Chapter 1

The changing landscapes of Bova Marina, Calabria

Lin Foxhall, Paul Lazrus, Kostalena Michelaki, John Robb, Doortje Van Hove & David Yoon

INTRODUCTION

The Bova Marina Archaeological Project is a programme of survey and excavation in southern Calabria, co-directed by John Robb, Lin Foxhall and David Yoon in cooperation with the Soprintendenza Archeologica di Reggio Calabria. The project was conceived as a multi-period, inter-disciplinary study from its start in 1997, although the initial work focused on prehistoric material, and investigation of the classical and later periods has received increasing attention in recent years (fig. 1).

Southern Calabria has received far less attention from archaeologists than northern Calabria, Sicily and other parts of southern Italy. The ancient urban centres of Rhegion (modern Reggio Calabria) and Locri Epizephyrii have long been known archaeologically, and previous work has identified many of the more prominent village and villa sites, but the application of intensive survey is revealing a much fuller rural landscape. The territory we have studied includes the *comuni* of Bova Marina and Bova (Bova Superiore). This landscape ranges from the southern coastal strip on the straits of Messina northward to the rugged slopes of the Aspromonte mountains and the inland plateaus of the Campi di Bova on the southern side of the Aspromonte National Park. The geography of the region has encouraged successive human groups to treat the division between Calabria and Sicily as an arbitrary one, and in many periods the region shares more in common with Sicily than with Calabria north of the Aspromonte.

At present, the project is still in progress. A first phase of prehistoric excavation has been completed on the small inland plateau of Umbro, with excavation of two Neolithic sites (Umbro and Penitenzeria) and one Bronze Age site (Umbro). The excavation of a small Greek rural site at Umbro is underway, and the survey is about two thirds complete. We also anticipate the development of more intensive work on the physical landscape and on modern land-use than has been carried out thus far. Hence, we are still asking the questions outlined here and all suggested answers are provisional.

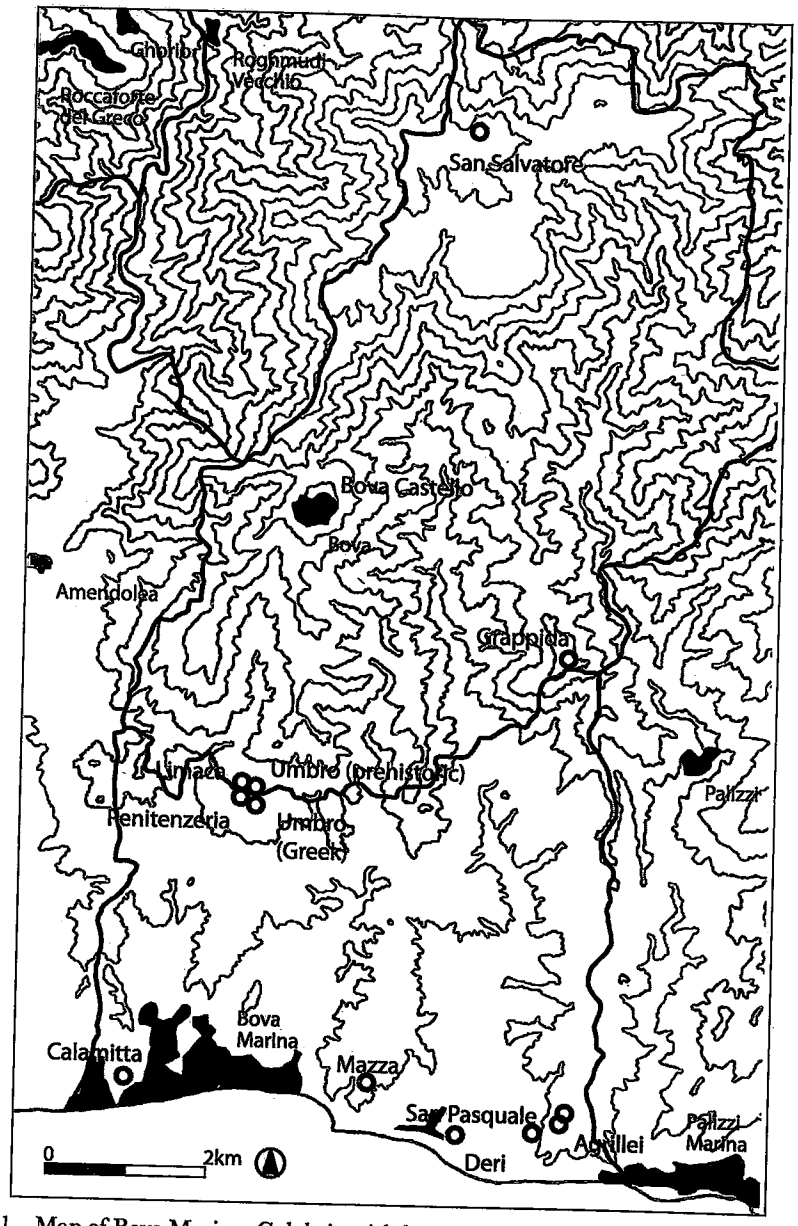

Fig. 1 Map of Bova Marina, Calabria with locations of sites discussed in the chapter

The Aspromonte massif is made of igneous and metamorphic rocks; in the Bova area this is principally schists. Around the lower slopes of these are sedimentary formations, typically calcarenite sandstones and conglomerates but also including some limestones, and underlying these, and exposed in many valley bottoms, are extensive clay beds. The geology has several important implications for human archaeology and for field survey. One concerns water. Although the coastal strip approaches semiarid conditions, the area is relatively well-watered, as rain in the higher mountains feeds streams and springs. There are also many springs in the area between about 300–1000m above sea level (*hereafter* asl), and in the higher parts of the territory, above *c.* 1000m asl, there are watercourses which run all year round. Secondly, there is a general lack of caves. Calcarenite formations present numerous shallow pocket caves, which form and collapse readily and present little opportunity for long term occupation and for archaeology. Thirdly, the topography is extremely steep and rugged (see below). Although small pockets of moderately level land appropriate for peasant farming are widely found, large open areas are available for industrial agriculture only in small coastal plains around the mouths of several torrents. Significantly, a combination of steep topography and a dense 19th–20th century population has led to massive landscape

change. Some highland plateaus are heavily eroded by a combination of wind, water, and agriculture, with all topsoil gone and bedrock or sterile geological strata exposed. Highland and lowland slopes are often heavily eroded. Conversely, alluviation in lowland valley bottoms has undoubtedly buried many sites. We must therefore understand the survey results discussed here as glimpses into a heavily-battered archaeological landscape.

The nature of local topography has presented some methodological difficulties for intensive survey. The preferred field survey practice of almost complete coverage of a large contiguous territory, principally consisting of cultivated fields and groves, is simply not possible in Bova. Over half the area of the two *comuni* consists of steep slopes, which are not currently cultivated, and there are many problems of access ranging from dense modern habitation to enclosed fields with absentee owners to impassable gorges and impenetrable vegetation. In order not to concentrate solely on the most accessible areas, principally near the coast, we have aimed to walk as much land as possible in a series of strips running parallel to the coast, spaced at 2km intervals going inland, thus approximately at 100–200m intervals in altitude.

The field-walking methods used are typical for intensive survey in the Mediterranean: systematic transect walking with survey teams spread out at 10m intervals, with total collection of artefacts in the walkers' transects (apart from recent roof tile). Features from all periods are recorded. The terrain is not as suitable for these methods as flat ploughed fields would be: not only is much of the land on slopes of 30 degrees or more, but most is also not under cultivation, and only the sparseness of vegetation resulting from dryness, grazing, and erosion makes it possible to see the surface adequately. Therefore, the spacing and completeness of transect walking can only be approximate and somewhat variable, compared to the more consistent results possible in flat ploughed fields. Artefacts concentrations recognised in the field ('sites') are recorded in more detail using $10m^2$ collection units arranged systematically along crossed transects or on a grid.

So far we have walked approximately $6km^2$. Compared to many other Mediterranean surveys, Bova is an 'artefact-poor' landscape. The average density of the background scatter for pottery of all periods is below the lower end of the range estimated by Cherry (1991) for Greek surveys, and many areas have yielded no artefacts at all, even modern. As many areas are not actively ploughed, which would continually bring new materials to the surface, the surface ceramics tend to be small and eroded, and identifiable only by their fabric; chronological precision is therefore hampered, especially for prehistoric periods. This sparseness of surface finds probably reflects both a genuine sparseness of settlement in some periods and the destruction or masking of ancient land surfaces through pervasive erosion and alluviation.

One of the most striking features of the Bova landscape is its 'verticality'. Like many places in Sicily the land slopes steeply upward from the sea to the interior, rising in altitude from sea level to about 1300m asl over a distance of less than 13km. At the same time, numerous small river valleys cut through the landscape running from the interior to the sea. Most of these are seasonal at present, although some may have carried more water over a longer period of the year in the past. Nonetheless, it is probable that at different times of the year in many periods of the past these rivers served to some degree as both watercourses and as roads. The close juxtaposition of coast and interior mountains directly links two aspects of the Mediterranean landscape that have often been perceived by scholars as opposites. Our overarching research question is how this steep and diverse landscape affected the way people inhabited and exploited it over time: both how they adapted themselves to it locally and how it affected their participation in larger regional systems.

THE TERRITORY OF BOVA IN PREHISTORY

Any discussion of prehistoric settlement in Southern Calabria needs to be qualified with three methodological caveats. First, site locations from different periods are not all equally

visible. In areas lacking caves, for example, the Palaeolithic and Mesolithic are close to unknown. Likewise, some Bronze Age sites were located on steep slopes, and these locations are easily destroyed or buried and hard to find with standard survey methods. Secondly, material culture from different periods is not equally recognisable. Periods whose pottery can be identified from surface decoration on fragments (e.g. the Neolithic) are much better represented than those whose pottery was often plain-surfaced and distinguished by overall vessel form (e.g. the Copper Age and Bronze Age). Finally, the coastal strip is known far better than the inland mountains, partly because modern development has focused upon the coast and partly because there has been virtually no archaeological work above 1000m besides antiquarian reports of isolated stone axes; the small amount of BMAP survey in the Campi di Bova represents merely an initial glimpse into the upper highlands.

We have found no Palaeolithic and Mesolithic assemblages in our survey. However, the Palaeolithic is known in the general area of southern Aspromonte through surface finds found by S. Stranges and L. Saccà such as a Mousterian point at Torre Varata and an apparently Middle and Upper Palaeolithic assemblage at Gunì in the neighboring territory of Palizzi (S. Stranges & L. Saccà pers. comm.). It seems likely that prehistoric foragers inhabited the area, and the invisibility is due to low population levels, lack of caves, thin and ephemeral surface sites, modern landscape destruction, and the submersion of the Pleistocene coastal strip by Holocene sea level rise.

The Neolithic is the best-known period of prehistory here (Robb 2004). Four definite Neolithic sites are known in Bova Marina and Bova Superiore: San Pasquale, on a low coastal terrace overlooking the sea at the edge of the San Pasquale river valley (50m asl), Umbro and Penitenzeria on the Umbro plateau four km inland (400m asl), and Bova Superiore where the Neolithic site is located just below the medieval castle (900m asl). All of these have been subject to professional archaeological attention. The San Pasquale site was tested by the Bova Marina Archaeological Project in 1998 and found to be disturbed and in secondary context. The Bova Castello (Bova Superiore) was noted by the Soprintendenza Archeologica della Calabria in the course of infrastructure works to stabilise the Castello; they identified the presence of Stentinello wares. The Umbro and Penitenzeria Neolithic sites have been excavated extensively by the Bova Marina Archaeological Project. Umbro is a small rock shelter used sporadically for special functions throughout the Neolithic and Copper Age; the Neolithic pottery includes Stentinello and Diana wares and the dates range from the earlier 6th millennium BC to the later fourth millennium BC. Penitenzeria is a small Stentinello period open air habitation site occupied for a brief interval in the later 6th millennium cal BC; there are also thin and poorly preserved Diana and Bronze Age levels.

There are also a number of possible or probable Neolithic sites known from thin scatters of eroded impasto pottery and/or sporadic pieces of obsidian, which in this area seems a reliable diagnostic for the Neolithic and transitional Copper Age. Of these, the most notable is at Deri, directly at the mouth of the San Pasquale river and on the same location as a major Roman site. The preservational context of these sites is completely unknown; they may in fact be redeposited material washed down from sites further inland, material from Neolithic sites buried under thin alluvium, or material from deeply buried Neolithic sites which has been brought up by later disturbance (for instance, Roman digging). If the third possibility were correct and there exist substantial Neolithic sites on coastal plains now buried under recent alluvium, it would entirely change the view of Neolithic settlement presented here.

While scanty, this evidence suggests some insights into Neolithic settlement. First, there seems to have been no exclusively preferred zone; the same kind of small sites are known from the coast to 900m asl. Above this altitude, no definite Neolithic settlement is known. Differences between lowland and upland settings have been tested through GIS analysis and no particular locational factor seems apparent, but the analysis is admittedly based upon a small sample of archaeological sites (Van Hove 2003). While admittedly there has been no substantial archaeological work carried out which would detect such sites, it is

interesting that in the high centre of Aspromonte there are antiquarian finds of polished stone axes, which can date to anywhere between the Neolithic and earlier Bronze Age and which were often used off-site, but there are no antiquarian notices of obsidian, a specifically Neolithic item normally found on sites which was also visible and of interest to early workers such as Topa and Mantovani (see review in Robb 2004). If so, this suggests that the central Aspromonte highlands, like the Sila of northern Calabria (Bidittu *et al.* 2004), were settled only in the final Neolithic or afterwards.

In contrast, there seems no particular impetus to live coastally. As elsewhere in Southern Italy, there seems to have been little economic use of marine resources in the Neolithic. Although the obsidian trade was probably coastal, and Bova Marina lies directly upon the main pathway up the Ionian coast, we find no coastal trading sites as one does in the Southern Italian Bronze Age. This confirms the interpretation that Neolithic 'trade' was generally low-level and not commercial in nature. All Neolithic sites are located in areas of access to good agricultural land and good water sources; the latter may be why sites tend to be located at the margins of limestone, sandstone or schist formations. GIS reconstruction of land-use (Van Hove 2003) shows that a village of 50 people (a rather high estimate for our sites, see below), with a predominantly agricultural economy would have drawn resources from an area of 2–3km around the site. Even with a heavily grain-based economy, the amount of land used for farming would have been relatively small and located close to sites. A more extensive and less frequently visited radius would have afforded pasturage, hunting and gathering, and meeting places for sociality between residents of different villages. In addition, proximity to clay source locations may have been important, not only for pottery but also for constructing *intonaco* (wattle and daub) houses. Preliminary research shows that there are at least three distinct kinds of clay available within a kilometre of Umbro, and these differ noticeably in their usefulness for different purposes. Preliminary thin section inspection shows that several distinct clay sources were actually used for pottery and daub at Umbro.

Perhaps the most interesting finding about Neolithic settlement in Bova Marina is that it was dispersed yet based upon farming; the small faunal samples contain predominantly domesticated animals and the palaeobotanical samples are dominated by grain (U. Albarella pers. comm.; M. Ciaraldi pers. comm.). Elsewhere in Italy, Neolithic settlement is typically thought to have been based on farming villages or mixed farming-forager camps. The former is typical of well-known areas such as Puglia, Basilicata, Northern Calabria, the Adriatic coast, and eastern Sicily, where nucleated, often ditched, sites are known and the economy was based almost exclusively on domestic plants and animals. The latter is considered typical of the highland Central Italy and western Sicily, where sites are small and dispersed, often in caves, and the economic base includes foraged plants and hunted game. Interestingly, pottery decoration is often elaborate in the former areas and rather rudimentary in the latter.

Bova Marina does not conform to either pattern. Our excavations at Umbro and Penitenzeria have revealed an economy with minimal hunted game and a plant economy reliant upon grain, and the pottery is as elaborately decorated as anywhere in Southern Italy. But the most substantial habitation site known, Penitenzeria, probably consisted of no more than a few households at most; Umbro, located 200m away, was probably never a habitation per se but rather a dependent part of a settlement system spread. Given that such small sites cannot exist in isolation but require social networks, we have to imagine the Neolithic population as living spread evenly over the strip between the coast and 1000m asl in clumps of a couple of houses. Calabria includes both kinds of area, with villages known at Favella in northern Calabria (Tiné 1988) and dispersed settlements known in the Acconia region (Ammerman 1985a). As this suggests, dispersal and aggregation is neither a fixed cultural tradition nor simply dependent upon subsistence economy. Rather, the decision to live in villages or house clusters was a social choice with different results throughout Italian territory (cf. Robb & Van Hove 2003).

After the Neolithic our knowledge of landscape use is much poorer. The Copper Age is known from only one site, Umbro, where small amounts of generic Copper Age pottery are associated with radiocarbon dates between 3000 and 2700 cal BC. In conjunction with surface finds elsewhere along the coast, this is just enough to suggest that the area was occupied rather than abandoned in this period; some of our surface scatters of non-diagnostic pottery may date to the Copper Age.

The Bronze Age is better known and presents several interesting points. Besides the ever-present non-diagnostic pottery scatters, three probable Bronze Age sites are known at Agrillei between the San Pasquale valley and the territory of Palizzi. Three more are known within a radius of 300m in the general Umbro area, all of which have been excavated. At Limaca, extensive testing has revealed a destroyed site probably from the Early–Middle Bronze Age. At Penitenzeria the Neolithic site is overlain by thin Bronze Age slopewash from a nearby destroyed site; the pottery looks generically similar to that at Umbro and the site may actually be an extension of the Umbro site separated by now-destroyed areas. At Umbro the excavated Bronze Age site was probably *c.* 0.25–0.5ha in size and included constructed surfaces and probably stone-based houses; it is carbon-dated to between 1800–1500 BC. A third cluster may have been known around Bova Superiore, where Bronze Age occupation is known in several places around the Castello.

Bronze Age sites thus seem to occur in tight clusters, though we do not know how contemporary sites within a cluster were. Bronze Age sites seem to be easily destroyed, perhaps because they are located in areas where erosion has been severe (e.g. at Umbro and Limaca they are located on exposed rocky outcrops rather than below cliffs or in more sheltered locations) and the ones we have tested are not deeply buried. But at least some seem substantial enough to be habitation sites rather than temporary sites for particular functions. They are located in quite varied places, with some predilection for high level areas above cliffs or on dramatic slopes (as at Umbro; cf. the excavated site of Porte di Pettigliola in Brancaleone, and surface sites in Condofuri: M. Cardosa pers. comm.; Praticò pers. comm.). Although the Umbro sites are located in similar situations to Neolithic sites, the Bova Superiore cluster includes probable funerary sites in caves and niches in the cliffs under the Castello, and the Agrillei sites have been found on the sides of quite steep slopes for some reason. Although the evidence is defective, the settlement pattern thus looks possibly less modular and more varied than for the Neolithic.

Finally, for the Final Bronze Age and the Iron Age, we have identified only one site, Sant'Aniceto, where a component of this period is evident at the top of an isolated, dramatically rocky hill, which rises abruptly 160m above the valley bottom. Apart from this, the Final Bronze Age is suggested only by one possible site on Agrillei, and the Iron Age is suggested only by a few possible sherds at Umbro. This lack is typical; virtually no Iron Age sites are known between Locri and Reggio (M. Pacciarelli pers. comm.; M. Cardosa pers. comm.). The area may genuinely have been abandoned or only sparsely populated in this period, but this is far from certain. We must also remember that this is a much shorter period than others, with only about 500 years to accumulate sites in. Sites may also be buried under Greek, Roman or modern sites. Finally, and paradoxically, it seems theoretically possible that no sites are known because sites may have grown larger (as seems to have happened at Metaponto: G. Ayala pers. comm; C. D'Annibale pers. comm.); if population previously living in many small sites had nucleated into fewer, larger villages, our ability to find them within the boundaries of a survey area through field survey methods would be much more hit-or-miss, although one would expect at least some to have been found through other methods such as amateur reconnaissance.

CLASSICAL LANDSCAPES: GREEK

For Classical times an important question is the relationship of the area to the Greek city-states of Rhegion and Locri Epizephyrii, each located about 40km away. How and to

what extent was this remote territory politically, economically and socially integrated with the cities?

By the fifth–fourth centuries BC the material culture of the Bova area appears to be 'Greek', whatever that really meant in practice. The Greek sites so far discovered in survey are located on flat hilltops and elevated plateaus at all altitudes from about 100–1260m asl, to the furthest point inland we have explored. In contrast with the Roman period, sites are not situated on the coast. This pattern contradicts the widespread perception of Greek sites in southern Italy, derived in part from written sources, as located on or near flat areas close to the sea or on small off-shore islands. There is one large site (*c.* 8ha), Mazza, located on a flat hilltop overlooking the sea at about 160m asl: this is a complex, multi-period site, though the classical Greek element is substantial. Another known Greek site, Calamitta, set in a flat hilltop *c.*100m asl, has not yet been explored.

Two small, isolated rural sites (one at Umbro, one at M. Grappida) can be clearly identified, and one is being excavated (see below). The best interpretation of these on present evidence is as residential sites — we have no secure evidence for rural sanctuaries or grave sites for the period. At present it is unclear precisely how many small rural Greek sites we have. There are several other sites where at least one piece of black-gloss ware was found amid an assemblage of mixed or uncertain date. It is not clear what the function(s) of the Greek-period use of these locations might have been, but some at least are likely also to have been small rural habitation sites.

The highest Greek site was discovered at the end of the 2003 field season at S. Salvatore, at 1260m asl. Surface remains consist of many big chunks of burned mud brick and large numbers of red-painted roof tiles, which may date from as early as the sixth century BC, suggesting a very substantial structure.

Excavation is underway on a small isolated rural site at Umbro, on a south and west facing hill about 330m asl. Alongside the hill runs one of the main S–N roads between the coast and the interior which certainly dates back to early modern or medieval times and may be much older in origin as it follows one of the easier ridge-line courses uphill. There is one west-facing mud brick structure nestled into the bedrock on a stone socle with a tiled roof, and some evidence of a second similarly constructed building on the summit of the hill. Broken roof tile is found reused as wall fill in the west-facing structure, suggesting the possibility of a previous tiled structure on the site. Ceramic finds consist of a mix of black glazed fine wares, plain and table wares, cooking wares and storage jars. Virtually all appear to be locally made within Calabria rather than imported from Greece. Two small bronze coins from Rhegion probably dating to the later fifth–fourth centuries BC may connect the site with that city. No animal bones have been found and plant remains so far identified consist of wheat and barley, with barley straw used as temper in the mudbrick.

The Umbro plateau consists of rolling land which would have been good for cereal and tree cultivation, close to a line of natural springs which arise at a geological boundary where conglomerate and calcareous sandstone formations overlay clay. A second small site with evidence of Greek occupation is situated near Umbro near one such spring, which is still in use. Another site, at M. Grappidà (*c.*650m asl), is in a similar type of location, close to a spring but with a smaller amount of good agricultural land available. All three of these small, isolated rural sites have reasonable access to (and good views of) the coast, but equally good access to the interior uplands, suggesting that access to both was an important factor in their location. This and the proximity to springs might suggest that animal husbandry was a significant activity. A cistern would be adequate for a couple of households, but animals need much more water than people. It is possible that some of these sites were not inhabited, or were not inhabited to the same intensity, all year round.

At present it is not clear how the fifth–fourth century BC 'Greek landscape' developed. As noted above, we have no unambiguous remains from the Iron Age. Although some prehistoric material is found on the excavated Umbro Greek site, and a few pieces might be Iron Age, it is too fragmentary to date with certainty. However, there are small amounts

of seventh and sixth century pottery from both Mazza and the Umbro Greek site. This may suggest that the Bova countryside was settled by Greeks across the altitudinal spectrum from as early as the cities of Rhegion and Locri were occupied. The possible early date of the San Salvatore site also suggests that access to the resources, and perhaps also to the indigenous peoples, of the interior were important before the Classical period.

It is also not clear at present how 'Greek' were the 'Greeks' living in the Bova countryside. It seems likely that the inhabitants of the Umbro Greek site considered themselves to be 'Greek' but whether the citizens of Rhegion and Locri considered them to be 'Greek', or even part of (or 'having a share in', as Greeks would have expressed it) one of the two poleis, remains an open question. Also, whether there is a vertical dimension to 'Greekness' is a question which needs further investigation — does it fade beyond a particular altitude, to be replaced by indigenous identities? Further investigation of the San Salvatore site and its vicinity may allow us to address this issue.

ROMAN AND MEDIEVAL: 'INTERNAL PERIPHERY' TO FRONTIER ZONE

The structure of the Roman political economy is likely to have had a major effect on settlement systems throughout the empire. The combination of long-distance redistribution driven by imperial taxation with wide-ranging commercial connections manifested itself in various provinces in the form of intensified production for export and increased consumption of imported commodities. The ways that a region might participate in these networks, though, would be strongly influenced by local envirnomental conditions, among other factors.

Participation in the Roman political system and the Mediterranean economy would have required production of surpluses that could be converted into cash, a type of economic structure quite different from the local networks of patronage or other forms of subordination that would have constituted most of the political economy in earlier periods. The key difference is the close connection between local political and economic dominance and the much larger economic system of the Roman world.

Although technically within the core region of the empire, as part of Italy, Bova was far from any centres of power of real significance. The nearest towns of importance, Reggio (Roman *Rhegium*) and Syracuse, were not close enough for direct involvement in everyday life, and because Bova was part of Italy, Rome was the regional centre for most political purposes. Political activity must therefore have been oriented towards patronage connections — or even aspirations to join the ruling class — in Rome, and the surplus economy may be expected to have been oriented toward funding such external activities. The Bova area in the Roman period may therefore be expected in many ways to fit the definition of an 'internal periphery', a region within the core zone of a world-system that is nevertheless peripheralised.

The settlement characteristics of peripheralised regions have been discussed by various authors such as Smith (1976) and Paynter (1982); they tend to be decentralised except for a large primate centre that acts as a point of connection with the core. An internal periphery, however, may not have the primate centre, since the core centre may act in that role instead. It is noteworthy in this regard that there does not seem to have been a single large settlement that provided a focus for the local settlement system in the Roman period in the way that Mazza may have earlier. Instead, we have found a scattering of small to medium-sized sites (no more than a few hectares in area) dispersed throughout the territory. Nor is there any indication of significantly larger sites anywhere along the coast closer than Reggio.

The transportation system is usually significant in the settlement structure of peripheralised regions. Although coastal roads existed in the Roman period in southern Calabria, as documented for example by the Peutinger Table and the Antonine Itinerary,

commodity transport must have been vastly more efficient by sea — even more so than in less rugged parts of the empire. Reggio has the one really good natural harbour in southern Calabria, and it is no surprise that it developed into the dominant regional centre during the Roman period. But adequate landing places existed all along the coast, where small sea-going boats could have been drawn up on shore during good weather, so a regional entrepôt may not have been needed except for relatively high-value, low-volume goods.

In other regions, such as Mediterranean France or North Africa, for example, production for surplus led to a proliferation of Roman sites on high-quality land suitable for intensive agriculture. Roman-period settlement in our survey is much more focused on valleys and the coast than it had been in any earlier period. The larger (2–4ha) Roman sites we have found are mostly located within a few hundred metres of the coast, for example, and the largest valley in our study area, that of the Fiumara di San Pasquale, has so far yielded four prehistoric sites and only one Greek site, but at least seven Roman sites. This pattern is generally compatible with intensification of agriculture for export on the low-lying coastal lands, but since there is not in fact very much good, flat agricultural land anywhere in Bova, the placement of sites is perhaps as much to be explained by access to transport along the coast.

The key question then is what they would have been producing for export. Two of the most important cash crops in the Roman empire were olives and grapes, both of which would be more suited to the topography of Bova than grain. Both, however, are processed using facilities that should be archaeologically visible, and we have not yet found evidence for such facilities. Instead, it is possible that in Bova the uplands were an important part of the economy of surplus production. Pastoral products such as wool, hides, meat, cheese, honey, and wax, as well as forest products such as timber, charcoal, pitch and resin, and possibly dyestuffs such as oak galls would have had considerable value in the more agricultural and urbanised regions of North Africa and eastern Sicily, as well as central Italy, and could have been brought to transport relatively easily because the uplands are so close to the coast.

Our survey shows that, despite the abundance of evidence along the coast, the uplands were far from ignored. The sites in the interior tend to be smaller, but they remain abundant up to about 600m asl. We have not attempted statistical comparison of the artefact assemblages yet, and the small sample sizes from the interior sites make subjective comparison difficult, but some imported ceramics (particularly North African amphorae, but also other wares such as Late Roman amphora 2, African Red Slip ware, and Italian *sigillata*) occur at the interior sites as well as the coastal sites. Regardless of whether the surplus products being exported were in fact produced in the uplands or, alternatively, lowland crops were produced using seasonal labour from the uplands, it seems that the uplands were an integral part of the same system as the coastal sites in the imperial period.

Apart from a few brief intervals, Bova remained part of the Roman empire until the Norman conquest in the eleventh century. Southern Calabria changed, however, from being near the centre of a Mediterranean-wide empire to being a Byzantine outpost lying between other competing powers. Our last glimpse of the Roman settlement pattern is provided by a lamp of the *lucerna a ciabatta* form, dated roughly to the eighth century, found on a substantial Roman site near the coast. After that little can be said at present about the medieval settlement pattern in our region because we are only gradually learning to recognise the medieval pottery in our surface collections, and we have not yet undertaken a study of the few written sources available. It seems certain, though, that the political-economic dynamics were drastically transformed, and that the role of topography and local environment in the new structure was even more important.

The political economy of Byzantine Italy is poorly understood, but it is unlikely that Bova was connected in any very significant economic way to the core of the empire. Although some institutional connections remained in the Church and the military, there is little evidence for much economic or cultural interaction, or even for a regular flow of tax revenues or state expenditure between Italy and Constantinople. Instead, Michael McCormick (2001)

has argued that the slave trade was the most important form of long-distance interaction in Europe during the early Middle Ages. This is likely to have had its most devastating effects along religious frontiers; it may be noted that southern Calabria was the Christian territory closest to the Arabs of Sicily and Tunisia, and that numerous raids through southern Calabria are documented for the ninth and tenth centuries (Kreutz 1991).

By the tenth century, according to historians, the focus of the settlement system had become the hill town of Bova (now sometimes called Bova Superiore), located 7.5km from the coast at about 800m asl. This is the local manifestation of a very typical pattern in southern Calabria, except around Reggio, of replacement of ancient coastal occupation by medieval towns and villages in interior, upland locations. Within its region, the Bova area became more central, even as it became more marginal in a wider sense: medieval Bova became the seat of a bishop, the most important town between Reggio and Gerace (the medieval hilltop successor to ancient Locri). It may be significant, though what the significance might be is difficult to discern from the evidence currently available, that Bova is much higher in altitude than most of the other medieval towns along the southern margin of Aspromonte, and poorly situated for traditional Mediterranean agriculture, due to its altitude and more importantly to a scarcity of arable land nearby that is not on very steep slopes.

The pattern of movement from coast into uplands is perhaps best understood as a response to the interregional economy, but the opposite of the response during the height of the Roman empire: an attempt to avoid participating in the interregional economy, as its victims. It points to a minimisation of other forms of participation in long-distance systems as well, whatever the nominal political connections may have been. One should not overstate the degree of local isolation: Byzantine coinage continued to circulate in southern Calabria in small amounts (Guzzetta 1986), and imperial revenues from southern Italy were, at least in theory, of interest in Constantinople in the tenth century (Kreutz 1991: 3–4). However, the mid-medieval settlement pattern was clearly more oriented to the interior than to trade or travel along the coast.

The apparent shift to a settlement pattern of fortified hilltop villages obviously also brings up the issue of *incastellamento*. Until our research on medieval settlement in the territory of Bova has made more progress, there is little we can contribute from archaeological evidence, but from historical evidence it is likely that Byzantine Calabria, like Islamic Spain, may prove an interesting case for probing the limits of the concept, having the foundation of fortified hilltop sites without the corresponding political and economic institutions of feudalism, until these were imposed from without.

POST-MEDIEVAL LANDSCAPES

In conjunction with our excavations and field surveys, our work has also included historical and environmental research on the development of the post-medieval to contemporary landscape. The mountainous topography has been an important influence on the social and natural processes that have transformed this landscape. The Calabrian region is one characterised by two mountain massifs (the Sila in the north and the Aspromonte in the south) and the regions of upland plateaus, foothills and coastal plains that radiate out from those centres to the coasts. More than 42% of the entire region is mountainous, with only 9% flatlands, with the largest extended arable area far to the north of our research area in the plain of Sibari (Gambi 1965: 9).

Urbanism has not been an important feature of the Calabrian landscape, which is not surprising given the environmental constraints, coupled with generally low populations levels. In fact, southern Calabria only has one truly urban centre, Reggio Calabria. There were and are however, plenty of small settlements, some located along coastal river deltas or in the mountainous interior, but the majority appear to have been established in the hilly locations between the coast and the high central massif of the Aspromonte. The foothills

provided sufficient contiguous land for small-scale farming, were elevated enough to avoid malaria, but were also in a strategic position where settlers could exploit a variety of ecological zones having access to wood, mushrooms, numerous fruit trees, herbs, birds and animals to hunt. The low crest of hills dividing the coastal lowlands from the steeper more mountainous interior was also the preferred route for travellers who have left descriptions of the region from at least the 1500s onward. In 1561 Marafioti wrote of Calabria that the mountains were better than the lowlands, with rivers full of eels and trout and because "all the habitations are near the mountains because of their proximity to wild holm oaks, wonderful forests full of pasture, and wonderfully easy for hunting birds and fierce wild animals of many species." He continues saying these areas are "Rich in pastures and everywhere irrigated by 'celestial dew' and a natural abundance of water resources keeping the fields grassy and in flower and perfumed 'like eden.'" He also notes further along in his discourse "cheese so prized it is given as gifts" and that some horses were 'royal' but some owned by individuals and more expensive than others in Italy (Fiore 1999: 89).

During the Middle Ages, a succession of conflicts and attempts by the ruling governments to shore up their support shaped a feudal regime in which several families — such as the Ruffo, Sanseverino, Caracciolo, and Spinelli — competed for dominance with each other and with the Church, which was the majority landowner in the region. This tension between feudal landowners and the Church continued to dominate the region until the abolition of feudalism in 1806 (Bevilacqua 1993: 3); although the institution of the Cassa Sacra in 1784 was supposed to aid in the redistribution of Church property, in reality it was highly abused and poorly run (Placanica 1979: 15, 17). This competition between Church and state for control of the land, and its potential economic output, as well as for the spiritual and political control of its citizens resulted in the confiscation of lands prior to 1806, and to their poor maintenance and overexploitation resulting from a disregard for the rotation of crops and fallow and disciplining of grazing and open forest (Fiore 1999: 12, 565–71). The landowners with large estates began to combine lands in order to create larger vineyards and more extensive areas for planting grain — including rye, wheat, oats, and barley — and legumes. Additionally they began enclosing mountainous regions for pasture so that one owner could maintain control of an entire swath of territory from the sea upland to the mountains. A highly fragmented landscape of this type, however, leaves few naturally occurring areas for extensive farming; Augusto Placanica wrote that almost all the land holdings in Calabria consist of small parcels for groves or gardens, and that one is hard pressed to find extensive homogeneous planting anywhere in the province (Placanica 1999: 7, 11; Gambi 1965: 9). On the other hand landowners were often absentee landlords who nevertheless refused others the right to utilise their property.

By the end of the 16th century feudal lands accounted for 312 out of 326 communities in Calabria Ultra, and even as late as the reforms of 1950, we find that local communities had little land that wasn't under the control of a few individuals or the Church. In this area of the coast small parcels of land under 5ha in extent represented one portion of land holdings but in Bova, rural land holdings of 10–200ha represented somewhat less than half of total holdings and consisted largely of opportunistic use of the landscape for grains, vines or mulberries, with pears and apples sparsely distributed among the residual inherited lands (Gambi 1965: 287, 289) The 300 or so families in Bova were tenants of the count, who was the archbishop of Reggio. The Metropolitan of Reggio was Count of Bova up through Vatican II (Fiore 1999: 229, 350). This external control would likely have affected the local economics, with little money remaining locally for reinvestment in these communities.

The Calabrian region experienced both large population declines and increases in the post-medieval period. For example, in 1592 so many people were said to have died as a result of famine that it was calculated that the province lost half of its entire population (Fiore 1999: 569). From the mid 1600s to the mid 1700s southern Calabria experienced an overall decline in population due to political and environmental catastrophes: for example, tax

data from 1648 and 1669 (the last records we have from the period under Spanish Hapsburg rule, based on a count of hearths/families subject to taxation and often converted to population assuming roughly 5 people per family) indicate that there was a 17.6% loss from a population that was never very great to begin with (56,850 families versus 46,851) (Caridi 2000: 11). With regard to Bova specifically, the 1648 records record 373 taxable families versus 264 families in 1669 (Plutino 1996), and Minuto reports that Ughelli writes of Bova having more or less 400 families in the 1600s (Minuto 1977: 201). It is worth remembering however, that the nobility and the Church were exempt from taxation and so don't figure in these numbers. During the 1600s some families from Calabria Ultra will have moved to Reggio (which saw an increase in population of 39.5% at this time) (Caridi 2000: 12).

New methods of taxation and census-taking make it difficult for us to gauge changes from the 1600s to the 1700s, but in the court calendar for 1794/5 which reported the number of faithful per parish the population reported for Bova is 2118 souls (or approximately 423 families), and the whole Diocese of Bova, which consisted of 11 towns, returned a total count of 9021 individuals (Galanti 1792: 370). Most of this increase seems to have taken place between 1732 and 1765, interrupted in the following 30 years by periods of famine, drought, the major earthquake of 1783 which mostly affected central Calabria, and the plague of 1743–44 that claimed 3,695 victims from a population of 14,570 in the area of Reggio (Caridi 2000: 51). The decline in labour did eventually lead the landowners to offer contracts that were more favourable to those working the land, allowing for longer periods of tenancy by the farmers and day labourers or allowing them a greater percentage of the harvest (Gualtieri 1655: 41–42).

During the 1800s it appears that fewer people were marrying (due presumably to economic problems), and thus fewer children were being born. In addition, there were a great number of deaths, particularly of infants and children under 7. Between 1818 and 1854 the death toll for children 0–7 years was 42%, and between 1863–1890 more than 26% for the entire province. At unification in 1861 Calabria's population density was 76 people per square kilometre, considered low for Italy as a whole, and the government was often concerned about low population and low productivity in Calabria and the southern part of Italy in general (Placanica 1999: 325–8, 330). Deaths from epidemics and earthquakes hit all of Calabria hard, with at least eight major earthquakes recorded between 372 and 1638 AD, followed by the previously mentioned quake of 1783. Together with epidemics, famines, droughts and plagues of locusts, both the human and the natural environment were stretched to their maximum limits (Fiore 1999: 565–71). Often when population levels increased food production was not sufficient to feed that population. In the 1800s this was alleviated by emigration, particularly to the United States and Argentina. Between 1880 and 1930 more than 4,500,000 Italians emigrated to the United States, many of them from Calabria. In the 1870s more than 10,000 people were leaving and by the end of the century there was a median annual exodus of 20,000 people. In the first two years of the twentieth century almost 3% of the population of Calabria left (Placanica 1999: 329).

The economic and demographic trends, combined with the mountainous terrain, took their toll on the local environment. As our field survey teams have noted, this region of southern Calabria is dominated by deeply incised foothills currently characterised in most places by severe environmental degradation. Within the overall landscape there are numerous variants and gradations to this state of overall degradation, and so one can identify zones of higher *macchia* (i.e. trees such as evergreen oaks, cork, arbutus, and tall lentisk), more degraded areas characterised by lower *macchia* dominated by lentisk bushes, broom, and myrtle which in turn give way to zones dominated by cistus and then to thistles, spiny broom and aromatics such as thyme and other herbs.

While there will have been cycles of loss and growth in terms of natural vegetative cover it has been reported that in 1830 Calabria as a whole was still 48% forest and natural pasture and by unification in 1861 more than half the territory fell into this category. Travellers such as Lear (2003) commented on the forests around Bova. This was a concern for the

state which saw this type of environment as underproductive from an economic perspective. Grazing lands begin to disappear or be abandoned and uncultivated but otherwise productive lands go from 8.4% in 1911 to 80% in 1981. These statistics also need to be balanced against comments on the destruction of forested lands for ship construction and railroads reported for the 1700 and 1800s both in Calabria but also for example in Sardinia.

On the other hand, because southern Calabria is characterised by a deeply incised landscape, the loss of extensive vegetative cover generated increasing episodes of erosion and degradation. The steepness of the streams and the impact of rain on deforested areas have contributed to the continued cycle of floods and landslides that are common, and whose long term consequences are perhaps worse even than earthquakes. In lower altitudes we find Pleistocene substrates and soil surfaces that are deeply incised with sharp ridges. This together with summer aridity creates the worst collapses, which are particularly apparent on brown scaly and blue Pliocene clays, particularly in the Bova region. Within our research area we can see the profound effect of intense rains in removing any vestige of surface cover, when intense rains cause all manner of surface materials from clays to boulders to run unimpeded down the steep slopes and into the Mediterranean Sea.

From an environmental perspective, the dense vegetative cover is critical in an area with such steep valleys as bush and tree cover help to mitigate the force of the seasonal rainfall providing a cushioning effect as the rain passes through the leaves and branches, and then the deeper ground litter and humus allowing the rain to be absorbed at a slower rate. It is likely that the landscape was covered in denser vegetation in antiquity as well as in the more recent past prior to the 1800s. Certainly descriptions of the hilly regions and upland areas from the 1500s to the early 1800s describe fairly dense, natural vegetation in some areas. Any time you clear land for farming or allow intensive and uncontrolled grazing on pasture or stubble as opposed to adopting more moderate practices or exploiting the grazing possibilities within wooded areas you put pressure on the landscape. As the high *macchia* was cut and lands overgrazed, small and partial erosion that might once have had a more tempered impact on the landscape now may have resulted in larger areas that would have become less suitable for sustainable agriculture. In his travels to the region in 1777 Swinburne noted that Bova was far from any important communication road and that agriculture did not seem to be well developed there (Swinburne 1785, cited in Trobetta 1976: 94). Overgrazing and cultivation also contribute to subtle changes in rain patterns and temperature. Farming and pasture land are not as successful as tree cover at retaining soils unless very well maintained in terms of crop rotation schemes, controlled grazing techniques and the maintenance of terrace walls. The type of vegetative cover thus can affect the survival rate of archaeological remains for without this sort of filter, it is likely that many artefacts will be washed down slope from their original locations or in some cases valley bottoms may be covered with slope wash. In the case of flimsy architecture or the abandonment of rural infrastructure such as terrace and field walls, we might expect these features also to suffer from increased flash floods and erosion.

The removal of vegetative cover in the areas between the coast and the middle uplands (say up to 300m asl) of the Aspromonte has certainly affected the climatic regime of the area, resulting in greater temperature excursions for the coastal regions and accentuating the natural Mediterranean climatic cycle of rainy winter months and dry summer months by prolonging the latter. In earlier periods the area had more tree cover (whether dense *macchia* of lentisk, tree heather, evergreen oak and myrtle or citrus and mulberry trees). Mulberry trees begin to be cultivated more intensively in the 1200s with the development of the silk trade (Fiore 1999: 21). Bergamot production can be attested from the 1650s first as a decorative plant in and around Reggio, and then for the production of perfume and liquor, but it is a sensitive plant that prefers a uniform temperature regime like other citrus plants and it is more delicate than oranges or lemons. Irrigation is costly and so the trees were usually planted near the *fiumare*, although they take 15–18 years before one can expect a good harvest (Gambi 1965: 331). This varied vegetative cover would have contributed to

increased transpiration, and decreased albedo resulting in more precipitation and slightly cooler temperatures overall.

Research published in the mid 1960s notes that post 1950 there was an attempt to recapture small scale farming with attempts to grow potatoes in the mountains and hills. Grazing was promoted on the steppe lands or areas with a gneiss substrate. This latter term would certainly imply fairly intense changes in the surface vegetation. Depleted soils counted for up to 15% of coastal lands and 25–40% of the area inland around Bova (Gambi 1965: 297). This will of course have a related impact on the amounts of drinking water available and on the types of crops that can be easily grown or grown without sophisticated irrigation systems.

The concentration of inhabitants in the town of Bova Superiore or the movement of people to Reggio meant fewer people to work the land for both the nobles and the Church at a time when a majority of the productive agro-pastoral terrain was under their control resulting in a decline in economic productivity and income for the area. (Caridi 2000: 13). In terms of the landscape this often translates into the abandonment of field walls, terraces and crops which help to anchor the soil, and this may lead to periods of erosion in areas where fruit trees are not the main crop. In Plutino's study of the records for years 1668–71 it would appear that 20.4 % of income was being derived from land potentially planted with grain or vegetables, 17% in mulberry trees, 13.5% in vineyards and only 4% in olive groves. This left 44% of the taxable income from animal husbandry of one sort or another (Plutino 1996: 74). This could be seen as supporting a less intensive use of the landscape at this particular time and we can attempt to verify variations in the intensity of land-use as we move forward with our geophysical research plans and integrate them with our survey data and historical research.

In analysing the contemporary landscape, zones that are currently experiencing intense erosion are often the end products of 19th century attempts to improve the local economy. This might have been through the introduction of crops that were not suited to the area or industries that required supporting infrastructure or labour that was non-existent, or as a result of attempts to give more citizens property ownership. The introduction of unsuitable crops or industries often led to the abandonment of those fields or structures. The end of feudalism and the attempts on the part of the government to redistribute of land by offering it to the general population were apparently less successful in Calabria than in other regions of Italy. Perhaps this was because in Calabria the land needed to be purchased (whereas for example in Sardinia Savoia's edict stated that one only need build a wall around the land intended as personal property by a certain date) and few in Calabria had the means to acquire land (Placanica 1979: 109–10).

From the perspective of our research project, we can hypothesise that settlers in antiquity may have settled over a wide region, exploiting the resources of the forested uplands on a temporary or permanent basis. During the post-medieval and succeeding periods up through the early 1800s, ever larger tracts of land appear to come under the ownership of fewer and fewer individuals. Unlike the feudal system as we might understand it from Great Britain with its manor and village structure, many of the landholders in Calabria seem to have either hired day labourers, or followed an almost no-trespassing policy, rather than adhering to the more traditional tenant-farmer system. This would leave Calabrian farmers either living in small communities such as Bova or Africo or dispersed in the landscape between the large landholdings. In terms of land-use and settlement, we can investigate how this lightly settled early historical landscape compares with the ancient land-use models we are uncovering. It may be worthwhile to pursue modelling options that would help us envision the earlier hydrology of the area, and to investigate where the tenant farmers and small landowners select to settle with respect to the landscape. We will need to model more closely the fluctuating population to understand the shifts from the rural areas to the urban centres as well as the changes in crops cultivated as grains give way to the valuable production of citrus trees for fruit and for the production of liquors, and to the effects of the silk trade on

this region. The planting of mulberry trees and citrus tress is something we can follow and correlate with settlement in our area, as well as the abandonment or non-adoption of these crops that were integral to the Calabrian economy in the post medieval period. As we move forward with our project, it is hoped that our current research into the modern and ancient environments can be combined to provide increasingly strong models to help guide further research in the area.

CONCLUSIONS: BEYOND TOPOGRAPHICAL DETERMINISM

If the long-term occupation of the Bova landscape shows anything, it shows the interplay of social, cultural and physical factors in settlement. Nobody can doubt that the physical environment structures settlement here. Critical resources such as water, clay, stone and soil are localised. The coastline affords the easiest access to the outside world. The rugged mountains mean that major river valleys and ridgelines provide obvious pathways for travel, far easier than other routes. Yet we must remember, firstly, that some features of the 'natural' landscape are of human origin. The apparent distribution of arable soil reflects centuries of human-induced landscape change. The modern river channels have all been stabilised through concrete channels. Moreover, humans have often defied such apparent physical constraints. For example, medieval and early modern settlements are often located in the most inconvenient places imaginable; early modern travellers followed painfully laborious routes along ridges and plateaus between inland centres rather than moving along the coast and thence up valleys and ridges. Similarly, farmers defied physical limits on land by creating arable terraces on steep slopes around Bova Superiore.

One broad contrast, for example, is between periods when settlement has to be understood with reference to political-economic centres lying outside the immediate area — the Roman era and the 19th–20th centuries AD — and those in which it appears to have been more or less self-contained — the prehistoric periods, the medieval era. In the former, settlement focuses upon the coast, which makes movement of people and products more practical. In the latter, settlement is either spread evenly everywhere, as in the Neolithic and Bronze Age, or is nucleated in intentionally reclusive communities, as in the Middle Ages. It is this contrast which makes the Greek period so perplexing and interesting: Greek settlement in Bova in general defies the metropolitan, polis-based model of Greek colonization in Italy. Within the Bova area, it includes a relatively large coastal site at Mazza, but also frequent smaller settlements. A second issue concerns the relationship of low and middle altitudes with the high central mountains of Aspromonte above 1500m. In historic times they were used as seasonal pastures for mountain towns such as Bova and they may have afforded specific resources such as timber, charcoal, nuts and game. It is unclear, partly through lack of research, how far back in the past this specialised use extends and whether the central mountains were ever occupied by independent settlements.

In all periods, the way settlement systems structured themselves must have been influenced by the close proximity of coast and mountains. Within what was, in the early modern period, the territory of a single town are both the Mediterranean coast and mountains over 1000m high. The opportunities for the use of multiple ecological zones could be resolved through many different structures, of course, and so it is important from a practical point of view that this steep landscape also makes it possible for a single research project to observe how systems focused on different segments of the landscape in different periods.

Thus, we see the long-term settlement history of Bova as a continual interplay between physical landscape and social need. The physical environment provided highly structured raw materials, but these were used differently in each period: Neolithic and Medieval settlement, for instance, both focused upon inland areas, but they differed dramatically

from each other as well. Hence the value of multi-period survey; while each period presents a unique way of defining and using the Bova landscape, it is only by contrasting them that we can understand how environment and social choice interacted in forming human settlement.

ADDENDUM

Much new information has been discovered since this article was originally written. For an updated account of the Bova Marina Archaeological Project see:

http://www.arch.cam.ac.uk/~jer39/BMAP/index.html