, the hilltop fortifications are usually abandoned in favor of a wide dispersal of villages in the open countryside, relatively independent of direct elite management.

In Greece at least, the distance of refugia, often the *acropoleis* of ancient cities, from available farmland, is rarely very great, and it seems likely that the main cause of settlement instability—colonizing Slavic populations—increasingly found a *modus vivendi* with rural Greek populations, allowing shared exploitation of the landscape. In Italy, however, the greater continuity of hilltop defensive settlements and their often relative inaccessibility may reflect a more prolonged and violent early medieval world (the Gothic Wars, Lombard invasions, Byzantine and Arab incursions), and also an emergent fractious feudal society.

A final example compares a common phenomenon of the classical Greek and Hellenistic landscape, rural stone towers, with a similar type of monument in the landscapes of high medieval France, Italy, Greece and the Levant. Given that almost every year from *c.* 500 to 200 BCE saw warfare in one or more regions of ancient Greece, the common erection of stone keeps has until recently been assumed to be part of a regional network defense system, whose garrisons could give warning by signal of hostile troop movements. In central Greece for example, a series of such towers on mountain peaks and rugged hillocks dated to around 400 BCE has been shown to be inter-visible, and many of their locations are fit only for garrison roles. However, similar towers, of comparable age, are common in the countryside of Athens and the adjacent region of Megara, and lie amidst low-lying fertile landscapes. Indeed, careful field examination and occasional excavation have shown that most are at the center of rural estates, for which they provide protection from robbers, but at the same time they serve to advertise the wealth and prestige of the landowner.

A similar broadening of interpretation has occurred with the equally common stone towers of much of the Christian Mediterranean from *c.* 1000–1300 CE. In Greece where the Fourth Crusade had imposed an alien Frankish rule over Byzantine populations, such towers were until the 1980s considered to be part of castles (such as on the *acropoleis* of Athens and Thebes, residences of the Dukes of Athens), or watched over major routeways. Re-examination of the Frankish towers of central Greece and Attica has concluded that those in the countryside were almost entirely functioning as control points for the exploitation of local villages within an imposed feudal system. The ground floors served to store the taxed produce, the first floor as a public room for administering the estate and dispensing local justice, and the upper floor(s) offered private domestic space and a fighting platform.

Plans and functions of internal settlement space

An aspect of Mediterranean settlements that deserves brief mention is their internal structure. In many respects the plan of the domestic house and of an entire community can be highly-informative about the organization of society, even when in prehistory we lack texts on socio-political organization. It has been argued that, as societies become more elaborate in their organization, both settlements and private houses develop more complex divisions and increase their functionally-specific spaces.

We earlier discussed the fissioning, face-to-face societies versus the emergence of corporate communities: it is remarkable that one of a few precocious genuine "towns" in prehistory, the isolated Neolithic settlement of Chatal Hüyük in central Turkey, with a population estimated to be many thousands, has been shown to be composed of a series of contiguous sub-settlements or quarters each housing around 150 people (Düring and Marciniak, 2006). This can be seen as a strategy to manage a large settlement through the cooperation of multiple face-to-face societies.

In the cities of Classical-Hellenistic Greece, the so-called Hippodamian grid-plan town with housing blocks or *insulae* composed of similar-sized homes, became quite popular for new foundations and the re-planning of older towns. This has been seen as a strategy to avoid the situation where a wealthy elite's residences might come to dominate the townscape. In fact, the closed nature of houses in these cities allowed the rich to reinstate their prestige to invited friends through hidden wealth in the home, where they might commission wall paintings by famous artists or entertain with gold and silver dinner services, while they could also own several "modular" houses without exciting anti-elite attention (Bintliff, 2010). Moreover we know that rich families were able to erect extensive estate centers in the countryside, far from prying eyes.

In complete contrast, dominant autocrats can restructure town plans without regard to residents, in order to enhance the prestige of their dynasty at the international level. Turin, for example, suffered major rebuilding and the demolition of homes during imposed urban re-planning, due to the desire of the Dukes of Savoy (northwest Italy) to create a state capital worthy of their claim to be amongst the major ruling families of eighteenth-century Europe. The straight and wide streets, large squares, regular buildings and awe-inspiring fortifications gave the impression of theatricality and spectacle (Pollak, 1991).

The technical analysis of the infrastructure of past Mediterranean settlements can shed further light on the behavioral modes of their inhabitants. A computer-aided study of the internal plans of buildings and of their relationship to streets and public spaces, known as Space Syntax, investigates how social life becomes both imprinted onto house, village and town plans; but, equally importantly, social life is deeply affected by existing arrangements of the built environment. This approach allows factors such as privacy, gender and class to be studied in relation to the human navigation of domestic and public space, the location of social encounters, and the positioning of different facilities such as shops, bars, centers of worship or of political power. Current studies of Roman towns (for example, Ostia: Stöger, 2011) and Greek houses (compare Bintliff, 2010) using this methodology have been especially fruitful.

Space Syntax has also revealed a cross-cultural regularity in the growth of towns: a tension develops as the settlement expands and suburbs grow up, or the community incorporates already-existing rural villages into its fabric. These suburbs, whether older settlements now swallowed up, or new intra-urban suburbs, show a tendency to grow organically as a dense local web of short-distance streets looking like mini-towns. However, this conflicts with the overall need of the town as a whole to possess effective radial long-distance roads leading in and out of the settlement as a whole. Typically the radial roads are forced to bend around the new suburbs, creating a "deformed wheel" in their visible pattern around the hub of the town center.

Examination of town plans in historic Mediterranean cities has shown the operation of this tension, even in otherwise exceptional plans such as that of Venice.

Divergent political and economic trends can also be documented through comparing settlement plans over time. Sabelberg (1983) has contrasted the post-Medieval fate of historic town centers and their elite residences (*palazzi*) in northern and southern Italy. In the northern towns Renaissance palaces were also centers of production, finance and commerce, and remain in the hands today of wealthy families or have been taken over by prestigious institutions such as cultural centers and banks. The historic core (*centro storico*) has survived in a good state of conservation and remains economically lively. In the south the *palazzo* was primarily the town residence of the owners of large estates, a prestige building rather than a commercial-industrial focus. Over time the Renaissance or Baroque style of such palaces became old-fashioned and their owners built new homes further into the suburbs, taking their associated service streets with them. In modern times another stage of displacement of the wealthy urban sector has created new rings of elite homes and vibrant shopping areas. As a result the *centro storico* has lost its social, economic and political role and its once magnificent *palazzi* have been abandoned or broken up into apartments for poorer residents.

Mediterranean uniqueness?

This overview has identified major patterns in the *longue durée* of Mediterranean settlements. Most can also be found in other cultures dispersed in time and space outside the macro-region, the result of convergent ecological, social and political factors. These include the role of local ecology, the fission-fusion model for urbanization, central-place locational determinants, reactions to warfare, and the variable working of world systems and core-periphery effects. More specific to the Mediterranean lands are particular manifestations which are less the product of its geographical conditions than of medium- and short-term historical processes—demonstrating the distorting role of contingency, here human agency, on developmental pathways.

General theory shows that cross-culturally, societies remote from strongly-hierarchical empires can evolve "corporate communities" of city-state character, in which a high degree of citizen participation arises. But the extreme experiments of archaic to classical Athens and some other contemporary Aegean states, towards income-independent democracy, demand the unpredictable decisions of a Kleisthenes or a Pericles and special conditions (silver mines, a maritime empire). Creating moderate to full democracies has implications for urban plans and citizen house-plans.

Likewise, the general tendency in global history towards increasing levels of exchange and inter-regional connections cannot prepare us for the unique creation of capitalism in late-medieval northern Italy. The precocious appearance of proto-capitalism in the later Hellenistic and then Roman Mediterranean is equally unique in its geographical scope and economic sophistication. Furthermore, the creation of these two economies stemmed from contrasted causative conditions. In the Hellenistic–Roman case, the increasing political integration and shared socio–economic culture, the dissolving of boundaries to human interaction, encouraged traditional elite classes to diversify their income from its established focus on land-ownership, into a "globalizing" market for production and exchange, using slaves and freedmen as their main

agents. In contrast the hot-spots of Italian–Renaissance capitalism were urban classes of diverse social origins but relatively independent, supported by city-states stamped with a mercantile and financial culture, and operating mostly outside of the established political boundaries. For both ancient and Renaissance societies, the nature of their cities and dependent rural settlements, changes dramatically as a result of such economic precociousness.

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CHAPTER FOURTEEN

Cave Dwelling

VALERIE RAMSEYER

Troglodytism and cut-rock architecture have been features of the Mediterranean for millennia. The soft, porous rock formations found in many parts of the region, made of materials such as limestone, sandstone, and volcanic tuff, are ideal for carving out interior spaces and creating a variety of rooms and structures with varied functions. Natural and artificial caves in the Mediterranean have been used as cemeteries, as sites for religious devotion, as spaces for agricultural and artisanal activities, and as living quarters. In some areas, cave villages and cave cities combined the techniques of cut-rock architecture and masonry building. Although less studied than above-ground architecture, cut-rock building techniques and the use of caves and hypogea form an important part of Mediterranean history and culture. They represent a viable alternative form of architecture based on the excavation and sculpting of spaces, as opposed to the adding of material and building up of structures. Moreover, particularly in the Middle Ages, troglodyte populations developed sophisticated techniques for excavating and shaping their rupestrian environments and for creating complex hydraulic and defensive systems, making the cave settlements secure and comfortable places to live.

Constructing a chronology of cave living and cut-rock architecture

Although caves and cut-rock architecture have been in constant use in the Mediterranean basin, two time periods in particular saw an augmentation in the use of caves as living quarters: the prehistoric era, beginning in the last glacial age and continuing until the Iron Age, and the Middle Ages, from *c.* 500 CE to *c.* 1500 CE. In the prehistoric era, humans at first inhabited natural caves with little or no interventions or modifications. However, as early as the Neolithic era, human populations began using simple tools to shape their troglodyte environments. They excavated tunnels and hallways to connect caves, and carved out niches for lamps and other objects. Wall decorations in caves also date to this era (Navedoro, 2006: 3–5; Maglio, 2003: 108; Allen, 1969: 17–18).

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