

Towards a Comparative Study of *Chorai* West and East: Metapontion and Chersonesos

In Memory of
Dinu Adamesteanu
(1912-2004)

Joseph C. Carter

A comparative study of Greek colonies was the goal that motivated me, after nearly a quarter century of multidisciplinary investigation of the western colonial *chorai* of Metapontion and Kroton in Southern Italy, to visit Chersonesos in 1992 and to participate actively, for the last decade, in its exploration,¹ while, at the same time, continuing field survey, remote sensing studies of land division, and publications of results from the *chora* of Metapontion.

My first experience of a *chora*, that of Metapontion, in 1969, though I was unaware at the time, was to be a decisive point in my career. It was then that I came to know Professor Dinu Adamesteanu, the first archaeological superintendent of Gela and Basilicata, animator of the study of the colonial countryside for whom Sicily, South Italy, and the Black Sea were always one world.

The archaeology of the *chora*, east or west, is landscape archaeology and, therefore, necessarily multidisciplinary in nature. It is not at all coincidental that behind the early research of these two best known colonial *chorai* – those of Metapontion and Chersonesos – were two pioneers in the use of aerial photography in archaeology, D. Adamesteanu and A. Ščeglov. Their work anticipated in other ways, too, current “landscape archaeology”.² More recently the collaborations of palaeobotanists Z. Janušević (Kišinev) with archaeologist G. Nikolaenko (Sevastopol’) and of L. Costantini (Rome) and G. Paškevič (Kiev), and of archaeozoologists S. Bokonyi (Budapest), A. Kasparov (St Petersburg) and O. Žuravlev (Kiev) with the Institute of Classical Archaeology (ICA) at Chersonesos and Metapontion have been the stimulus for further multidisciplinary research aimed at revealing the agricultural economy of a colony and its *chora*.³

At Metapontion, Kroton, and Chersonesos, the disciplines most useful in attempting to unravel the complexity of life lived in the ancient countryside have been: palaeobotany, palynology (the study of ancient pollen), archaeo-

zoology, physical anthropology, geology and geomorphology, intensive field survey, and the study of historic aerial photographs and imagery from space. Only at Metapontion, to my knowledge, have all these disciplines and approaches been systematically and rigorously employed, and the results synthesized – at least in a preliminary way in a volume published this year by the University of Michigan Press.⁴

Let us see how these scientific disciplines or archaeological subfields have been useful at Metapontion and Chersonesos by considering the first of the issues that this conference aims to address: “How do we define a city’s rural territory, how are its borders marked and defined, and how do they change over time?”.

No securely identified *horoi* have survived at Metapontion or Chersonesos. What did survive in both areas was a very large number of rural settlements and “special purpose” sites. Just beyond the city walls of Chersonesos, approximately 140 imposing “rural estates” have been remarkably well-preserved as

The Divided Chora
Vector Overlay on
CORONA Satellite Photograph

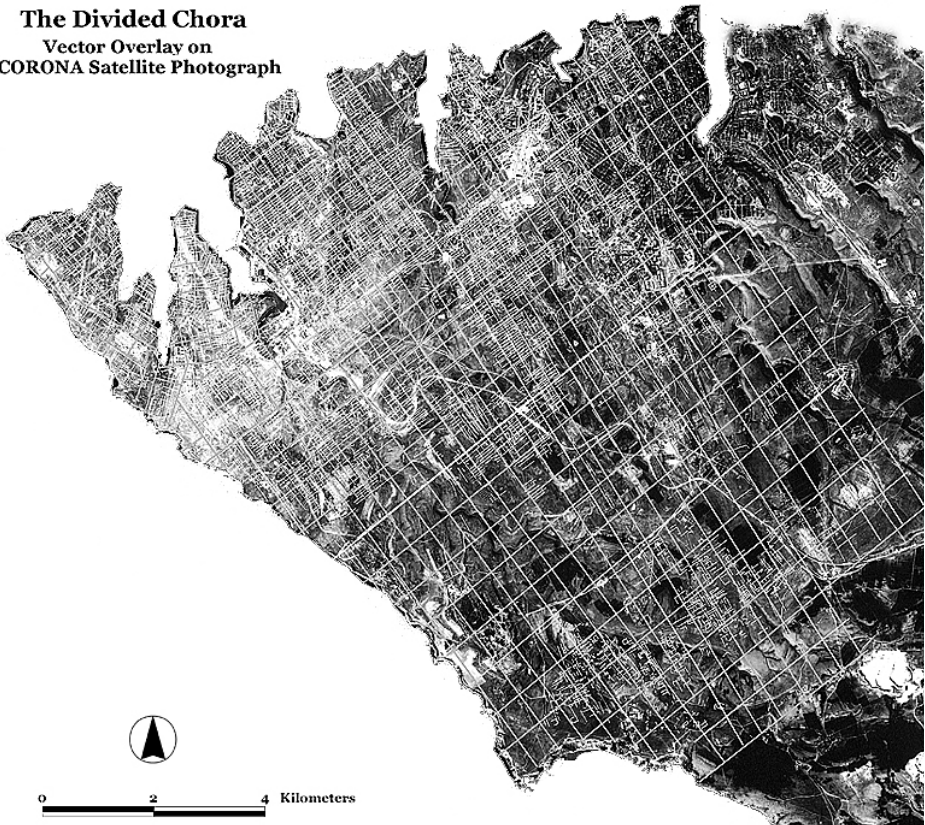


Fig. 1. Chora of Chersonesos, satellite image with superimposed divisions and site locations (Jessica Trelogan. ICA.)

have the ancient stone roads, clearly identifiable as such, that divided the *chora* into over 400 large rectangular plots, which in many cases were subdivided into parcels measuring 210 m on a side (Fig. 1). The divided *chora* occupies most of a clearly defined geographic unit, the Herakleian Peninsula, which is generally referred to as the “nearer *chora*” to distinguish it from the city’s extensive territories and settlements to the north and west.⁵

It was these facts more than any others that brought me to Chersonesos in the first place; it was simply the best parallel anywhere in the world for the situation at Metapontion. But the two *chorai* were not similar in every respect. The problems of land – its possession and its uses and relations with pre-existing and surrounding native populations, in particular – were, it proved, quite distinctive.

The limits of the *chora* of Metapontion have been defined by the extent of settlements as determined by intensive field survey and geomorphologic research.⁶ With an average of close to twenty sites per square kilometer, Metapontion is, I believe, the most densely inhabited ancient countryside known, up to now, in all the Greek world, though Kroton is certainly comparable (Fig. 2).⁷ In the course of eight extended survey campaigns between 1981 and the present (2006), the total number of sites so far recorded for the survey transect at Metapontion is 999, with only about a third of the presumed area of the *chora* having been covered. The goal is to have eventually 100% coverage of accessible areas of the ancient countryside, but that is work for my successors at ICA and colleagues in the *Soprintendenza*.

The “sites” consist of sharply defined, isolated scatters of building materials and pottery of various periods, stretching from the Neolithic to the late Medieval period. 95% of them have a significant Greek component. The major site types known from excavation are habitations, necropoleis, and rural sanctuaries. Both the quantity and the quality of ceramic materials from the survey make it abundantly clear that the large majority of sites were farmhouses of the colonial period, dating from the late 7th century to the early 3rd century BC. All the artifacts – some 100,000 – collected from the surface have now been studied and documented and are being integrated with data provided by topographical, geomorphological and hydrological studies in a rapidly growing geographical information system (GIS).⁸

The black gloss pottery is our best chronological guide for most sites, though figured pottery and terracottas are not infrequently found. The range of pottery, including high percentages of undecorated table, cooking and storage ware, leaves little doubt that clearly defined concentrations of pottery, roof tile, and stone were working farmhouses – places of production, as well as residence. The percentage of Black Gloss with respect to the other pottery types excavated on Metapontine farm sites is far higher than that in the Chersonesean estates – on the average, about 30% or more of all ceramics as opposed to about 5% at Strzeleckij No. 25, a carefully excavated large “estate” in the *chora* of Chersonesos. The citizens of the *chora* in Metapontion

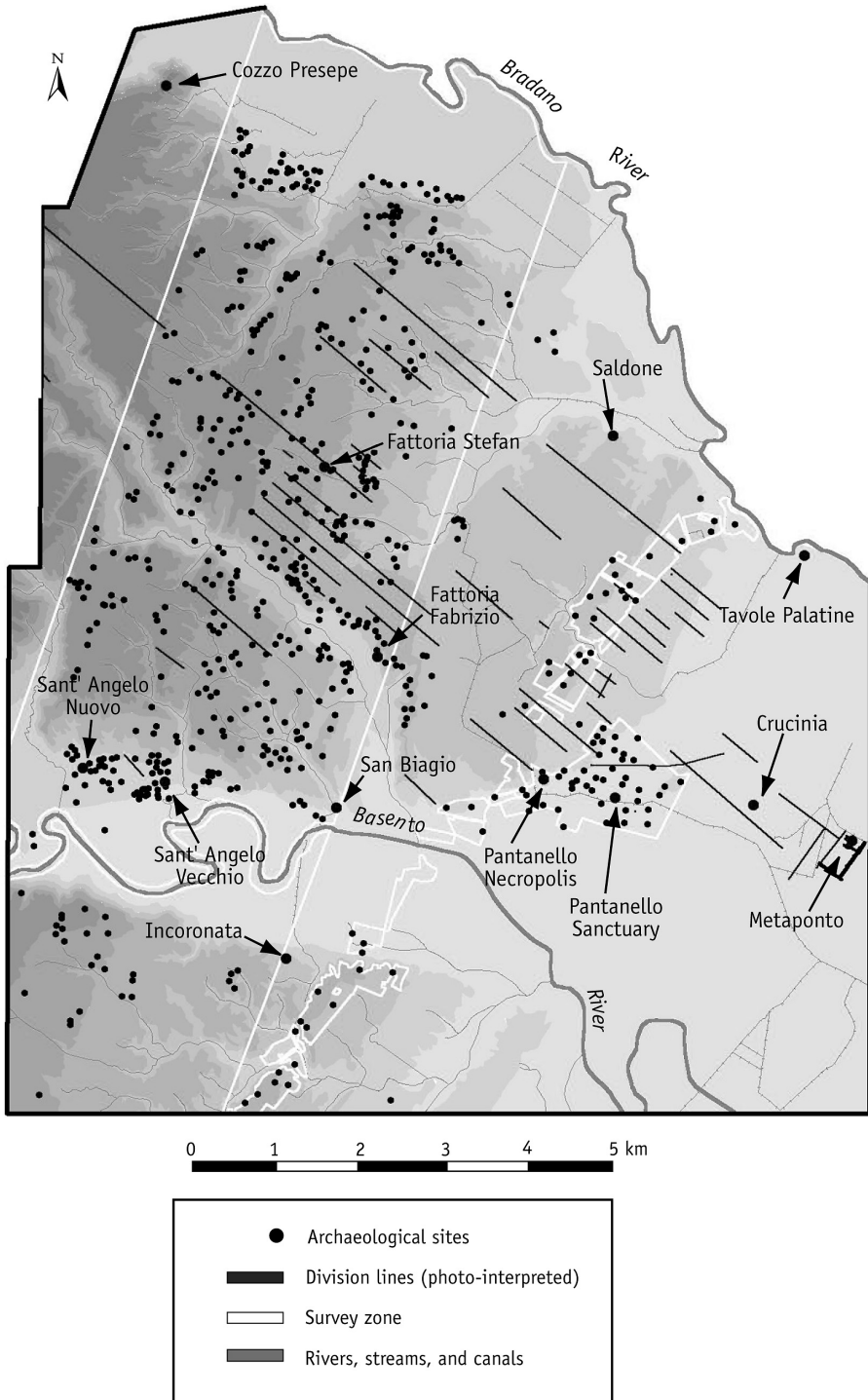


Fig. 2. Partial plan, chora of Metapontion, with survey sites and excavated sites (Chris Williams, after S. Thompson. ICA.)

occupied their houses year round, and the distribution of these isolated farmhouses was uniformly dense in all areas.

It is clear from the distribution plans, however, that few farmhouses have been found on the surface in the three river valleys that pass through the *chora* of Metapontion and provide the north and south geographical boundaries for it. The reason for this became clear with the geomorphologic study of the *chora*. The majority of sites are found on the well-drained marine terraces of the high plains between the valleys of the Bradano on the north and Cavone on the south. Relatively few were found on the slopes, and almost none in the valleys. An answer to the question – does the field survey record the original distribution of the ancient sites? – will require knowledge of changes in landforms of the *chora*, both in remote geologic and more recent times.

The number of settlements decreases significantly at a distance of about 14 km inland from the modern prograded coastline (the eastern limit of the *chora*) where the fertile marine terraces begin to narrow rapidly. The interior, characterized by “bad lands” terrain, was the domain of the displaced indigenous peoples after the foundation of the Achaean colony in the 7th late century BC. The western extent of the *chora* was, thus, defined by its geomorphology. The Greeks simply took the most fertile terrain along the coastal plain and on the marine terraces. In the hinterland to the west, the large indigenous settlements at Cozzo Presepe, Montescaglioso, Pomaricho Vecchio, and Pistici may well have functioned, at various times, as forts (*phrouria*) occupied by friendly natives.⁹ The land between these and the marine terrace was the *eschatia*, a source of timber and game, for Greeks and natives alike, and a buffer zone. Their barbarian neighbours in Southern Italy were clearly far less a threat to the colonists than those of Western Crimea. Apart from the city walls, constructed in the mid-6th century BC, and the putative *phrouria* there are no other defensive structures, and none of the farmhouses of Metapontion, constructed entirely of mud brick, had towers or special protective walls, as was the case at Chersonesos.

Though the settlement on the site of the city and the construction of major rural sanctuaries of Metapontion began in the late 7th century BC (the archaeologically determined founding date) few of the farmhouses on the terraces existed before the late 6th century BC. Where did the early settlers live? I am convinced that they were already in the *chora*, but are now largely invisible.

The landscape, as the geomorphological study has decisively proven, has changed a very great deal within the last thousand years as the result of massive alluviations that have left deposits as thick as 4 meters on the valley floors.¹⁰ The oldest settlements should logically be located in the potentially richest soil, deeply buried along the rivers, which provided easy communication. This has been confirmed by the very recent excavations for an oil and gas pipeline that has uncovered a significant number of late 7th century BC sites, as well as later ones, in an excellent state of preservation, deeply buried in the alluvial plains. No evidence of a division similar to that on the marine

terraces has been found in the buried valleys. Excavations, however, were very limited and, thus this is not to say that there may not have been some sort of visible demarcation of property lines.

If the whole of the *chora* had been inhabited by individual farmhouses, as it is now safe to conclude, there is no question where the majority of the work force resided, in the *chora* on their individual farms. There is no evidence of the existence of the institution of slavery at Metapontion, as there is at Poseidonia and at Kroton, both Achaean foundations.¹¹ During times of need, during harvest periods for example, additional labour could have been recruited in the several indigenous villages on the borders of the *chora* or inland where the original native population had been driven by the colonists. This is where, in living memory, the great landholders of southern Italy found the manual labour to work their extensive *latifundia*.

The second site type in numerical importance are the small rural necropoleis, usually situated along the roads and canals – about which more later – discovered in close proximity to the single, isolated farm dwellings. They are the strongest proof that the inhabitants of the *chora* were permanent residents and, together with artifacts from their habitations, show the farmers' cultural level was virtually indistinguishable from that of the inhabitants of urban Metapontion.¹²

Nothing comparable to these small family burial plots has been found in the *chora* of Chersonesos, suggesting that its inhabitants dwelt in the *polis*, at least part of the year, and buried their dead in the prominent necropoleis close around the city.¹³

How land was held at Chersonesos – whether by an oligarchy of wealthy residents of the city or individual families (*oikoi*) comprising the democracy? – is still a much debated question.¹⁴ Some 2,400 or more plots, of roughly standard measure (210 × 210 m) covering approximately 4.4 ha, would have filled the divided area of the *chora*. Plots of this size would have sufficed, though barely, for a single family. The number would have been enough, in theory, for the entire citizen population of the late 4th century BC. Only about 140 farmhouses or “country estates”, covering a surface area of from 400 m² (rarely smaller) up to 2,000 m², have been identified, and there is generally only one on each of the larger divisions of 160 × 420 m that includes six of the smaller plots¹⁵ (Fig. 1).

It has been argued that land could have been bought and sold, or perhaps rented by the *damos* to individual citizens.¹⁶ Large land-holdings, whether owned or rented, could have been formed, in any case. In no period is the evidence decisive. Complicating the picture further is the fact that there are extensive areas where no “estate” building was constructed – in contrast to Metapontion where the distribution of dwellings over the countryside and the size of plots, though it varies locally, is practically uniform when the whole of the *chora* is considered.

A comparison with Chersonesos forces the question, where did the work

force that transformed the rocky Herakleian Peninsula into a great network of roads, terraces, and productive fields, live? Certainly not all in the few large rural “estates”. The demands of labour and the amount of wealth required to create the Chersonesean agricultural landscape in such a brief period (c. 350 to 275 BC) would have been daunting. The sheer quantity of rock moved in this relatively short time implies a workforce of almost pharaonic proportions. Only an entity with the size and resources of the *polis* and a dependent labour force of great size could have planned and executed such a program.

The smaller Chersonesean farms could have been cultivated by the single-family owners themselves who would have had to commute from the city or by native labour commuting from their villages on the fringes of the Herakleian Peninsula.¹⁷ The large “estates” may have been controlled by wealthier farmers or absentee landlords. Alternatively, they may have been communally shared by the holders of smaller plots who could have stored their equipment and carried out their worship and sacrifices to the gods in a shared facility. Farmhouse 151, a small “estate”, excavated jointly by the National Preserve and ICA, for example, seems to have continued to serve as a place of worship for the rural community even after its agricultural functions had largely ceased.¹⁸

I have argued at great length elsewhere that the inhabitants of the *chora* of Metapontion were Metapontine citizens and that conclusion is supported by the study of contemporaneous evidence from the city. In contrast to colonial



Fig. 3. Newly discovered section of the early Hellenistic city wall of Chersonesos (Courtesy of the National Preserve of Tauric Chersonesos, and S. Ryžov.)

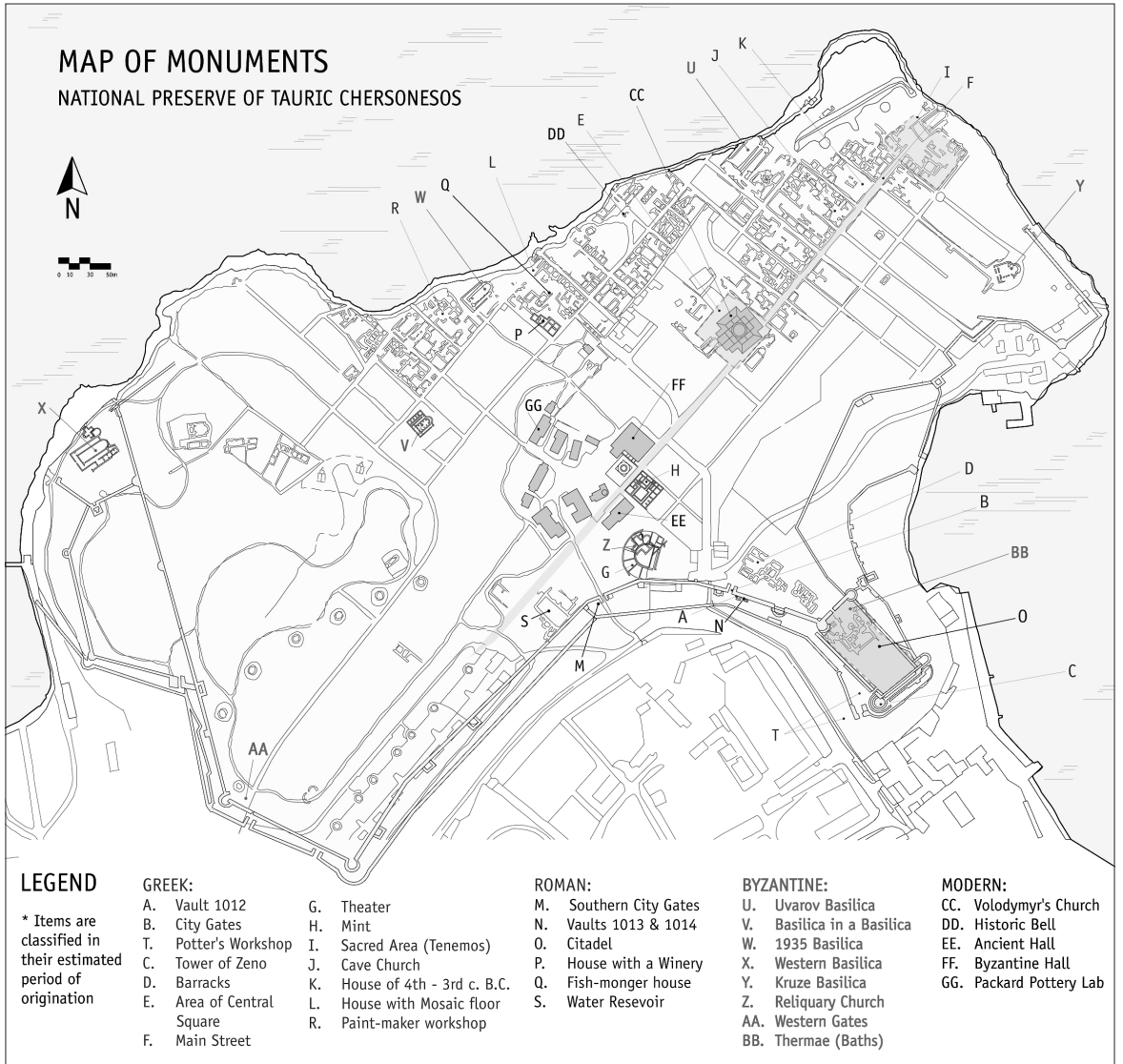


Fig. 4. Plan of ancient Chersonesos (J. Lane, from *Crimean Chersonesos*.)

Chersonesos, the history and development of the city plan of Metapontion, including the size, function, and plan of the public structures, are fully known, though the residential quarter, unfortunately, remains largely unexplored. As a result, the populations of city and *chora*, and the periods of prosperity and stagnation, can be accurately correlated.

At Chersonesos, by contrast, the Roman and Byzantine builders cannibalized the preceding structures for the most part. Some soundings, however, such as that in the area of a new and enlarged laboratory and storage structure

replacing Fondy 4, under construction, make it clear that the late Medieval plan of the city (which is most in evidence) followed closely the early Hellenistic orthogonal plan of the colony of Chersonesos.

The excavations in this area in the summer of 2003, by S. Ryžov, revealed for the first time what may be the earliest Hellenistic city wall in the western part of the city (Figs. 3 and 4). It crossed the peninsula at about 500 m to the north of the later wall, and can be dated accurately to the late 4th or early 3rd century BC on the basis of the pottery finds in its foundation trench. The rusticated masonry and dimensions of the blocks are identical to the oldest part of the city wall preserved by the South-Eastern Gate.¹⁹ If this is what it appears to be, we know the approximate area of the city at the approximate time of its massive expansion into the Herakleian Peninsula and the precise point from which the *chora* extended at that time. The wall cut through an earlier monumental necropolis with the foundations of grave monuments preserved *in situ*, in the path of what became *stenopos* No. 12 of the later expanded city. This early circuit enclosed approximately half as much land as the later southern wall. The area was nearly the equivalent of three units of 210 × 210 m or half of one of the larger land plots, consisting of six such units, or approximately 630 × 420 m. There certainly seems, as at Metapontion, to be strong relationships in size and orientation between urban and rural divisions.

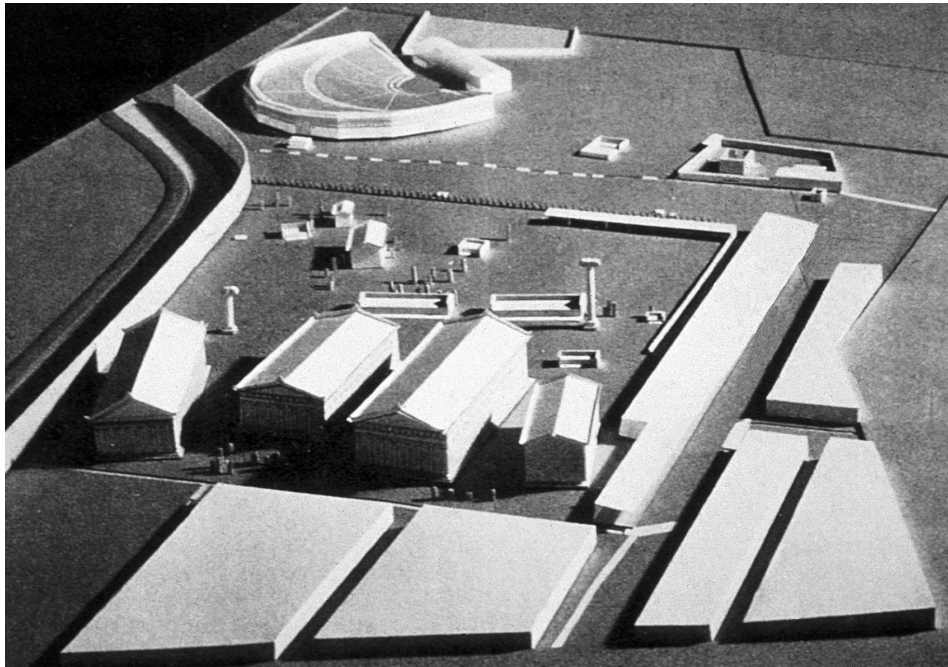


Fig. 5. Model of the public sector, sanctuary and agora, of Metapontion as it would have appeared about 300 BC (Courtesy of Dieter Mertens and the DAI Rome.)

Very few identifiable colonial structures of early Hellenistic Chersonesos – the theatre, “mint”, several houses, and city walls are important exceptions – have been preserved. All but the theatre (of which only the foundations of the stage building and some of the original seating have been preserved) have the same distinctive masonry of the newly found city wall. What the successors of the Hellenistic builders in the ancient period may have missed in their remodelling projects, the late 19th century builders of the monastery ruthlessly rooted out. It is, therefore, difficult, if not impossible, to compare contemporary developments in the *chora* and city of Chersonesos in any period.

The picture of the *chora* of Metapontion that emerges as a result of the intensive field survey is one of constant change. Not all of the farms of these citizen-farmers were inhabited simultaneously. Some were short-lived. Others persist over generations – a result confirmed by the dates furnished by the family grave goods on the plots. There were two periods of maximum population and prosperity in the *chora* and city, one in the late Archaic, the other in the early Hellenistic period (Fig. 5). The first period, confirmed by the numbers of inhabited sites, the number of burials and quality of grave goods, the building history of monumental structures in the city, such as the *ekklesiasterion*, and of sanctuaries in the *chora*, was the second half of the 6th and first half of the 5th century BC. After a sharp decline in both gauges in the first half of the 4th century, when the population of the *chora* decreased by as much as 25%, there was a renaissance in the second half of the 4th century BC, when population surpassed the high level of the early 5th century. New monuments and structures, the theatre and *stoai*, rose in the centre of Metapontion. The occupation of the *chora* reached its all time high.²⁰ This was a period of elaborate burials and funerary structures in the countryside. It was the same period, by the way, that witnessed the division of the “nearer” *chora* (covering the c. 10,000 ha of the Herakleian Peninsula) and the expansion of Chersonesos into the “farther” *chora* (the coastline of the vast Tarchankut Peninsula).

The major historical changes, rises, declines, and shifts in the population of the *chora* of Metapontion can be traced with very great precision because of the abundance of well-dated pottery from the survey.²¹ These fluctuations can be correlated not only to periods of rising or declining prosperity in the city, reflected in building projects, but also to well-dated changes in the environment, including the sudden rise in the water table throughout the area of Metapontion about the mid-5th century BC, and the evident environmental degradation that followed.

Besides the distribution of farmsites, another type of structure of the ancient *chora*, the rural sanctuary, has to be considered in defining its extent. As influential as the theory of “frontier sanctuaries” has been, it has not been confirmed by the archaeological evidence from the *chora* of Metapontion. Very briefly, the sanctuaries of the early *chora* are distributed not just at the periphery or frontier, but more or less uniformly throughout it, at regular intervals. They are contemporaneous, dating to the late 7th and first half of

the 6th centuries BC for the most part, and, thus, are among the earliest structures in the Achaean *chora*. All are located by perennial water sources. The aspect of fertility is prominent in the cult, in all cases. At first a female deity predominated, but the votives from the 5th century onward almost without exception have a strong Dionysiac element. The two more fully excavated examples, the San Biagio and Pantanello sanctuaries, closely resemble each other. Rather than marking the frontiers of an expanding *chora*, they seem to define religious-administrative districts. They have been correctly interpreted, I believe, by A. De Siena as the centres of powerful *ghene* or clans residing in the countryside. The migration of ancient rural cults like Zeus Aglaïos from San Biagio in the *chora* into the heart of the city in the 5th century BC has plausibly been viewed as an attempt to mediate growing tensions within Metapontine society between the democratic elements in the city and the more conservative land-holding families of parts of the *chora*.²²

Nothing like these rural sanctuaries beside springs has been found in the *chora* of Chersonesos. A sanctuary, reputedly of Dionysos, was excavated on Lighthouse Point in the early 1990s, and another, perhaps dedicated to the same god, has been recently uncovered near the twin defensive walls that separated Lighthouse Point from the rest of the Herakleian Peninsula. A 4th century BC site on the coastal heights at Fiolent has been, optimistically, identified as that of Parthenos, the Maiden and protective patroness of the polis – a sanctuary well known from references in Herodotos (4.103), Euripides' play, Iphigeneia in Tauris, and in Strabon's account (7.4.2). Almost nothing remains, and freestanding sanctuaries are clearly the exception in the *chora*. Instead, the clearest evidence for cult life is to be found in the "rural" estates like Site 151. There in two prominent shrines in the north side of the central tower, two of Herakles' clubs and a ritual vessel were found *in situ*, trapped by the collapse of the mud-brick second story of the tower when it was destroyed in the early 2nd century BC. Inside the tower was much evidence for a cult of Dionysos. It included a large scale terracotta figurine of a Silenos and a small altar (that may represent Dionysos).²³ Cults of Herakles have been discovered at other farmhouses in the *chora*.

Herakles was, beside being worshipped by Greeks and barbarians alike, the titular protector of the peninsula that bore his name and formed the "nearer" *chora*. He and Dionysos were the principal divinities, worshipped with equal fervour by the inhabitants of the *chora* and their indigenous neighbours. Around the altar stone in front of the shrine of Herakles, at Site 151, was a concentration of goat bones – the typical sacrifice to Dionysos. There is good evidence at Site 151 that the cults of the two divinities survived a period of destruction and abandonment that affected the entire *chora* ("nearer" and "farther") in the 3rd century BC. Site 151 went out of use only in the 1st century BC. In its final phase, this rural structure, as mentioned earlier, may have existed mainly as a place of worship, and I would like to suggest the possibility that the worshippers may have included non-Greeks.

Excavations of farmhouses in the *chora* of Metapontion in which terracotta votives are commonly found throughout the *chora*, reinforced by the results of intensive field survey, make it clear that virtually every Metapontine farm family had a modest domestic cult. Only rarely are these terracottas figurines comparable in size to the figures found in the *chora* of Chersonesos, on Lighthouse Point and at less than a half a dozen “estates”. The Chersonesean figures give the impression of being small cult figures, rather than votives. Fragments of acrolithic cult statues and large-scale terracotta statuettes, instead, have been found in several of the Metapontine rural sanctuaries together, in some cases, with hundreds of terracotta votives. Small terracotta votives are rare, by comparison, in the *chora* of Chersonesos, but are ubiquitous in the city.

Metapontion’s rural sanctuaries, like the farmhouses, were open and unprotected in contrast to the Chersonesean “estates” which were stout stone structures built with defence in mind. At a later stage, their entrances were often narrowed and the walls reinforced, as S. Saprykin argues, with special “anti-battering ram” buttressing. Clearly, the relation between the colonial inhabitants of Chersonesos and its *chora* – the warlike Scythians and the indigenous Taurian populations of Crimea – was of a very different nature. The barbarians living outside the Metapontine *chora* quickly assimilated and imitated Greek models. Only in the 4th century did they, too, begin to build walled cities in the Greek fashion.²⁴



Fig. 6. Aerial view of the fortified site of Bezymjannaja (J.C. Carter. ICA.)

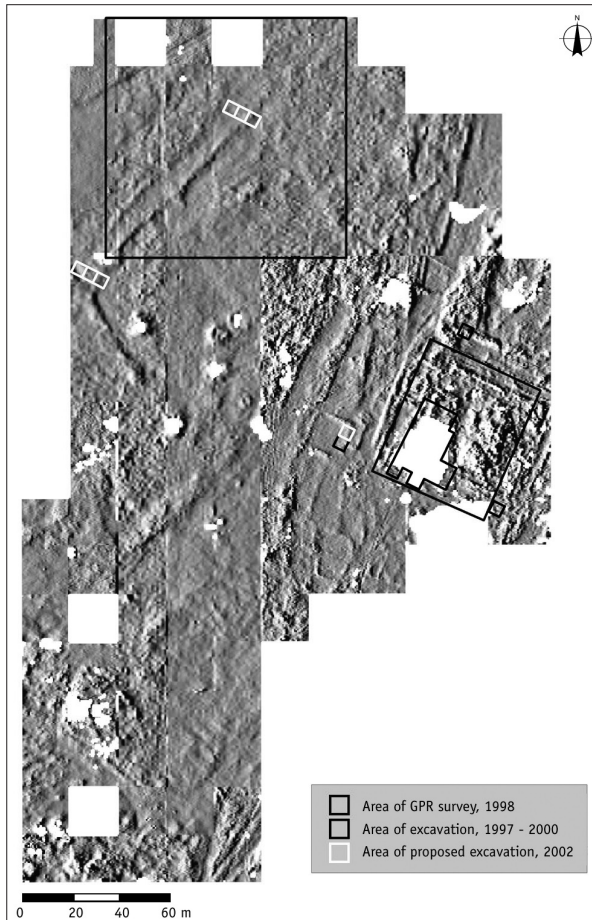


Fig. 7. Visualization of the results of the resistivity survey at Bezymjannaja (Courtesy of the National Preserve of Tauric Chersonesos, M. Nikolaenko and S. Šakuro)

In contrast to the distant defensive ring of *phrouria*, far from the divided *chora* of Metapontion, Chersonesos had not only distant outposts, but also fortified farmhouses within the *chora* and positions right on the landward border of the divided “nearer” *chora*, along the Sapun and Karan’ Heights. An example is the partially excavated site of Bezymjannaja, the object of a joint project of the NPTC and ICA.²⁵ It protected the best land approach to Chersonesos from the 3rd century BC, at least, until the 11th century AD (and it played a role in the Crimean War and World War II in defending Sevastopol’).

A large part of the “nearer *chora*” of Chersonesos was defined by the dividing roads, first observed in modern times as long ago as 1786.²⁶ Many are now under the city of Sevastopol’ and outlying *dacha* communities. Others not visible earlier have appeared in aerial photographs and have been traced on the ground by archaeologists, most recently by G. Nikolaenko and her team. Still others have been discovered using several systems of remote sensing. The most effective land-based method has proved to be an electrical resistivity

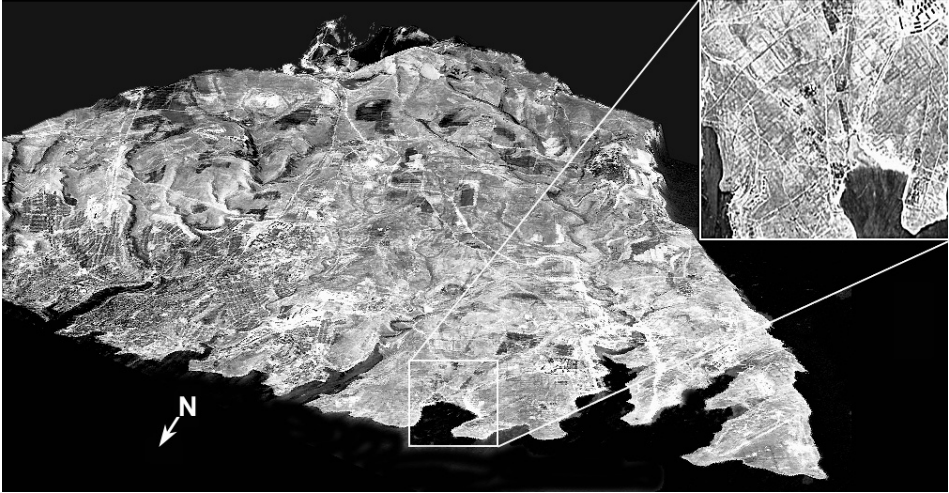


Fig. 8. Corona image of the chora of Chersonesos with inset of the Omega Bay area, draped over a digital elevation model of the topography (Jessica Trelogan, ICA and the Center for Space Research, University of Texas at Austin.)

survey. This 3-D visualization of the results of M. Nikolaenko and S. Šakuro suggests the complex nature of the buried structures on the northern slope of Bezymjannaja (Figs. 6 and 7). “Ground truthing” excavations by the joint ICA-NPTC team have confirmed the presence of the structures and clarified their date and function.²⁷ It has been complemented by the study of images from space, both recent and historical, by J. Trelogan.²⁸ These include the high resolution “Corona Images”, made in the 1960s and declassified in 1996. These scientifically valuable relics of the Cold War have been a priceless aid in the study of the ancient agricultural territory. This work was made possible in part by a generous and timely grant from the National Space and Aeronautics Administration 1998-2002.²⁹ They are particularly important because they antedate the rapid urbanization of the Herakleian Peninsula in the past two decades. Among the more recent images from space utilized by the joint team are the lower resolution EOSAT multispectral images and the shuttle-based ESA radar imagery. All have had their uses in helping to create a DEM to clarify and to explore the relationship between the dividing roads and the topographical relief (Fig. 8). The division of the *chora* is not as regular as the reconstructions of it would suggest. Topography significantly affected the

Fig. 9 ► Aerial photo mosaic of the chora of Metapontion, with division “lines” superimposed (Jessica Trelogan, Courtesy of the Aerofototeca of Ministero dei beni culturali, Rome and the Soprintendenza alle Antichità della Basilicata.)



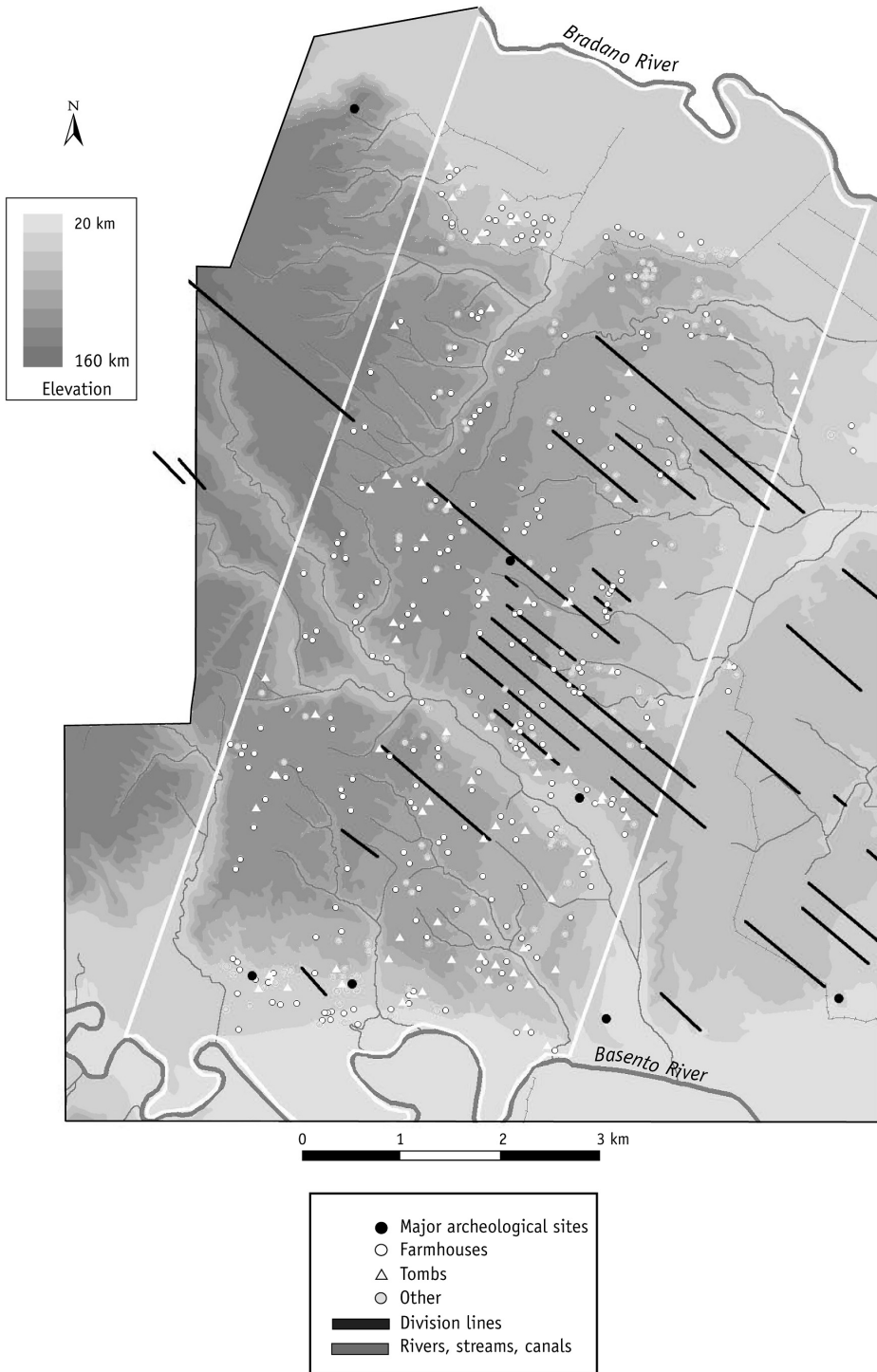


Fig. 10. Plan of the Chora of Metapontion with division "lines" (Chris Williams, after S. Thompson. ICA.)

planning of this *chora*, as it did at Metapontion. This archive of imagery has great potential as it grows in monitoring the preservation of ancient sites and tracing changing land use patterns, specifically the encroachment of the city on the archaeology.

The use of a highly accurate GPS in the *chora* of Metapontion has been of inestimable value in exploring the linear features known as *linee di divisione*, since their discovery by aerial photography in the 1950s (Figs. 9-10). The lines help to define the spatial limits and organization of the *chora* of Metapontion. The first studies of these linear anomalies in the aerial photos, supported by limited surveys on the ground resulted in an idealized reconstruction of plots, referred to as *kleroi* of 210 m on a side,³⁰ similar to the one very recently published for Chersonesos.³¹ Both plans are unconvincing and misleading because they are too schematic. The Chersonesos city plan does not take into account in a systematic way the results of over a century and a half of archaeological excavation. The city of Sevastopol' has long been an important naval base, and because of its strategic military importance, no plan with accurate coordinates has ever been published of the *chora* of Chersonesos.

The division of the *chora* of Metapontion is clearly recognizable in aerial photography, especially those photos made before the mid-1950s when the agrarian reforms brought irrigation and deep-ploughing to much of the area of the ancient *chora*, especially the still fertile marine terraces, and destroyed many of its superficial ancient features, not only the farmhouses and shallowly buried necropoleis, but also traces of the "lines". The latter simply disappeared from some of the photos leaving little or no evidence of their destruction, though, as the 1999 survey showed, this was not always the case.³² These were not the solidly built roads of Chersonesos, but features created by ancient excavation and filled with packed soil that resulted in the differential crop-growth patterns that appeared in the aerial photos.

Traces of an earlier division of the *chora* of Metapontion have been identified. Currently, we know that there are at least two different but related divisions between the Bradano-Basento and the Basento-Cavone rivers. None of these "lines" in the Bradano-Basento watershed is precisely 210 m from another. They range from 180 m to 240 m apart with an average of 209 m in the northern half of the *chora* between Bradano and Basento – suggestively close to the measure of subplots, 210 × 210 m, in the "nearer *chora*" of Chersonesos.³³ Not only is the space between the lines in the two *chorai* very similar, so is their orientation, approximately 45 degrees west of north, on the north-west-south-east axis, though the reasons for this may be quite different.

A careful study of aerial photographs by A.N. Ščeglov has been the key to understanding the system of land division in the greater *chora* of Chersonesos on the Tarchankut Peninsula.³⁴ The geological situation in the *chora* of Kalos Limen is closer to that of Metapontion than of Chersonesos. Was the system there likewise created by excavation and, if so, were the features discovered by aerial photography purely earthen, as those of Metapontion proved to be?

For the present, this question will remain unanswered, but a full comparison with Metapontion ultimately makes a response necessary.

What, in reality, were the “lines” at Metapontion and when were they created? The answers to these questions had long been the source of heated debates among scholars. ICA, in the early 1980s, excavated a rural necropolis through which ran one of the “lines” a 150 meter long section of a road flanked by 80 tombs, the earliest of which dated to the early 5th century BC. The remains of burials and sacrifices of the late 6th century indicated that the necropolis and the road may have been in existence earlier.³⁵ The road’s orientation and position corresponded perfectly with the system of “lines” defined by the historic aerial photographs. That seemed to answer the question until in 1999, when, at the request of the *Soprintendenza*, ICA carried out a survey of all sites in the path of a major oil and gas pipeline project. The corridor, which ran from one side of the *chora* to the other (Cavone River-Bradano River), was between 200 and 500 m wide and 13 km long. J. Trelogan scanned and geo-referenced 80 some aerial photographs indicating “lines”. Armed with the GPS, the ICA survey team was able to go directly to the spot on the ground where the lines should have been, and indeed still are. Excavation in 1999 revealed a more complex system than we had expected from the photos alone, and it made possible the accurate placing of the first transverse line to have been actually excavated.³⁶ This, as Adamesteanu and Vatin had argued a quarter century earlier, was not an orthogonal system but consisted of rhombus-shaped parallelograms which they compared, in terms of dimensions and area, but not shape, with the Chersonesean lots.³⁷

Soundings to verify the “lines” were made in the *chora*, in the area known as Pizzica. It was chosen on the basis of surface indications – a discoloured strip of soil corresponding to a line and many fragments of large red-figured vessels; two sections of a longitudinal road, lined by tombs, were revealed. Intersecting this was the newly discovered transverse road, and a diagonally intersecting road. Subsequent excavations in 2000 and 2001 by the *Soprintendenza* have uncovered more longitudinal lines, some of which were clearly drainage canals.³⁸ Erosion and a sudden rise in the water table, mentioned earlier, were particularly acute problems in the 5th century BC as we know from a variety of sources.³⁹ The canals, too, were lined by burials.

We might reasonably conclude that the roads and canals, given their regular spacing and the presence of numerous smaller or larger grouping of tombs, served not only practical purposes, such as transportation and drainage, but also as boundary markers, defining in some way the extent of plots, farms, or parts of rural property. The probable date of the earliest lines, shortly before 500 BC, excludes the possibility that the lots formed by these lines belonged to a hypothetical first *dasmos*, or division, among the original colonists, who arrived at the end of the 7th century BC, but perhaps they mark in a tangible way a re-division of the *chora* at the end of the 6th century BC and early 5th century BC in a period of democratic ferment throughout the Greek world.⁴⁰

The orthogonal grid of the city of Chersonesos, in contrast, is certainly no later than the late 4th or early 3rd century BC.⁴¹ It has recently been suggested that a grid plan existed in the NE quarter of the city by the mid-4th century BC at the latest. If this is so, the grids of the *chora* and city would have developed at approximately the same time. At Metapontion the main axes of the city were established in the early second half of the 6th century, at least a half century earlier than the earliest use of the roads and canals in the *chora*. As at Chersonesos, the grid of the city of Metapontion has virtually the same orientation as the grid of the Metapontine countryside. It would be satisfying to find that the orthogonal grids of Chersonesos and Metapontion, city and *chora*, were each part of one overall planning effort, but that has yet to be proven for both sites. The earliest rural “estates” at Chersonesos, which are oriented as the grid of the *chora*, belong to the second half of the 4th century BC. As noted earlier, we cannot be sure that the urban grid of the city was that early. At Metapontion, based on secure evidence, such a grand plan could only have existed in a hypothetical way when the city grid was created in the third quarter of the 6th century BC.

Up to this point, we have spoken of Greeks – Greek roads, farmhouses, and sanctuaries – but the issues of changing settlement patterns and demography, and the relation between centre and periphery, forces the question of the relations, as this conference should, between Greek, ethnically mixed, and non-Greek populations. This has been a central issue for the archaeologists of the Western Greeks colonies for the last 20 years or more, since, as D. Ridgeway has put it, the indigenous world “has come into its own”. I have dealt at length with this question in another forum, concentrating on one of the earliest settlements – Inoronata, dating from the 9th to the 6th century BC – on the south coast of Italy where Greeks and non-Greeks met for the first time in the territory of what became the *chora* of Achaean Metapontion. The naturally defended site is located on a plateau on the right bank of the Basento, approximately 8 km inland from the coast. The circular dugout huts and the partially interred rectangular structures contain varying proportions of imported Greek pottery, locally made indigenous wares, some hand made, some wheel made, and a hybrid wheel-made “colonial” pottery using Greek shapes and eclectically chosen Greek motifs.⁴²

There are striking parallels in the dugout and semi-dugout dwellings in approximately contemporaneous settlements at Berezan’ and the *chora* of Olbia.⁴³ It would have been more appropriate, naturally, to discuss the pre-Greek population of the *chora* of Chersonesos, the people the Greeks knew as “Taurians”, whose archaeological remains belong to the Kizil-Koba culture. This important subject, however, has not been a research priority, and very little, apart from several stimulating, brief papers by Ščeglov and Savelja,⁴⁴ has been recently published on this subject – in contrast to the relatively vast amount of literature devoted to the Greek occupation of the *chora*.

In the interpretation of this early archaeological evidence of Greek and

indigenous contact, there are the same entrenched and fiercely defended positions among scholars from the West and East. We hear that Incoronata, after the natives were “driven out”, was a purely Greek *emporion* or *polis*. The inhabitants of the dugouts that contained both Greek and handmade pottery in the *chora* of Olbia were “Greek” with no possibility of their being, instead, mixed. This interpretation reflects the view common, a half century or more ago, in the waning years of modern colonialism.⁴⁵ These hardened positions owe much to overly sharp distinctions between Greeks and barbarians, between different Greek *ethnoi*, and were less important in the historical period of early colonization we are considering than has previously been thought.⁴⁶ Some arguments are based on later Greek texts which attempt to establish territorial claims, made centuries after these first colonial contacts,⁴⁷ as well as to modern preconceptions of “nation states” and racial purity.

Incoronata was, according to one of its main excavators, P. Orlandini, first a native village, razed to the ground and transformed into a purely Greek *emporion* in the 7th century BC, which was, in turn, destroyed by the Achaean colonists.⁴⁸ De Siena, who has investigated the pre-Greek settlements surrounding Incornata, maintains that it was a native village whose culture was transformed internally over time⁴⁹ under Greek influence. Adamesteanu’s intuitive identification of the site as a mixed settlement of indigenous peoples and early Greeks, suggested as early as 1971 when the site was first identified, corresponds most closely to the archaeological situation.⁵⁰ The early dwellings at Berezan’ have many of the same characteristics as those at Incoronata. Researchers at Berezan’ and Olbia are also divided on how to interpret the evidence of house forms and ceramics as reflecting the origins of the settlements.⁵¹ The arguments will not be reviewed here. Rather, attention will be turned to some other types of evidence vital to the reconstruction of the *chora* and the identification of its population. This material record, more often than not, has been ignored by archaeologists of colonial settlements, East and West. In many cases it has simply not been collected. These are the evidence of ancient plants and animals, both domesticated and wild, and of the remains of human occupants themselves. They provide a fresh light and perspective, and an escape from the interminable debates about floor plans and pottery forms.

The area of the future *chora* of Metapontion was occupied by a number of sites of the pre-colonial period. They include the Neolithic site at Pantanello, the Bronze Age settlements at Termitito, San Marco, and S. Vito, and a very extensive network of Iron Age villages dating from the 9th to the 7th century BC occupied by the “Oenotrians” of Greek tradition. They settled in villages with impressive necropoleis all along the southern coast of the Ionian Sea. Often only the necropoleis are known, but as De Siena’s excavations have shown, the plateaus along the south bank of the Basento River were densely populated by hut settlements in the 9th and 8th centuries BC, immediately before Greek contact.

The Greeks did not arrive on a deserted shore, in an *eremos chora*, or among

savage and backward peoples. The natives had a developed culture, as evidenced by the rich grave goods of their necropoleis. Agriculture was the basis of the economy and it must have been thriving. The Greeks saw an opportunity to participate and seized it. How much did they contribute that was original, and when is their presence first detectable?

The answer lies in determining the chronology of this kind of evidence and the degree of continuity and change in the passage from the period before the Greek contact and after. After all, how can such settlements be adequately described without knowledge of their agricultural economy, of the types of plants and animals that were raised by the pre-Greek Iron Age peoples, the early Greeks at Incononata, and those who, a little before 600 BC, established the Achaean colony. Continuity would indicate a soft landing. As noted above, according to Orlandini, the whole of the indigenous village was destroyed. This would certainly have affected the farming population of the surrounding countryside.

To view the larger picture of a developing Metapontine landscape, plant macrofossil remains, pollen, and animal bones have been collected and analyzed during the excavations of sites dating from the late Neolithic Pantanello (c. 3000-2500 BC), Bronze Age Termitito (dated to 14th-12 century BC on the basis of Aegean imports), the proto-historic period, mainly the 7th century BC, at Incononata, as well as from the period of the Achaean colony, and the period of Roman domination (from the 2nd century BC to the late Imperial period). The plant and faunal remains were precisely datable because they were studied together with the ceramics from individual contexts. The faunal samples at most sites were large enough to be statistically significant, ranging from about 700 bones of identifiable species at small sites to several thousand at the larger ones.⁵²

A comparison, based on straight counts of identifiable species, shows a clear development over the three millennia under consideration. Sheep, of the small prehistoric type introduced into Italy in the early Neolithic period, were in absolute majority among the domesticated animals at late Neolithic Pantanello, Bronze Age Termitito, the Iron Age and indigenous site of Cozzo Presepe, and, until the 7th century BC, at Incononata, where for the first time the Greek influence, and, I would argue, a Greek presence is manifest. Sheep and goat were probably raised primarily for their wool and milk and only secondarily as a source of meat.

From the 6th century BC until the 1st century BC, at Pantanello and Sant'Angelo Nuovo in the colonial *chora*, oxen, the tractors of ancient agriculture, clearly replaced sheep and goats as by far the most numerous of the domesticated species. Sheep seem to have regained their predominant role only in the late Roman Empire. We can, thus, observe in broad outline the transformation of the area of the Metapontine *chora* from a pastoral to an agricultural economy, from the rich meadows of the Bakchylides poem (Ode 11.119) about "horse-rearing Metapontion" to the ploughed fields with its fabled grain har-

vests, followed by a return to pastoralism at the end of the ancient period. This reinforces the general picture that can be deduced from the few passages of ancient literature and the representations of animals and crops in art. The coinage of colonial Metapontion with the ear of barley leaves no doubt about the source of its wealth, at the height of its prosperity.

The picture becomes truly interesting and more informative when the details are considered. For example, at Incoronata, the earliest settlement of Greeks and, *pace* Orlandini, of indigenous peoples living in harmony, there are three clear phases in the archaeological evidence: an Iron Age indigenous village down to the end of the 8th century; a mixed Greek and indigenous village which existed until the late 7th century, about 630 BC, and an isolated Greek rural sanctuary of the middle of the 6th century on the site of the abandoned mixed settlement. This rural sanctuary was clearly part of the system of contemporaneous sanctuaries that, as mentioned earlier, divided the Achaean colonial *chora* into districts.

The late Professor S. Bökönyi, one of the outstanding archaeozoologists of our time, studied all of the faunal remains from the sites excavated by ICA in the *chora*. He recognized two types of sheep at Incoronata: the "small prehistoric type" that was found at Neolithic Pantanello and Bronze Age Termito in the third and second millennia BC and in the 7th century contexts at Incoronata, and a much larger and more robust type found at Incoronata in the contexts of the mid-6th century sanctuary. As he puts it, "there was an invasion at Incoronata and in the *chora* in the 6th century of a superior and larger breed of sheep originating in the south-east, probably Greece".⁵³ This improved variety made Southern Italy famous for its wool. They replaced the prehistoric sheep which could not compete. It is a good example of what has been termed, in another context, "biological imperialism".

One conclusion that can be drawn from the faunal evidence at Incoronata is that the agricultural economy of the pre-Achaean *chora* changed, also with a significant addition of swine, but the principal species remained the same. This supports the general conclusion that the first Greeks participated in, but did not dominate, a well established village life. That picture changed dramatically in the course of the 6th century BC after the arrival of the Achaean colonists. First and foremost, it was they, presumably, who introduced a radically different settlement pattern of isolated farmhouses, with their associated necropoleis and rural sanctuaries, in place of the naturally defined hilltop village sites of the indigenous and mixed Greek and indigenous populations. In the mixed village of the 7th century BC, the pig, locally domesticated and raised entirely for its meat, became an important element in the economy and diet of the occupants, as it is to this day in Lucania. For the record, the earliest chicken yet found in Italy lived in this village. Horses, for which the *chora* later became famous, were here in limited numbers, though they may have arrived earlier. The ass is present at Bronze Age Termito, but it would not have been surprising had the remains of the horse also been found on the

site. In short, all the inhabitants of a modern farmyard could be found in the *chora* by the 7th century BC though only in the late Roman period does the chicken occur with any frequency.

A further example where the careful study of animal bones by an expert can produce historically significant results emerges from a consideration of cattle-raising at Metapontion. No less an historian than Arnold Toynbee, basing his conclusions on documentary sources, argued in his massive *Hannibal's Legacy*, that after the departure of the Carthaginian leader at the end of the 3rd century BC, the south of Italy was transformed into a desert occupied only by slaves and sheep. Roman control, as we now know, did not at first bring immediate decline in the fortunes of Metapontion's farmers. Bökönyi's study of the stratified deposit of animal bones and pottery associated with a 2nd BC to 1st century AD kiln tile and amphora factory at Pantanello⁵⁴ shows that in the earliest levels, dated securely by Republican coins of c. 150 BC, were the remains of the largest cattle in the Roman World, which he argued were consciously bred for size and power. As the pollen record, also from Pantanello, shows, the fields of 2nd century BC Metapontion were still being cultivated as they had in colonial times.

Metapontion was still producing its traditional crops – the grape, the olive, and the cereals. In the upper layers of this deposit, dated securely by much Arretine pottery, sheep predominated. It is not coincidental, I think, that most of Toynbee's sources date from the Augustan period and later. He moved forward by several centuries, without the necessary evidence, the agricultural development of the region, and in particular the system of great *latifundia*, specializing in sheep farming, but not exclusively, that characterized this area of the Ionian Coast from the 2nd century AD to the end of Antiquity. Excavations of the port of Metapontion of grain-filled amphorae dating to the late 4th century AD prove that cereal cultivation still had a place in the local economy.

Our primary documentary sources on early colonization are Greek or based on Greek sources. They have characteristically attributed to the Greeks the introduction to barbarian lands of at least two elements of the so-called Mediterranean triad – the grape and the olive. Systematic palaeobotanical study of pre-Greek sites in Southern Italy, for example, has shown domesticated olives and grapes (*Vitis vinifera*) probably existed at the end of the Bronze Age or beginning of the Iron Age. Greek colonization brought instead improved methods of cultivation and treatment of these crops.

The climate of Chersonesos was too severe for the olive but permitted, and still permits, active production of good quality grapes and wines. Grape and cereal production in the *chora* of Chersonesos have been investigated by Janušević and Nikolaenko who conclude that the grape was produced by the Greeks, using wild stock, and that the same type of cereals recovered from the farms of the "nearer" *chora* were also raised in Chersonesos' possessions to the west.⁵⁵

Dated pollen samples from several sites in the *chora* show, however, that the pollen of two species, the grape and the walnut, appeared on the Herakleian Peninsula for the first time at a date very close to that of the arrival of the Greeks in the 5th century BC.⁵⁶ More such work is needed before secure conclusions can be drawn about the origins of the Chersonesean grape. The closely spaced grape planting walls at Chersonesos show that viticulture predominated. Vineyards largely covered the traces of the agriculture practiced by the pre-Greek indigenous farmers.

Wheat and barley were raised in south-eastern Italy from the early Neolithic (7th millennium BC) and in the late Neolithic village at Pantanello. Most types of cereals, plus the legumes found in later periods, were already present there. They included *Triticum dicoccum*, the hulled wheat that remained a staple in Italy continuously well into the period of Roman domination of the peninsula, which began in the 3rd century BC, *Triticum aestivum*, the soft, naked wheat ideal for bread-making, and *Hordeum vulgare* or barley. The legumes, especially lentils were, on the basis of the evidence from Pantanello, also major components of the economy. In the Bronze Age, which is less well known, the naked hexaploid wheats (*Tr. aestivum*) seem to be favoured, but the hulled wheat maintained its traditional place and barley is less in evidence. At Inoronata in the proto-historic period, when Greeks and the native Italic peoples made first contact, the principal cereals from admittedly small samples are *Tr. dicoccum*, known to the Romans as *Farrum* and barley, whose importance in this period is confirmed at other sites as well.⁵⁷ There is no demonstrable break in the practices, as far as can be determined, or substance of cereal cultivation with the first Greek contacts.

Our fullest information about the domesticated and wild plants that characterized the late Archaic and Classical periods of the Greek countryside came from well-dated contexts at a single site, the rural sanctuary of Pantanello.⁵⁸ It is uniquely rich in organic materials, largely due to the anaerobic condition of the soil which resulted in exceptional preservation of both carbonized and non-carbonized materials such as the whole grapes and olives. Among the numerous discoveries was that of *Alfalfa*, an import from the Persian Empire probably via Greece. Our examples are securely dated to the 4th century BC, the earliest so far discovered in Italy, antedating its first mention in the literature by Columella three centuries later. Undoubtedly it played a significant role in the animal husbandry that, as we have already noted, continued to be practiced in the *chora* well into the Roman period.

In conclusion, I return to a fundamental question raised earlier, "Who were the inhabitants of the *chora*?" The most direct answer comes from their mortal remains and from the detailed and patient study of a large number of skeletons, a twenty-year long project. This was carried out at three major sites in the *chora* and just outside the city of Metapontion by physical anthropologists M. and R. Henneberg.⁵⁹ The sites are a pre-Greek Iron Age necropolis, the Pantanello necropolis, and the urban necropolis of Crucinia. Altogether

about 700 individuals have been studied, of which 300 are from the rural necropolis of Pantanello and an equal number from the urban necropolis. These well excavated burials have made it possible to compare contemporaneous and statistically significant populations of *chora* and city with each other and with other similarly well documented necropoleis in Italy. Unfortunately, no comparably large studies have been published in Greece itself.

In brief, both the populations of the *chora* and urban necropoleis of Metapontion had much in common with the populations of Italic centres, but there was a clear difference between the Metapontine urban and rural populations.⁶⁰ The dwellers of the *chora* shared characteristics that place them closer to the Italic populations. This is a case of neither black nor white, but varying shades of grey. This was particularly evident in the teeth. Both the size and morphology of teeth are genetically determined. The measurements of the teeth of the *chora* dwellers were closer to those of other Italic populations than those of the city. The distinctive trait known as “Etruscan incisor” is far more prevalent in the *chora* than in the city. This trait has never been reported in the sparse anthropological literature from Greece. Fortunately, teeth are often preserved, even when the skeleton is not. The potential for this sort of study in tracing the differences and similarities between populations and within populations is great. To my knowledge, this sort of systematic analysis of skeletal material from dated burials has not yet been published for any necropolis in the Black Sea region. It might shed much light on the vexed question of supine versus flexed burials at Chersonesos and in its “farther” *chora* and of the biological relationships between Scythians, Taurians, and immigrant Greeks.

As to the future of landscape archaeology in the Black Sea, I am optimistic. The material evidence exists in abundance. Highly competent specialists are present in various institutes of the Academy of Sciences of Ukraine and Russia, and in the museums and universities. They are not called on by archaeologists as often as they might. There have been happy exceptions, as noted above. To these could be added the work of A. Kasparov and O. Žuravlev on the faunal remains of Chersonesos and its *chora*, as well as Kasparov’s work at Nymphaion and Panskoe and Žuravlev’s in the Olbian *chora*.⁶¹ Experts from the Institute for the Study of the Southern Seas in Sevastopol’ have collaborated with archaeologist T. Jašaeva in the study of the abundant marine fauna from her important Greek to late Medieval Site 32 in the “nearer” *chora* of Chersonesos.⁶² Palaeobotanist G. Paškevič has picked up where her teacher Z. Janušević left off in the study of palaeobotanical remains of the city and *chora* of Chersonesos.⁶³ There are surely other instances of collaborations of which I am unaware. In general, however, field archaeologists working in the Black Sea, as well as the Mediterranean, could be more sensitive to the importance of evidence that habitually ends up in the back dirt. There is much to be done, and much room here for international collaboration. D. Adamesteanu, in his 91st year, remarked, *Ucraini, Russi, Americani, Danesi, Polacchi, Inglesi, Tedeschi, Cechi e Australiani – lavorate insieme! E molto importante! Molto!*

It is the only way to make real progress. Though governments may not see eye-to-eye with each other, not to mention their own populations, researchers of past life can work together and find common ground through the study of our common history and culture. The future of landscape archaeology and archaeology in general depends on international collaboration – of the sort we see represented so well here and now, on this auspicious occasion.

Notes

- 1 I wish to thank the organizers of this conference for inviting me to address again this theme, which I first attempted, knowing little at the time about the Chersonesean *chora*, in a conference in the Chersonesos Museum in 1992 (Carter 1995, 167-175). I wish to express my deep appreciation to Director Leonid Marčenko and Deputy Director Galina Nikolaenko, and to the staff of the National Preserve of Tauric Chersonesos (NPTC) for their ever warm and generous hospitality and their spirit of open collaboration and collegiality. It goes without saying that without the constant encouragement and support both of the *Soprintendenze Archeologiche della Basilicata e della Calabria*, this comparative study would never have been possible. This article draws on the results of research by students, staff, and collaborators of the Institute of Classical Archaeology (ICA) over the last thirty years. It has been supported by the generosity, from the beginning, of private donors and foundations, the National Endowment for the Humanities (NEH) 1977-1993, The International Board of Research and Exchange (IREX) 1994-1995, the National Space and Aeronautics Administration (NASA) 1998-2002, and since 1999 by major grants from the Packard Humanities Institute (PHI) which has also generously supported the full publication of the results of field work at Metapontion since 1974 and Chersonesos since 1994.
- 2 Adamesteanu 1974.
- 3 Yanushevich & Nikolaenko 1979, 115-134.
- 4 Carter 2006.
- 5 Pecirka & Dufkova 1970, 123-174.
- 6 Carter & Prieto (forthcoming).
- 7 Carter & D'Annibale 1993; Carter & D'Annibale 1985, 145-157.
- 8 Prieto 2002, 47-50.
- 9 Adamesteanu 1974, 89-91.
- 10 Abbott 1997, Ch. 3.
- 11 The "slave" necropolis in the *chora* of Poseidonia: Avigliano 1985, 261-268. Manicles and manumission inscriptions have been discovered in the *chora* of Kroton: Carter (forthcoming 2005), Ch. 3.
- 12 Carter (ed.) 1998.
- 13 Carter 2002, 161-170, pl. 33.
- 14 Saprykin 1994, 83-94.
- 15 Nikolaenko 2001, 117-204; Carter in: Carter et al. 2000, 709-714.
- 16 Solomonik & Nikolaenko 1990.
- 17 Ščeglov 1981; Savelja 1996, 13-18.
- 18 Carter 2000, 723-733; Carter et al. (forthcoming 2000).
- 19 Carter & Mack (eds.) 2003, 58 (Maps of monuments, trace of latest phase of city wall); fig. 8.9 (city wall by South-east Gate).

- 20 Carter 1998, 15; Carter 2006; Ch. 5; Ryzhov 2004.
- 21 Carter 1998, 7-17; Carter & Prieto (forthcoming), n. 6; Recent Studies (2003-2005) of the black gloss pottery dating indicate a much higher number of sites in the chora in the early 6th century and 5th centuries BC than previously believed.
- 22 De Siena 1999, 229-232.
- 23 Carter 2000, 727-729.
- 24 Adamesteanu 1974, 190-197.
- 25 Barra Bagnasco 1997; Freeman et al. (forthcoming).
- 26 *See the contribution by G.M. Nikolaenko in this volume. Eds.*
- 27 Rabinowitz, Yashaeva & Nikolaenko 2003, 9-17.
- 28 Trelogan. 2000, 25-31.
- 29 NASA Grant No. NAG5-7693, "Remote Sensing, GIS and Ancient Territory: The Chora of Chersonesos, Sevastopol, Ukraine", Sept. 1, 1998 to May 31, 2003.
- 30 Uggeri 1969, 51-71; Adamesteanu 1973.
- 31 Buyskikh & Zolotarev 2002, 273-303.
- 32 Carter 2000, 21-33.
- 33 Guy 1995; Carter 1998, 42-46.
- 34 Ščeglov 1992, 250-273.
- 35 Carter 1998, 45; 2000, 24.
- 36 Carter 2000, 24, fig. 39.
- 37 Adamesteanu & Vatin 1976, 110-123.
- 38 Nava 2003, 664-676.
- 39 Carter 2006, Ch. 5.
- 40 Carter 2006, Chs. 3, 5.
- 41 *See the contribution by G.M. Nikolaenko in this volume. Eds.*
- 42 Carter 2004.
- 43 Solovyov 1999, 34-63; Tsetskhladze 2004.
- 44 Ščeglov 1981; Savelja 1996.
- 45 This is the point of view of T.J. Dunbabin (1948). Cf. Buiskikh & Buiskikh 2001, 667-682.
- 46 Hall & Morgan 1996, 164-232.
- 47 Mele 1998.
- 48 Orlandini 1999, 197-210; Stea 1999, 49-71.
- 49 De Siena 1996, 161-195.
- 50 Carter (forthcoming).
- 51 *See the contribution by S.D. Kryžickij in this volume. Eds.*
- 52 Carter 2003a, 491-509; Carter 2003b, 13-22.
- 53 S. Bökönyi, personal communication 1993.
- 54 Bökönyi 1984; Carter & Costantini 1994, 101-118.
- 55 Yanushevich, Nikolaenko & Kusmina.1985, 115-135.
- 56 Cordova & Lehman. 2003, 1483-1501.
- 57 Carter 1980; Costantini 1998, 7-15.
- 58 Costantini 1983, 487-492.
- 59 Henneberg & Henneberg 2001, 461-474.
- 60 Henneberg 1998.
- 61 Kasparov 2002, 332-333; Žuravlev, Markova & Syčeva 1990, 98-113.
- 62 Tatiana Jašaeva, personal communication, 2003.
- 63 Pashkevich 1997, 263-273.

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Abbreviations

- AttiTaranto* Atti del convegno di studi sulla Magna Grecia. Taranto.
- ChSbor* Chersoneskij sbornik. Sevastopol'.

