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THE BUSY COUNTRYSIDE OF LATE ROMAN CORINTH

Interpreting Ceramic Data Produced by Regional Archaeological Surveys

ABSTRACT

Using data generated by the Eastern Korinthia Archaeological Survey, the author examines the evidence for the frequently attested "explosion" of Late Roman settlement in the Corinthia, assessing the degree to which the differential visibility of pottery from the Early and Late Roman periods affects our perception of change over time. Calibration of ceramic data to compensate for differences in visibility demonstrates a more continuous pattern of exchange, habitation, and land use on the Isthmus during the Roman era. The author also compares excavated and surface assemblages from other regional projects, and suggests new ways of interpreting the ceramic evidence produced by archaeological surveys.

In conventional narratives of the Late Roman period, Corinth, like the entire province of Achaia, shares in the run of afflictions known to historians and chroniclers of the 3rd to 6th century A.D.: earthquakes, plagues, barbarian invasions, abandoned lands, and oppressive taxation, among other disruptive forces.[1] Over the last 20 years, however, scholars have questioned,

1. I am grateful to the codirectors of the Eastern Korinthia Archaeological Survey (EKAS), Timothy Gregory and Daniel Pullen, and to the field director, Thomas Tartaron, for encouraging me to analyze and present the EKAS Roman data, first as part of my dissertation on the Late Roman Corinthia (Pettegrew 2006), and now in this study. The analysis presented here makes use of Microsoft Access and ArcGIS data structures created by Richard Rothaus and Lee Anderson.

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diminished, and contextualized these terrors in light of a growing corpus of archaeological research indicating that the social and economic life of the Late Roman province was anything but depressed. The principal impetus for the revision has been a series of archaeological survey projects that have produced evidence for an explosion of settlement in the countrysides of Greece during the Late Roman period. If the territories of Late Roman Achaia appear to have been thriving, how then could the province have been in a state of general decline?

The current consensus on the ancient countrysides of Greece is that the proliferation of habitation indicates a Late Roman revival in the social and economic life of the province of Achaia after a depression earlier in the Roman period.[2] Beginning in the 4th century A.D., according to this view, the province experienced significant agricultural intensification and economic prosperity, tied perhaps to population growth, the production of olive oil for export, or an imperial policy of promoting smallholding farmers. Whatever the cause, Late Roman remains are highly visible in the Greek countryside, a fact that should indicate a healthy, not depressed, economy. A similar pattern of proliferating settlement has led one scholar to speak of the "busy countryside" of Late Roman Cyprus,[3] a description that is also fitting for Greece and other regions of the Aegean.

Despite the widespread recognition of this pattern, however, there has been little scholarship dealing with a number of key interpretive problems, especially the "source criticism" of survey pottery. Archaeologists have long recognized that the material culture of the later Roman period is more visible than that of other periods, but have never attempted to measure the degree to which such differential visibility affects our interpretation of change between the earlier and later Roman periods. How busy, in reality, was the countryside of late antiquity compared with that of the preceding and following periods?

In this study I address the issue of change in the Roman countryside based on a critical analysis of the ceramic data collected by the Eastern Korinthia Archaeological Survey (EKAS). I show how the perception of a Late Roman "settlement explosion" in the Corinthia and other regions of Greece is significantly affected by the differential visibility of the Early and Late Roman periods, which in turn is a product of the high visibility of Late Roman pottery, the nature of archaeological survey sampling regimes, and the well-developed distribution networks of late antiquity. While my analysis of the material reveals a phenomenon different from that suggested by a simple, literal reading of the evidence, in the end it reinforces rather than detracts from a picture of a vibrant Late Antique economy in Greece and the eastern Corinthia, and suggests that the structures of Corinthian trade and settlement that developed in an earlier Roman period continued into the 6th and 7th centuries, despite the broad cultural transformations of the era.

I begin with a broader exposition of the pattern and problems of the Late Antique countryside, and of the way in which Greece and the Corinthia in particular fit into that pattern. Next, I present the ceramic data for the Roman period from EKAS and analyze the material along with the Late Roman data from other published surveys as well as ceramic assemblages from excavated contexts. I then discuss the implications of this analysis for our understanding of the Roman countryside and suggest

2. For general historical discussion and recent syntheses, see Ward-Perkins 2000a, p. 321; Banaji 2001, pp. 16–17, 214; Shipley 2002, pp. 329–331; Kosso 2003, pp. 31–52; Chavarría and Lewit 2004, pp. 18–19.

3. Rautman 2000. Marcus Rautman's "busy countryside of Late Roman Cyprus" served as the inspiration for the title of the present article.

different ways of calibrating the data to compensate for differential visibility. Finally, I draw some historical conclusions about the state of the Corinthia in late antiquity.

THE LATE ANTIQUE COUNTRYSIDES OF GREECE

The last two decades of scholarship have transformed and greatly expanded our understanding of the history of the Late Roman countryside in the eastern Mediterranean. Older visions of abandoned lands, autarkic estates, exploited *coloni*, and general economic decline have given way to depictions of healthy and prosperous territories with prolific medium-sized farms, strong village centers, and well-connected economies. This vibrant rural world lasted to the end of the 6th century, and there is now evidence suggesting that, in many regions of the eastern empire, the prosperity continued into the 7th and 8th centuries as well.[4]

The basis for the recent revision lies above all in the widespread regional archaeological research occurring in both the eastern and western provinces, coupled with a better understanding of the ceramic chronologies for the period.[5] Greece and the Aegean have assumed an important role in the eastern Roman world generally, ranking alongside Israel, Cyprus, and Syria as countries in which the rural landscape has received careful archaeological investigation. This is a product of the frequent archaeological work conducted in Greece, including both ongoing rescue excavations and numerous regional survey projects (Fig. 1), which have documented a countryside filled with Late Antique sites.[6]

A remarkably consistent regional pattern of proliferating Late Roman settlement across Greece and the Aegean has fueled revisionist views of a strong Late Antique economy.[7] Table 1 lists intensive regional surveys that have produced data on settlement patterns between the Late Hellenistic and Early Byzantine periods, and indicates the ways in which these projects have defined the subphases of the Roman period.[8] From central and

4. See, generally, Ward-Perkins 2000a; Hirschfeld 2001; Banaji 2001; Bowden, Lavan, and Machado 2004. For older views, see, e.g., Rostovtzeff 1926; Jones 1964, p. 812.

5. For settlement patterns in the west, see Lewit 1991. On the importance of survey as a source for understanding the Late Antique rural economy, see Ward-Perkins 2000a, pp. 315–317; Chavarría and Lewit 2004, pp. 4–6.

6. For a synthesis incorporating the results of rescue excavations, see Avramea 1997. For general discussion of regional surveys, see Alcock 1993, pp. 33–49; Shipley 2002, pp. 329–331; Kosso 2003, pp. 31–52.

7. Ward-Perkins 2000a, p. 321; Banaji 2001, pp. 16–17, 214; Chavarría and Lewit 2004, pp. 18–19.

8. *AEP:* Jameson, Runnels, and van Andel 1994, pp. 255–256, 400–404, table A.1. *Methana Survey:* Bowden and Gill 1997a, 1997b. *NVAP:* Wright et al. 1990, pp. 616–617; Alcock 1993, pp. 41, 43–44; Kosso 2003, pp. 31–52, based on data made available to her by the project directors. *Berbati-Limnes Archaeological Survey:* Forsell 1996, pp. 336–337. *Asea Valley Survey:* Forsén, Forsén, and Lavento 1996; Karivieri 2003; Forsén and Karivieri 2003, pp. 307–312; Forsén and Forsén 2003, p. 334. *Megalopolis Field Survey:* Lloyd, Owens, and Roy 1985; Roy, Owens, and Lloyd 1988; Roy, Lloyd, and Owens 1989; Lloyd 1991. *Laconia Survey:* Lawson 1996; Mee and Cavanagh 2000, p. 106; Shipley 2002, pp. 268–273, 326–336. *PRAP:* Alcock et al. 2005, pp. 152 (table 1), 164 (tables 3, 4), 167 (tables 5, 6), 179–188, 194–204. *Patras Survey:* Petropoulos and Rizakis 1994, pp. 198–207. *Boeotia Survey:* Bintliff and Snodgrass 1985, 1988a; Bintliff 1991. *Stanford Skourta Plain Survey:* French 1990, pp. 35–36; Munn and Munn 1990. *Oropos Survey Project:* Cosmopoulos 2001, pp. 60–64, 78–79. *SEEP:* Kosso 2003, pp. 31–52. *Northern Keos Survey:* Cherry, Davis, and Mantzourani 1991, pp. 327–347, 481. Other archaeological surveys mentioned in this study but omitted from Table 1 await further analysis and fuller publication of the Roman and Late Roman material.

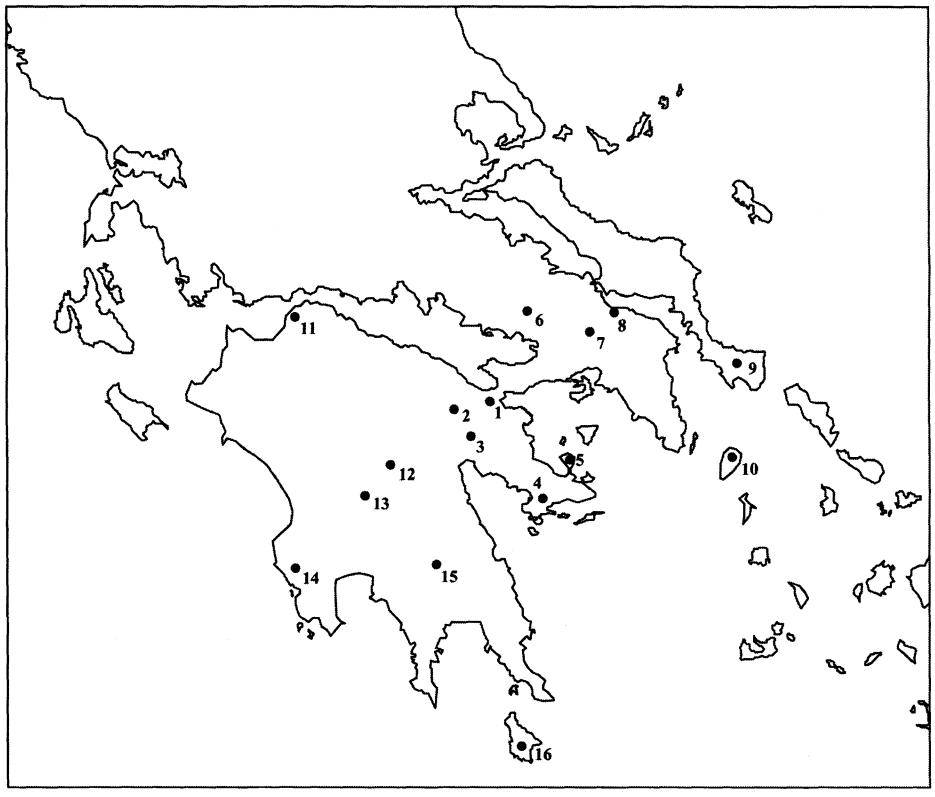

Figure 1. Map of Greece and the Aegean, showing the locations of regional surveys mentioned in the text: (1) eastern Corinthia; (2) Nemea valley; (3) Berbati-Limnes area; (4) southern Argolid; (5) Methana; (6) Boiotia; (7) Skourta plain; (8) Oropos; (9) southern Euboia; (10) northern Keos; (11) Patras; (12) Asea valley; (13) Megalopolis; (14) Pylos; (15) Laconia; and (16) Kythera

southern Greece to the Aegean islands, the Late Antique period appears to be a time of settlement expansion and recovery, with only a few exceptions. Moreover, as the data presented in Table 1 indicate, the Late Roman explosion of settlement is emphasized by a dearth of sites immediately before and after: the period of material abundance is sharply defined by periods of material absence.

These sharp contrasts have been central to recent discussions of the province of Achaia in the Early Roman and Early Byzantine periods. At one end of the spectrum, the absence of Early Roman material emphasizes the strength of the Late Roman. Susan Alcock, for example, argues that Roman imperialism dramatically restructured the Late Hellenistic–Early Roman landscape, leading to entirely new patterns of land distribution and nucleated settlement before a reversal in the later Roman period led again to a dispersed settlement pattern.[9] At the spectrum's other end, scholars have linked Late Antique Achaia to broader discussions about the end of the Roman world and the creation of a new Byzantine society: the absence of settlement in Early Medieval Greece contrasts sharply with the ubiquitous settlement of the preceding period, and may even be a product of the latter's demographic health, if overpopulation and the overtaxing of the soil in late antiquity led to an ensuing violent reversal.[10]

The most common explanation of the Late Antique pattern (Table 2) is that it represents a recovery and an expansion of settlement and agriculture, presumably indicating a healthier economy, more intensive agricultural practices, widening markets, and/or population growth, in contrast to a

9. Alcock 1993.
10. Gregory 1994.

TABLE 1. INTENSIVE SURVEYS AND PERCEIVED PATTERNS OF ACTIVITY

Project	*Chronological Definitions*	*Late Hellenistic*	*Early Roman*	*Middle Roman*	*Late Roman*	*Early Byzantine*
Argolid Exploration Project (AEP)	Early Roman (50 B.C.–A.D. 200); Middle Roman (A.D. 200–400); Late Roman (A.D. 400–650)	Decline	Low level	Low level	Recovery and expansion, gradually at first, peaking from late 4th to 6th century	Rapid decline from late 6th century
Methana Survey	Roman = Early Roman (100 B.C.–A.D. 100) and Middle Roman (A.D. 100–300); Late Roman (A.D. 300–700)	Decline	Low level, but increase from Late Hellenistic	Low level, but increase from Early Roman	Gradual increase through 4th and 5th centuries	Contraction by late 6th century, some sites continuing into 7th century
Nemea Valley Archaeological Project (NVAP)	Early Roman (30 B.C.–A.D. 250); Late Roman (A.D. 250–650)	Decline	Low level	—	Slight increase	Marked decline
Berbati-Limnes Archaeological Survey	Early Roman (30 B.C.–A.D. 150); Middle Roman (A.D. 150–300); Late Roman (A.D. 300–700)	Decline from Classical–Hellenistic to Roman	Low level	Slight increase	Increase	—
Asea Valley Survey	Early Roman (1st century B.C.–later 2nd century A.D.); Middle Roman (later 2nd century–early 4th century A.D.); Late Roman (4th–6th century A.D.)	Low level	Increase from later 1st century A.D.	Low level	Increase	Dark Age
Megalopolis Field Survey	Early Roman (to 3rd century A.D.); Late Roman (from 3rd century A.D.)	Decline	Low level	—	Increase	—
Laconia Survey	Early Roman (1st–3rd century A.D.); Middle Roman (3rd–4th century A.D.); Late Roman (5th–7th century A.D.)	High level	Decline, but higher than Late Roman	Continued from Early Roman	Lower level = abandonment?	Dark Age
Pylos Regional Archaeological Project (PRAP)	Early Roman (31 B.C.–A.D. 400); Late Roman (A.D. 400–700)	High level	High level	—	High level	Decline
Patras Survey	—	Decline	Increase	—	Decline	Marked decline
Boeotia Survey	Late Hellenistic–Early Roman (200 B.C.–A.D. 300); Late Roman (A.D. 300–650)	Decline	Low level	—	Significant increase from 4th century, and especially 5th and 6th century	Decline in 7th century
Stanford Skourta Plain Survey	Early Roman (1st–3rd century A.D.); Late Roman (4th–6th century A.D.)	Decline	Low level	—	Increase	Decline after mid-6th century
Oropos Survey Project	Early Roman (A.D. 1–200); Middle Roman (A.D. 200–400); Late Roman (A.D. 400–700)	Decline	Low level	Low level, but slight increase	Expansion	—
Southern Euboea Exploration Project (SEEP)	Early Roman (100 B.C.–A.D. 200); Middle Roman (A.D. 200–400); Late Roman (A.D. 400–600)	Decline	Low level	—	Dramatic increase	Marked decline
Northern Keos Survey	Early Roman (A.D. 1–300); Late Roman (A.D. 300–700)	Decline	Low level	—	Significant increase	—

TABLE 2. INTERPRETATIONS OF ROMAN PATTERN BY SURVEY PROJECTS

Project	*Interpretation*
Argolid Exploration Project (AEP)	Economic recovery in the Late Roman period. The fragmentation of the Roman empire resulted in development of new regional markets and new trading networks from the late 4th century A.D. The Argolid's connection to markets in olive oil stimulated settlement intensification and population growth.
Methana Survey	Initial depopulation and predominance of larger estates in the Early Roman period, followed by intensification of agriculture in the Late Roman period. Prosperous and flourishing in 5th and 6th centuries A.D.
Berbati-Limnes Archaeological Survey	Early Roman pattern perhaps indicative of nucleated settlement. Return of population and prosperity to the valley in late antiquity.
Asea Valley Survey	Early Roman (later 1st–2nd century A.D.) shift from hamlets and villages to rural villas; Middle Roman decline; Late Roman flourishing with rural villas. Greater prosperity and possibly higher population until later 6th–early 7th century A.D.
Megalopolis Field Survey	Decline of rural economy in the Early Roman period, perhaps as a result of redistributed wealth and population; economic recovery in the Late Roman period.
Laconia Survey	Diverse settlement trends according to survey area, quality of land, and proximity to Sparta. General reduction in settlement from Hellenistic to Roman. Early Roman peak followed by decline and probable abandonment in most of survey area from 4th century A.D. No archaeological evidence for sites dating to the 7th–9th century A.D.
Pylos Regional Archaeological Project (PRAP)	Increased levels of dispersed settlement and artifacts throughout the Roman period, with differentiation in types of sites and some preference for coastal locations, although settlement patterns vary by survey area. Pattern suggests more intensive land use, but changes in the amount of identified pottery could also be explained by changing levels of access to imported wares.
Boeotia Survey	Early Roman economic recession followed by Late Roman economic revival. Late antiquity prosperous, with expanding population, agriculture, economy, and settlement.
Stanford Skourta Plain Survey	Prosperity in late antiquity.
Oropos Survey Project	More human activity in the Late Roman countryside, indicating the return of small-scale agriculture and greater overall prosperity.
Northern Keos Survey	Causes of significant increase in Late Roman activity not entirely clear. Possibly a result of the restructuring of territory and depopulation in the Late Hellenistic period followed by more extensive cultivation in the Early Roman period, before a return to intensive cultivation in the Late Roman period.

previously sparsely inhabited countryside and before a large-scale regional abandonment in the 7th century.[11] Cynthia Kosso has even argued that the ubiquity of rural sites in this period indicates that the imperial government encouraged economic development in the region by granting tax breaks for intensified cultivation.[12]

Despite these important attempts at historical interpretation, there has not been much discussion of the problems presented by the boom-and-bust pattern of Roman settlement in Greece or of other wrinkles

11. For the general pattern, see Gregory 1985, 1994; Bintliff and Snodgrass 1985, p. 148; van Andel and Runnels 1987, pp. 102–104, 109, 113–117; Bintliff and Snodgrass 1988a; Bintliff 1991; Kardulias, Gregory, and Sawmiller 1995, pp. 3–5, 16–17. For sources for Table 2, see n. 8, above.

12. Kosso 2003.

in the general tapestry of the Late Antique period.[13] A few surveys, for example, have shown no great upturn, or even a downturn, in Late Roman settlement.[14] There is frequent regional variation as well: settlement expansion begins in the 2nd to 4th century in some areas (Megalopolis, the Berbati valley, Methana, Oropos, northern Keos), but in the later 4th or 5th century in others (Boiotia, the southern Argolid); the expansion is dramatic and explosive in some regions (Boiotia, the southern Argolid, northern Keos), but gradual and slight in others (Oropos, Methana, the Berbati and Nemea valleys); and the degree of rehabitation of earlier sites, or the presence of earlier material at Late Roman sites, also varies from one region to another. Most critically, however, archaeologists have not often applied the principles of "source criticism" to the analysis and interpretation of their survey data.

Source Criticism, Differential Visibility, and the Problem of Pottery Studies

In the parlance of survey archaeologists, source criticism is a way of understanding the biases of survey data by questioning the relationship between the types and amounts of collected artifacts (the sample) and the original assemblage of artifacts (the total population).[15] The process involves a closer critical examination of the data, in the same way that we might question a literary source, and it recognizes that contextual analysis and interpretation of the source must precede any attempt to construct a historical narrative or draw conclusions.

Mediterranean archaeologists have long recognized many of the factors that create and distort the composition and appearance of artifact scatters, and thereby affect our understanding of the evidence. There is an active and vibrant scholarship devoted to the ways in which varying surface visibility, geomorphological processes, cultural formation processes, taphonomy, plowing and smearing, manuring, bioturbation, and other rural activities influence the recognition of artifacts in surface contexts.[16] However, an interpretive scholarship that deals with the pottery itself, and attempts to assess the visibility, diagnosticity, and representativeness of ceramics within and between chronological periods, is less well developed. Although surveyors

13. Brief but important discussions appear in Alcock 1993, pp. 49–53; Bintliff 2000a, pp. 6–7; and Sanders 2004.

14. The Pylos survey, for example, has produced evidence of consistently high levels of settlement between the Hellenistic and Late Roman periods (Alcock et al. 2005, pp. 179–188). Two prominent examples of a Late Roman downturn are Laconia and Patras. In the Laconia Survey the Late Roman period is poorly represented generally, except in the southeastern sector of the survey area (Shipley 2002, pp. 268–273, 326–336). There is good reason to believe, however, that this underrepresentation may be due to the dearth of imported fine wares, poor preservation of rims, and the lack of imported amphoras: see Lawson 1996, pp. 111, 122–123; Mee and Cavanagh 2000, p. 106; Shipley 2002, p. 270. For the Late Roman downturn in Patras, see Petropoulos and Rizakis 1994, p. 201. The cause is unclear, but it may be related to the identification problems discussed below.

15. Rutter 1983; Alcock 1993, pp. 49–53; Millett 1985, 1991a, 1991b, 2000a, 2000b; Caraher, Nakassis, and Pettegrew 2006, pp. 21–26.

16. E.g., Wilkinson 1982; Ammerman 1985, 2004; Bintliff and Snodgrass 1988b; Jameson, Runnels, and van Andel 1994, pp. 228–246; Alcock, Cherry, and Davis 1994; Zangger et al. 1997; Bintliff, Howard, and Snodgrass 1999; Barker et al. 2000; Fentress 2000; Bintliff 2000b; Terrenato 2000; Pettegrew 2001; Van de Velde 2001.

have recognized that the relative visibility and invisibility of pottery from different periods might distort our picture of the transition between periods, there have been, until recently, few efforts to understand the problem or correct for it.[17]

We can describe the problem of "differential visibility" in the following way. Survey archaeologists typically assign dates to artifact scatters on the basis of a relatively small group of artifacts that can be assigned relatively precise chronological values (e.g., African Red Slip form 50, Late Roman 2 amphora). I refer to these important diagnostic artifacts, which represent a given period by virtue of the fact that they are easy to recognize and therefore frequently identified, as "type fossils."[18] The number of type fossils available for use by a survey project is dependent first and foremost on the general state of our knowledge of Mediterranean pottery, but it is also tied closely to ceramic studies of particular regions. A period's visibility is determined by the ease with which it can be recognized on the basis of its type fossils. A greater number of recognizable types permits a more confident assignment of chronological value and a greater level of visibility for the period in question, while fewer types reduce diagnostic confidence and erode visibility. This is why the increasing study of locally produced wares is one of the most significant developments in regional archaeological survey today: it introduces a wider range of type fossils, thereby increasing a period's visibility.[19] Visibility is also tied directly to a project's specialized knowledge: a ceramicist who has studied Classical cooking fabrics, for example, may be able to produce higher-resolution chronological information for that period, while the use of fieldwalkers who have been specifically trained to recognize obsidian bladelets may lead to a significant improvement in the visibility of prehistory.

Scholarship dealing with the differential visibility of surface finds has had the greatest impact in the interpretation of prehistoric landscapes. In a much-debated case, John Bintliff, Phil Howard, and Anthony Snodgrass have argued that the poorly fired, friable pottery of the Neolithic and Bronze Ages has simply not survived well in the soil matrix, and for that reason a few potsherds or obsidian bladelets might be all that remains of many prehistoric sites. In addition to postulating a hypothetical vanished pottery population reduced by taphonomic processes, they also argue that fieldwalkers trained to recognize pottery tend to overlook obsidian blades in the field, and they conclude that the number of sites must be calibrated from low-density scatters in order to generate an accurate map of a region's prehistoric settlements.[20]

Similarly, there is a growing recognition that regional survey projects may be overlooking Medieval sites because the relevant pottery is more

17. The problem is acknowledged in, e.g., Rutter 1983. For discussion and attempts to promote a system of calibration, see Millett 1985, 1991a, 1991b, 2000a, 2000b; Bintliff, Howard, and Snodgrass 1999.

18. Caraher, Nakassis, and Pettegrew 2006, p. 22.

19. See Patterson 2000; Vroom 2003, 2004. For specific case studies, see the work of Melissa Moore Morison (Moore 2000, 2001) on Hellenistic–Late Antique groups of utilitarian wares from southern Epirus; Clare Pickersgill's study (Pickersgill and Roberts 2003) of Roman fine and coarse wares from Sparta; and Joanita Vroom's employment (1998, 2003, 2004) of the concept of "horizontal stratigraphy" for post-Roman surface assemblages observed by the Boeotia Survey. For recent studies of local wares from urban contexts, see Slane 2000, 2003; Slane and Sanders 2005.

20. Bintliff, Howard, and Snodgrass 1999, with discussion and debate in Barker et al. 2000. See also Bintliff 2000c; Davis 2004.

friable and less diagnostic.[21] In the case of Italy, for example, scholars have concluded that the reduced visibility of the early Middle Ages in the archaeological record is probably a product of weaker material signatures (caused by, for example, poorly fired pottery, the use of nonceramic storage containers, and a generally lighter material culture) rather than an indicator of an absence of population.[22] For excavated sites in Britain, John Schofield has argued that even a handful of Early Medieval potsherds may represent a vanished settlement, in contrast to the Roman period, when robust artifact scatters are common.[23] In Greece, Guy Sanders has suggested that the practice of glazing vessels during the 12th and 13th centuries has produced a more visible material signature that overshadows the less conspicuous remains from the earlier centuries of the Byzantine period and thus distorts our understanding of population size and distribution.[24]

The application of source criticism to the study of archaeological survey data from Roman Greece, by contrast, is not especially well established, although there is great need of it due to the significant disparity in visibility between the earlier and later halves of the period.[25] While the Early and Late Roman periods are both highly visible due to widely distributed type fossils, such as the rims and bases of well-studied African Red Slip forms, the Late Roman period is significantly more visible because of the greater number of type fossils derived from common utilitarian vessels such as amphoras, which can be recognized by surface treatment or other attributes. In the field, ridging, combing, and grooving signal a diagnostic sherd to the fieldwalker, distinguishing such fragments from plain, undecorated sherds; in most surveys the one is picked up, the other remains on the ground. During analysis, the same surface treatment also bolsters the confidence of the ceramicist in attaching a specifically Late Roman date to the sherd, rather than assigning it to a less precise chronological grouping, such as Roman or Ancient.

In the following pages I examine the data from the Eastern Korinthia Archaeological Survey (EKAS), as well as that from other regional projects, in order to demonstrate the degree to which visibility issues affect our interpretation of settlement patterns. I argue that the degree of difference in period visibility at the level of collection, typing, and analysis can in some cases be so great that failure to adjust for it would lead one to draw distorted historical conclusions from the data. In the case of the Corinthia, we should interpret the abundance of Late Roman ceramics not as evidence for a sudden explosion of settlement, but as a reflection of a continuing phase of investment in Corinthian territory extending into the Late Roman period.[26]

21. For a recent overview, see Christie 2004.

22. Ward-Perkins 2000a, pp. 324–327.

23. Schofield [1989] 2000.

24. Sanders 2003, pp. 394–395.

25. Such problems have sometimes been noted by scholars dealing with the Roman period: see, e.g., Cherry, Davis, and Mantzourani 1991, p. 331; Lloyd 1991, p. 188; Alcock 1993, pp. 49–53; Bowden and Gill 1997b, p. 77; Mee and Forbes 1997b, p. 39; Bintliff 2000a, pp. 6–7; Mee and Cavanagh 2000, p. 106; Shipley 2002, p. 270; Berlin and Heath in Alcock et al. 2005, pp. 194–204.

26. In the present study I focus specifically on Roman and Late Roman ceramics and their effect on the interpretation of settlement and land-use patterns. Elsewhere I address the patterns of Roman settlement themselves: see Pettegrew, forthcoming a, and in prep. For previous discussions of Roman–Late Roman settlement and land use in the Corinthia, see Wiseman 1979, pp. 444–446; Gregory 1985; Engels 1990, p. 24; Romano 1993, 2003; Rothaus 1994; Kardulias, Gregory, and Sawmiller 1995; Kardulias 2005.

ROMAN POTTERY IN THE EASTERN CORINTHIA

The EKAS project was carried out from 1997 to 2003 in the area between Ancient Corinth and Isthmia, directly east of the villages of Hexamilia and Xylokeriza, and transecting the course of the ancient road between Isthmia and Corinth. The survey methods of EKAS were distributional, surveyors walking transects across small tracts (Discovery Units), collecting from their swaths both a raw count of artifacts (pottery, tile, lithics, and other) and a total count of chronotypes (unique pottery types). As the methods and scope of the survey have been fully published elsewhere,[27] here I wish only to emphasize briefly three points about the collection strategy.

First, the data sets generated by the survey allow the analyst to quantify per unit both the total count of artifacts of different classes (e.g., pottery, tile, lithics), as well as the total sample of chronotypes (e.g., Late Roman African Red Slip forms 104–106).[28] The chronotype system samples the diversity of artifact types encountered in each survey unit, thereby allowing a systematic assessment of the distribution of specific kinds of cultural material across a survey area. Since chronotypes have both functional (e.g., fine ware) and chronological (e.g., Late Roman) values, it follows that chronotype data also provide quantifiable information about the functional as well as the chronological character of particular units. In the present study I use the term "total count" to refer to the sample of chronotypes rather than to the total number of chronotypes seen in the course of the survey.[29]

Second, because the chronotype system discourages the collection of duplicate artifacts, it has an inherent bias against especially common types of artifacts that appear repeatedly in a surveyor's swath. The sample of frequently appearing artifact types, such as Combed ware and Spirally Grooved body sherds, is likely to underrepresent the total number of artifacts seen, while the sample of artifact types that appear in low to moderate amounts, such as fine wares, will more closely approximate the total number encountered. The chronotype system thus allows for the kind of analysis conducted in this study precisely because of its bias against common artifact types. If anything, the "source problems" discussed in here are likely to be even more severe than indicated, because the sample underrepresents the number of diagnostic body sherds and other especially common Late Roman artifact types.[30]

27. Tartaron et al. 2006.

28. For full discussion of the chronotype system, including its guiding principles, its implementation in the field, the nature of the data it produces, its potential for analysis, and its drawbacks, see Meyer 2003; Meyer and Gregory 2003; Gregory 2004; Caraher, Nakassis, and Pettegrew 2006, pp. 11–13; Tartaron et al. 2006, pp. 457–465.

29. For example, four fieldwalkers walking four different swaths in a survey unit might each note three Late Roman combed body sherds, but they would collect only one per swath. Hence, while the total number of combed body sherds encountered in the unit would be 12, the count of this chronotype for the unit would be only four, and the EKAS ceramicists, in turn, would analyze only the four collected sherds.

30. For a more detailed discussion of the potential and the problems involved in quantification using the chronotype system, see Caraher, Nakassis, and Pettegrew 2006, pp. 10–13; Tartaron et al. 2006, pp. 457–465.

Finally, a permit restriction requiring the analysis of artifacts in the field discouraged the kind of thorough scrutiny and reexamination that is typical of analysis in a museum or laboratory: some kinds of pottery (e.g., various classes of local wares) were not always precisely typed but were instead included within broader chronotype groupings (e.g., Roman fine ware).[31] This may explain why some local pottery types discussed in recent studies of Corinthian pottery appear to be absent in the following analysis.[32] In spite of these limitations, the EKAS survey produced an abundance of ceramic finds relevant to the questions raised in this study.[33]

The Busy Countryside

On the surface, the Late Roman period in the eastern Corinthia appears to have been very busy (Fig. 2).[34] If we look simply at the number of finds, regardless of their spatial distribution, there is far more pottery from the Late Roman period than from either the preceding or following periods (Table 3). Late Roman pottery forms 4.5% of the total number of analyzed finds (n = 38,337), making it the best represented of the narrow periods in the EKAS data.[35] The Early Roman period, by contrast, produced less than one percent of the total number of artifacts recovered through normal Discovery Unit survey, and the total count for the Early Medieval period (n = 17) was a bare fraction of one percent of the total number of finds. The picture presented by the various broad periods that overlap the Roman period is similar: only in the broad Roman period (31 B.C.–A.D. 700) does the number of finds compare with that of the narrow Late Roman sample.

Late Roman material is also found in more Discovery Units than material of any other period (Fig. 2), appearing in 43% of all survey units (n = 1,336); by contrast, Early Roman pottery and Early Medieval

31. Tartaron et al. 2006, pp. 446–448, 466–467; Caraher, Nakassis, and Pettegrew 2006, pp. 12–13. In-field artifact processing, of course, did involve detailed notes, digital photographs, and artifact illustrations, and this data can sometimes be used to subtype chronotyped artifacts.

32. E.g., many of those discussed in Slane and Sanders 2005.

33. The eastern Corinthia is an appropriate region for addressing such questions. It was well suited for agriculture and consequently inhabited and farmed throughout antiquity, and it lay within the territory of the most well-connected commercial city of Roman Greece, which acted as a central trading hub between east and west. We should therefore expect to find significant quantities of imported pottery. That Corinth itself is one of the most extensively excavated Roman cities in the eastern Mediterranean also allows comparison of the Roman pottery recorded by EKAS with that recovered in the excavations of the urban center. For an overview of the Corinth excavations, see *Corinth* XX; for the Roman pottery, see Slane 2000, 2003; Slane and Sanders 2005.

34. The following statistics quantify artifacts collected through typical pedestrian survey methods from intensive Discovery Units; they exclude all artifacts recovered in nonsystematic ways (e.g., grab samples) and from other kinds of survey units (e.g., experimental, extensive). For other discussions of the Roman–Late Roman ceramic data from EKAS, see Caraher, Nakassis, and Pettegrew 2006, pp. 21–26; Tartaron et al. 2006, pp. 463–465; Pettegrew, forthcoming a.

35. By "narrow periods" I mean those less than 500 years in length; they include Early Roman (31 B.C.–A.D. 250), Late Roman (A.D. 250–700), and Early Medieval (A.D. 700–1200). "Broad periods" are greater than 500 years in length; they include Hellenistic–Early Roman (323 B.C.–A.D. 250), Roman (31 B.C.–A.D. 700), Roman–Early Medieval (31 B.C.–A.D. 1200), Roman–Medieval (31 B.C.–A.D. 1800), and Roman–Modern (31 B.C.–A.D. 2000). Table 3 does not include the broadest periods that overlap the Roman period, such as Ancient, Post-Prehistoric, or Ancient–Medieval.

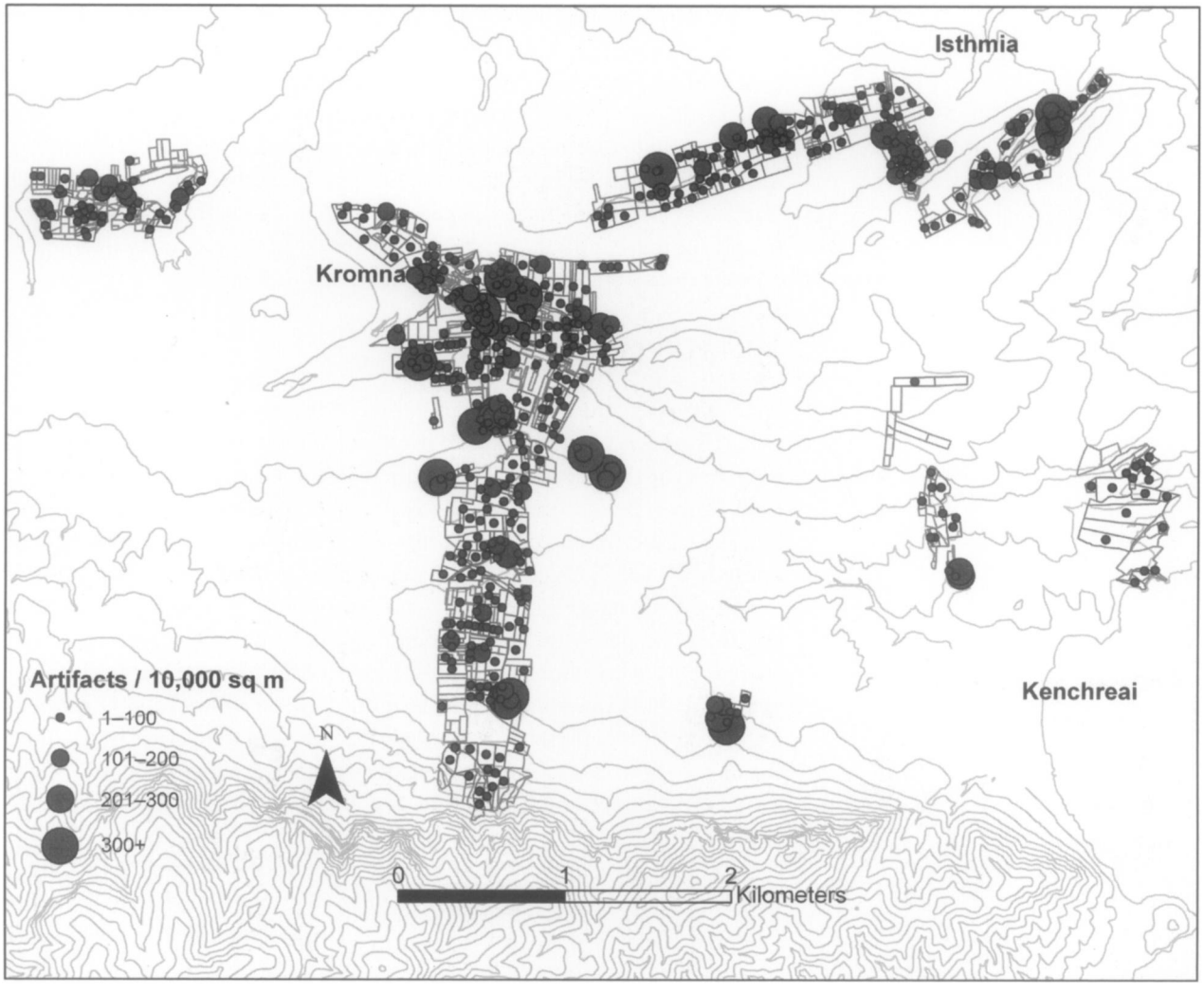

Figure 2. Density per hectare of Late Roman pottery in the main EKAS survey area

TABLE 3. ARTIFACTS RECORDED BY EKAS IN NARROW AND BROAD PERIODS

Period	*Count of Artifacts*	*% Overall Artifacts*	*Count of Units*	*% Overall Units*	*Artifacts per Unit*
Narrow Period					
Early Roman	331	0.86	193	14.4	1.7
Late Roman	1,707	4.45	577	43.2	3.0
Early Medieval	17	0.04	14	1.0	1.2
Broad Period					
Hellenistic–Early Roman	19	0.05	18	1.3	1.1
Roman	2,210	5.76	600	44.9	3.7
Roman–Early Medieval	3	0.01	3	0.2	1.0
Roman–Medieval	108	0.28	45	3.4	2.4
Roman–Modern	7	0.02	5	0.4	1.4

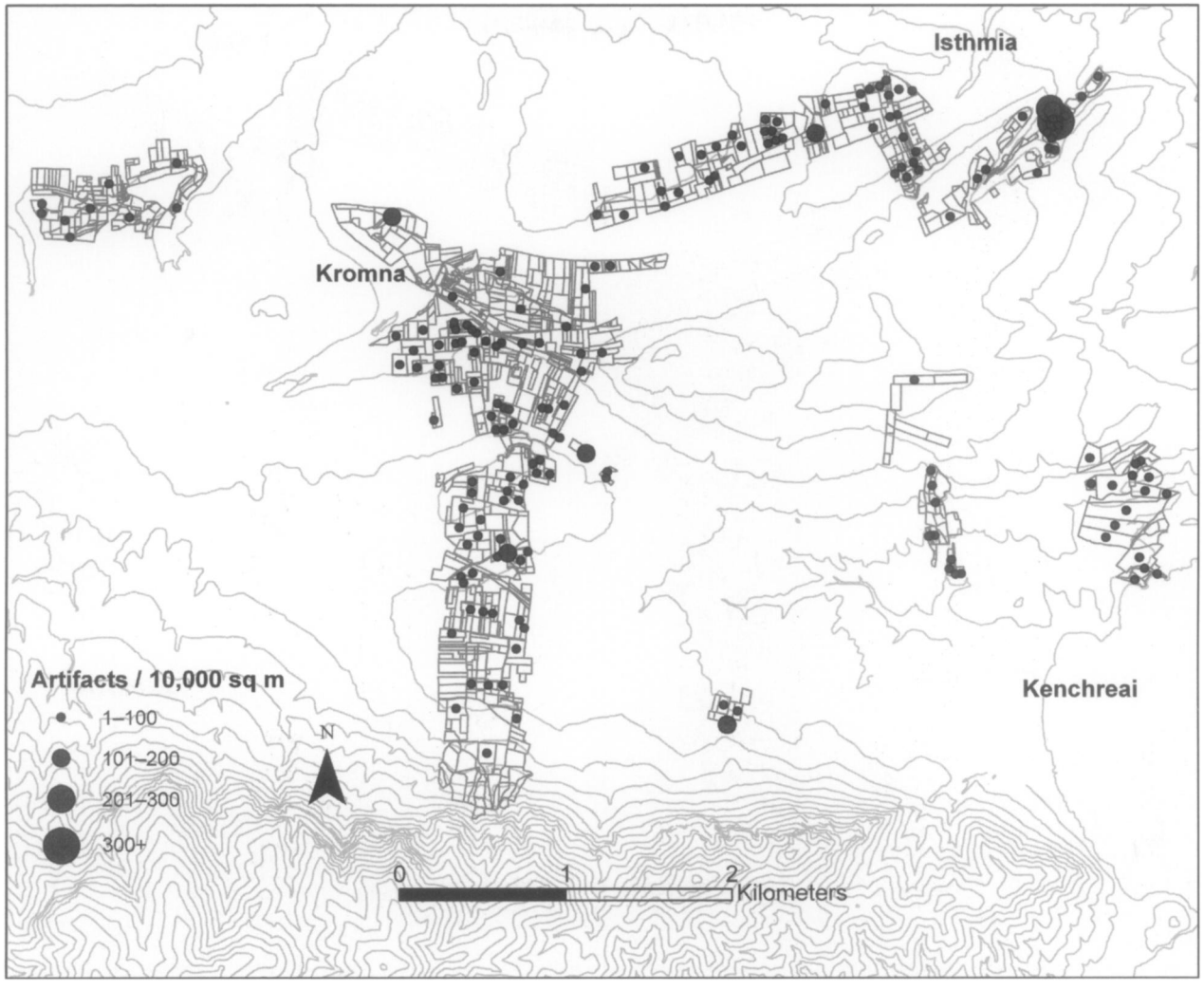

Figure 3. Density per hectare of Early Roman pottery in the main EKAS survey area

pottery occur in, respectively, only 14.4% and 1.0% of all units (Figs. 3, 4).[36] Moreover, in units with Late Roman pottery there are on average 3.0 Late Roman sherds per unit, a density twice as great as that of Early Roman and Early Medieval material in corresponding units, and comparable only to the broader Roman period (3.7 artifacts per unit). Indeed, much of the eastern Corinthia is covered by a nearly continuous carpet of Late Antique artifacts of fluctuating but high density.

Taken at face value, this pattern would seem to support an interpretation of settlement expansion, population explosion, or intensive agriculture and land use in the final phase of the Roman period. As the discussion that follows demonstrates, however, we should not take the data set at face value, but must instead subject it to closer contextual analysis if we wish to understand patterns of exchange, ceramic deposition, and land use over time.

36. Figures 2–6 display the density of artifacts of each period per unit, calculated per hectare (i.e., the number of artifacts of the period that one would predict for an area of 10,000 m^2 if the artifact density were the same as that of the given unit). Unit size was typically much smaller than a hectare (ca. 2,000–3,000 m^2), but calculating density by hectare provides a larger and more easily comprehensible value than the number of artifacts per square meter.

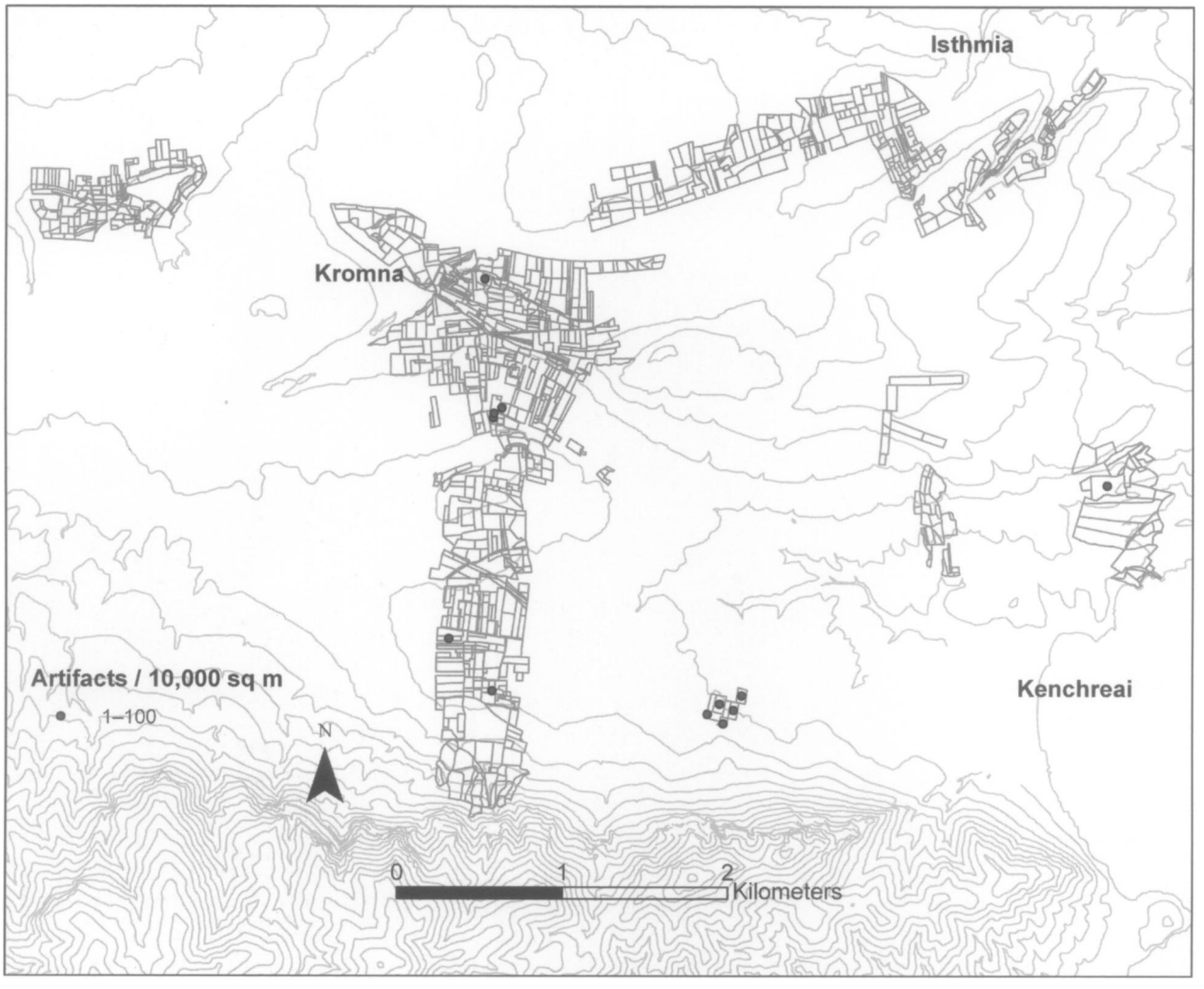

Figure 4. Density per hectare of Early Medieval pottery in the main EKAS survey area

Source Criticism of the EKAS Data

Table 4 lists the 12 most common Late Roman chronotypes in the EKAS data and shows the dominance of Spirally Grooved ware and Combed ware in the total count (RBHS) of Late Roman wares.[37] These two chronotypes alone form the majority (62.8%) of Late Roman pottery and a substantial portion (2.8%) of the total count of artifacts analyzed by EKAS.[38]

The use of "spiral grooving" and "combing" as a basis for Late Roman chronotypes derives from the terminology and chronologies established by Henry Robinson in his study of Roman pottery from the excavations in the Athenian Agora.[39] The terms appear frequently in the archaeological literature because the surface treatments they denote are common in Greece and the Aegean and because Robinson's work, which is still the chief authority for Roman-period coarse-ware chronologies in the region, linked the

37. The abbreviation RBHS ("Rims, Bases, Handles, and Body Sherds") refers to the total count of artifacts; RBH ("Rims, Bases, and Handles") denotes only those diagnostic fragments, excluding body sherds.

38. Wheel-Ridged ware also forms a substantial portion of the overall counts. Although the feature of wheel ridging is often linked to the Late Roman period, it is not uncommon in the 1st and 2nd centuries and has therefore been grouped by EKAS with the broader Roman period rather than the more specific Late Roman period.

39. *Agora* V, p. 6.

TABLE 4. MOST COMMON LATE ROMAN CHRONOTYPES IN EKAS

Chronotype	*Total Count*	*% of LR Chronotypes*
Spirally Grooved ware	702	41.1
Combed ware	371	21.7
Amphora, Late Roman 2	108	6.3
Kitchen ware, Late Roman	96	5.6
Amphora, Palestinian	82	4.8
Phocaean ware	68	4.0
Medium coarse ware, Late Roman	57	3.3
Phocaean ware 3	46	2.7
Amphora, Late Roman 1	23	1.4
Amphora, Late Roman	22	1.3
Red Slip, Late Roman	18	1.1
Amphora, Aegean Red 1	16	0.9
Total	1,609	94.2

surface treatments to the Late Roman period. In Athens, Robinson dated spiral grooving to the 4th through 6th centuries A.D., especially the 5th and 6th centuries, and combing to the 6th and 7th centuries A.D. Recent work on Roman commerce has shown the frequency of spiral grooving and combing on amphoras and transport vessels of the eastern Mediterranean generally, although such surface treatment also occurs on other shapes and forms, as well as in other periods.[40]

In the Late Roman period generally, body sherds with combed or grooved surface treatments derive from Late Roman 2 amphoras and from Palestinian and Gaza-type amphoras, as well as from other Late Roman utilitarian vessels, both open (basins) and closed (pitchers and jugs), of types dating from the 4th to the early 7th century A.D. The most likely sources for such sherds among the EKAS material specifically are Late Roman 2 amphoras,[41] Palestinian and other Late Roman amphoras, open and closed medium coarse-ware vessels, and basins, all of which were identified with some frequency from rims, bases, and handles (Table 5).[42] Other surveys have linked combed and grooved decoration to later Byzantine amphora types, but rims and handles from Byzantine amphoras are scant in our

40. Common Late Roman (LR) types include, e.g., Carthage and Benghazi LR Amphora type 2, and Palestinian and Gaza-type amphoras. Grooving, ridging, and combing also occur on vessels of later periods, especially Byzantine coarse and plain wares: e.g., at Saraçhane, on Late Roman–Byzantine amphoras, as well as other vessels (Hayes 1992, pp. 61–79); and in Sparta, on Byzantine plain wares, cooking wares, and amphoras (Sanders 1993, pp. 268–283). In Corinth, grooving occurs on amphoras of Frankish date with high-arched handles; the body sherds of this type could be confused with those of Gaza amphoras and the handles with Niederbieber 77 = EKAS chronotype Aegean Red Amphora (K. Slane, pers. comm.). The surface treatment alone obviously does not indicate a specifically Late Antique date, but must be considered in conjunction with clay, color, fabric, and form.

41. These amphoras have horizontal grooving on their shoulders and were probably produced in the Aegean. Cf. Munn 1985; Karagiorgou 2001.

42. There is some overlap in the chronotypes listed in Tables 4 and 5. Spirally Grooved ware and Combed ware are characterized by a specific fabric and surface treatment, and consist almost exclusively of body sherds. The recovery of rims, bases and toes, and handles, as well as closer analysis of the fabric and surface treatment of body sherds, can allow assignment to a more specific chronotype, such as Late Roman 2 amphora. The Late Roman 1 amphora is not a likely source for spirally grooved or combed sherds, but may account for other ridged body sherds found frequently in the survey area and dated to the broad Roman period.

TABLE 5. MOST COMMON LATE ROMAN AMPHORA AND COARSE-WARE TYPES IN EKAS (RBH ONLY)

Chronotype	*RBH Count*
Amphora, Late Roman 2	107
Medium coarse ware, Late Roman	43
Amphora, Palestinian	22
Amphora, Late Roman 1	22
Amphora, Aegean Red 1	14
Amphora, Late Roman	13
Basin, Late Roman	11
Total	232

survey area and consequently are an unlikely source for many of the combed and grooved sherds.

In the EKAS data, amphora sherds and medium coarse wares with surface grooving and combing significantly alter the proportional makeup of Late Roman functional classes (Table 6), forming 83% of analyzed Late Roman wares. By contrast, Early Roman amphoras lack these surface treatments, and the functional classes of the Early Roman period are found in more equal proportions: fine wares 38.3%, coarse wares 36%, and kitchen wares 24.8%. Although the Early and Late Roman periods are represented by similar numbers of fine-ware (127 vs. 165) and kitchen-ware (82 vs. 96) sherds, Late Roman coarse-ware sherds grossly outnumber those from the Early Roman period (1,417 vs. 119). In the eastern Corinthia, then, utilitarian vessel fragments are more important indicators of a Late Roman presence than of an Early Roman presence, while for the Early Roman period, fine wares and kitchen wares are proportionally more important period signatures.

The explanation for such proportional differences appears to be methodological, a product of our differing abilities to recognize amphoras and coarse wares from the two periods. Late Roman coarse-ware body sherds are recognizable by both fieldwalkers and ceramicists because of their distinct surface treatment, while Early Roman body sherds are not. Indeed, only one of the 119 fragments identified as Early Roman coarse ware or amphora in the EKAS data is a body sherd, while 83.5% (n = 1,183) of Late Roman coarse-ware and amphora fragments are body sherds. While the Early Roman presence is known almost entirely from fine wares such as

TABLE 6. ROMAN ARTIFACTS IN EKAS BY FUNCTIONAL CLASS

Functional Class	*ER Count*	*% ER Pottery*	*LR Count*	*% LR Pottery*	*Roman Count*	*% Roman Pottery*
Coarse ware and amphora	119	36.0	1,417	83.0	1,305	59.1
Fine ware	127	38.3	165	9.7	438	19.8
Kitchen ware	82	24.8	96	5.6	294	13.3
Lamp	3	0.9	6	0.4	34	1.5
Other	—	—	23	1.3	139	6.3
Total	331	100.0	1,707	100.0	2,210	100.0

ER = Early Roman; LR = Late Roman

Eastern Sigillata, the rims and handles of amphoras, and, to a lesser extent, kitchen-ware sherds, the Late Roman period has the advantage of highly recognizable medium-coarse body sherds derived from utilitarian vessels. Since utilitarian vessels occur much more frequently in the countryside than do fine wares, and since body sherds greatly outnumber rims, bases, and handles, it is no surprise that the Late Roman period is far more visible in the field than the Early Roman period.[43]

Although Late Roman material may appear thick on the ground in the eastern Corinthia relative to that of the preceding and following periods, statistical analysis suggests that the discrepancy is caused mainly by the significant differential visibility of the periods. The Late Roman "explosion" in the EKAS data is a product of the ubiquity of easily identifiable body sherds, while the visibility of the Early Roman period depends on pottery less often encountered in surface survey: fine wares, rims, bases, and handles. Scholars have noted the problem of differential visibility before, but the figures presented above indicate the enormous degree of difference in visibility. In the discussion that follows I show how the problem of differential visibility has affected other survey projects in Greece and the eastern Mediterranean, and suggest ways to correct and calibrate for it.

ASSESSING OTHER LATE ANTIQUE COUNTRYSIDES

Many of the intensive archaeological surveys carried out within the last generation have published their finds in a manner complete enough to permit critical analysis of the data and evaluation of the changes between periods. Other projects, while not yet completely published, have presented enough of the data to allow one to form some impression of the evidence for various periods. Although any critical review of the data from these projects will be incomplete, the information available indicates that the problem of differential ceramic visibility for the Roman period is common to Greek surveys generally.

In the following discussion, I reexamine the ceramic data from several survey projects that have presented their results in a numerical form that can be subjected to the same kind of analysis applied above to the EKAS data. In doing so, I attempt to measure the degree to which regional surveys generally have been affected by the bias of highly diagnostic pottery. Since each of these surveys sampled the original population of artifacts in a different way, I also highlight the ways in which archaeological and historical interpretations are influenced by these sampling regimes.

43. Surface treatments such as combing and grooving do not always extend over the whole body of an amphora or vessel, but are sometimes restricted to shoulders and necks. It follows that even though the Late Roman period is already highly visible, it is nevertheless underrepresented and would presumably become still more visible if precise identification of the undecorated sherds were possible. This conclusion does not greatly undermine the argument presented here, however, since Late Roman coarse wares are still substantially more visible than those of the Early Roman period.

TABLE 7. ROMAN POTTERY COUNTS IN THE METHANA SURVEY, EKAS, AND NORTHERN KEOS SURVEY

	Methana Survey		*EKAS*		*Northern Keos Survey*	
Period	*Count*	*% of Total Roman*	*Count*	*% of Total Roman*	*Count*	*% of Total Roman*
Early Roman	315	28.2	331	16.2	32	13.9
Late Roman	801	71.8	1,707	83.8	199	86.1
Total	1,116	100.0	2,038	100.0	231	100.0

The Methana Survey

The Methana Survey has provided a full publication of its finds, completely and systematically annotated.[44] The survey divided the Roman period into three subperiods: Early Roman (100 B.C.–A.D. 100), Middle Roman (A.D. 100–300), and Late Roman (A.D. 300–700). For the sake of comparison with the EKAS data, however, I have combined the Early Roman and Middle Roman periods into a broader Early Roman period (100 B.C.–A.D. 300).[45] The artifact-sampling strategy for the Methana Survey favored the collection of feature sherds.[46]

A comparison of the figures for Early and Late Roman pottery in both EKAS and the Methana Survey (Table 7) shows the degree to which Late Roman pottery dominates in both bodies of data.[47] In the Methana Survey, Early Roman represents a larger proportion of the total Roman count than it does in EKAS, but this is only a matter of degree: the proportions are roughly comparable in both surveys.

Most interesting is the degree of correspondence between the RBHS proportions for the two periods (Tables 8–10). At Methana, ordinary body sherds constitute 71.4% of wares that signal the Late Roman period, compared with 71.2% for EKAS. In both surveys body sherds constitute a lower percentage of the total sample of Early Roman pottery; at Methana, as in EKAS, rims, bases, and handles play a more important role in signaling

44. Gill, Mee, and Taylor 1997. The figures presented here are based on a count of the pottery as published in the catalogue of finds. The analysis does not include pottery assigned to bridging periods (e.g., Hellenistic–Early Roman, Late Classical–Early Roman, Middle Roman–Late Roman), but it does include pottery that was tentatively dated (e.g., "possibly LR").

45. Bowden and Gill 1997a, pp. 84–90; 1997b, p. 77. The period denoted by the simple term "Roman" in the Methana Survey corresponds generally to the "Early Roman" period in EKAS. To avoid confusion, throughout the following discussion I use the term "Roman" to refer to the entire Roman period as defined by EKAS (1st century B.C. through 7th century A.D.). The term "Early Roman" refers to the EKAS period between the 1st century B.C. and the 3rd century A.D., and "Late Roman" refers to the EKAS period from the middle of the 3rd century through the 7th century. Because the "Middle Roman" period of the Methana Survey falls before A.D. 300, it can be subsumed under the slightly broader "Early Roman" period defined by EKAS (31 B.C.–A.D. 250).

46. Mee and Forbes 1997b, p. 35.

47. The chronological data sets for EKAS and Methana Survey were produced by two different sampling systems: the chronotype system (a single example of every unique chronotype) vs. selective grab sampling. Both sampling systems influence historical interpretation in similar ways, although the chronotype system underrepresents especially common chronotypes, such as spirally grooved body sherds. Hence, body sherds probably constitute a larger percentage of the Late Roman pottery of the Corinthia than the figure given in Table 9 (71.2%) suggests. When compared with the numbers for Methana, the greater disparity between the numbers of Early and Late Roman sherds in the EKAS data likely results from the greater frequency of Late Roman amphoras in the EKAS territory.

TABLE 8. EARLY ROMAN POTTERY (BY EXTANT FRAGMENT) IN THE METHANA SURVEY AND EKAS

	Methana Survey		*EKAS*	
Portion	*Count*	*% Total*	*Count*	*% Total*
Rim	76	24.1	49	14.8
Base	51	16.2	33	10.0
Handle	74	23.5	111	33.5
Body sherd	114	36.2	136	41.1
Other	0	0.0	2	0.6
Total	315	100.0	331	100.0

TABLE 9. LATE ROMAN POTTERY (BY EXTANT FRAGMENT) IN THE METHANA SURVEY AND EKAS

	Methana Survey		*EKAS*	
Portion	*Count*	*% Total*	*Count*	*% Total*
Rim	130	16.2	322	18.9
Base	24	3.0	37	2.2
Handle	75	9.4	110	6.4
Body sherd	572	71.4	1,215	71.2
Other	0	0.0	23	1.3
Total	801	100.0	1,707	100.0

TABLE 10. ROMAN POTTERY IN THE METHANA SURVEY AND EKAS (RBH AND BODY SHERDS)

	RBH	*%*	*Body Sherd*	*%*	*Total*	*%*
Early Roman/Methana	201	63.8	114	36.2	315	100.0
Late Roman/Methana	229	28.6	572	71.4	801	100.0
Early Roman/EKAS	195	58.9	136	41.1	331	100.0
Late Roman/EKAS	492	28.8	1,215	71.2	1,707	100.0

the Early Roman period than they do the Late Roman period. The very different RBH:S ratios in the Early and Late Roman periods are immediately apparent in both projects (Table 10).

The explanation for the prominent Late Roman presence in the Methana Survey, as in EKAS, seems to be the high visibility of Late Roman combed and grooved body sherds, which constitute a large percentage of the total count of Late Roman pottery: 43.1% (n = 345), and 12.4% (n = 99), respectively.[48] Removing such body sherds from the Late Roman mix deflates the total count of Late Roman artifacts in Methana by more than 50%. These sherds also have a tremendous effect on the number of sites identified by the survey. Dismissing all body sherds as an identifying category, regardless of fabric or surface treatment, would eliminate 26% of the Late Roman sites (from 58 to 43), but only 5.5% of the Early

48. Bowden and Gill 1997a, pp. 87–88. The 345 Combed ware sherds listed in the artifact catalogue are said to represent amphoras or other closed forms, and are linked by the authors to Berenice Late Roman 1 and Late Roman 2 amphoras.

Roman sites (from 36 to 34).[49] With this calibration the number of Late Roman sites, instead of representing a 61% increase from the Early Roman period, indicates a much gentler increase of 26.5%. Such is the effect of diagnostic Late Roman body sherds on Methana artifact and site populations.[50]

The Northern Keos Survey

The Northern Keos Survey employed grab samples of potentially diagnostic artifacts to characterize the chronological character of their survey area.[51] The investigators recorded 31 sites with some kind of Roman pottery, either Early Roman (1st–3rd century A.D.), Late Roman (4th–early 7th century A.D.), or Roman (1st–early 7th century A.D.).[52] Nine of these 31 sites could be dated specifically (but not exclusively) to the Early Roman period and 26 had a specifically Late Roman phase; hence, Late Roman sites outnumbered Early Roman by a factor of 2.9. The total count of Late Roman pottery was approximately six times that of Early Roman pottery (Table 7).

Fine ware appears at two-thirds of all sites at which either Early Roman or Late Roman is represented. The relative proportion of body sherds at sites of each period differs, however: Early Roman body sherds were reported at only four of nine Early Roman sites, and no site was dated to the Early Roman period on the basis of body sherds alone.[53] By contrast, 22 of 26 Late Roman sites (84.6%) produced combed, grooved, or ridged body sherds datable to the Late Roman period. At approximately a third of the sites (n = 8), the Late Roman component appears to have been identified only on the basis of body sherds, usually with combed, grooved, or ridged surface treatment. As in the case of the Methana Survey and EKAS, eliminating body sherds from the counts diminishes the number of Late Roman sites significantly (from 26 to 18), and reduces the increase in site numbers between the Early and Late Roman periods from nearly 300% to 200%. This still represents an increase, but a substantially smaller one than before.

49. The Late Roman sites that would lose "site" status are MS4, MS11, MS12, MS15, MS55B, MS102, MS104, MS108, MS109, MS113, MS116, MS124, MS205, MS214, and MS220. Ten of these sites yielded only combed or grooved Late Roman body sherds. The Early Roman sites that would be eliminated are MS60 and MS213.

50. This differential diagnosticity is, in fact, highlighted by the investigators as a reason for caution: see Bowden and Gill 1997a, p. 84.

51. Cherry et al. 1991, pp. 28–30.

52. See Cherry, Davis, and Mantzourani 1991, p. 481, for chronology, and pp. 327–347, for a discussion of ceramic deposition in the countryside in the Greek and Roman periods. The figures presented here are derived from the counts of artifacts listed in Sutton et al. 1991. They include sites where fewer than three artifacts of a given date were found, but do not include off-site finds. As in the case of the Methana data, I have also omitted pottery dated to broader bridging periods such as "Classical–Late Roman."

53. Early Roman body sherds included mainly fine-ware sigillata; one ridged body sherd was noted.

The Oropos Survey Project

In the Oropos Survey Project field teams collected only diagnostic artifacts, dividing the Roman period between Early Roman (1st–2nd century A.D.), Middle Roman (3rd–4th century A.D.), and Late Roman (5th–7th century A.D.).[54] There were 30 "certain" or "possible" findspots that could be dated to some part of the Roman period and 5 "tentative" findspots. Of these 30 likely sites, 9 had an Early Roman phase, 14 had a Middle Roman phase, and 21 had a Late Roman phase.

The nine Early Roman findspots were identified almost entirely on the basis of rims, bases, and handles; only one site yielded plain Early Roman body sherds that were considered diagnostic.[55] By contrast, the Middle and Late Roman periods were identified mainly on the basis of body sherds and surface treatments. Although approximately half of the Middle Roman findspots yielded rims, bases, and handles, wheel-ridged (mainly body) sherds were the predominant Middle Roman artifact both in overall quantity and in frequency at sites. Similarly, although about half of the 21 sites produced Late Roman rims, bases, and handles, combed body sherds dating to the 5th–7th century A.D. were the predominant artifact type found, and the basis for a confident attribution of Late Roman date. Again, if we remove body sherds as an identifying period index, the numbers of Early, Middle, and Late Roman sites change from 9:14:21 to 8:7:10. Both the Middle Roman and Late Roman upturns are severely deflated by this calibration, and the result is a very different picture of the settlement pattern of the Roman period.

The Pyla-Koutsopetria Archaeological Project

The Pyla-Koutsopetria Archaeological Project is a recently completed, gridded site survey of a 40-hectare harbor town outside Larnaca in southeastern Cyprus.[56] It is one of a series of recent projects in Cyprus that have produced well-documented Late Roman assemblages of sizable rural Late Roman sites.[57] Using the chronotype system, the project sampled a total of about 8,500 pieces of pottery from survey units with predominantly Late Roman activity.[58] The largest group of Late Roman chronotypes are tiles (44% of all Late Roman material), which can be dated on the basis of good stratigraphic excavations at the site and other Late Roman sites in Cyprus. If tiles are excluded, amphoras, coarse wares, and medium coarse

54. Cosmopoulos 2001, pp. 60–64, 84–122. On the artifact-sampling strategy, see Cosmopoulos 2001, pp. 26–31. Because the Middle Roman period at Oropos overlaps both the Early and the Late Roman periods in EKAS, it cannot be subsumed within either period but must be discussed separately.

55. Cosmopoulos 2001, p. 113, findspot 91/22. One other site was dated on the basis of an Early Roman lamp.

56. Caraher et al. 2005; forthcoming. I thank my colleagues and fellow codirectors of the project, R. S. Moore and William Caraher, for encouraging me to discuss the ceramic data.

57. Other projects include the sites of Maroni Petrera (Manning et al. 2002) and Kopetra (Rautman 2003), and the Sydney Cyprus Survey Project (Given and Knapp 2003).

58. Pottery of specifically Late Roman date accounts for over 40% of the entire analyzed assemblage and over 80% of the total number of artifacts that can be dated to a narrow period (i.e., one lasting fewer than 500 years); most of the remaining pottery can only be dated broadly to the Ancient Historic period (750 B.C.–A.D. 749). Other specific chronological periods, including Early Roman, are represented in very small amounts.

wares constitute the majority of the Late Roman material (85%), while fine wares (11%) and kitchen or cooking wares (4%) make up the remainder. Moreover, as in the case of the EKAS data, the majority of medium coarse and amphora sherds are body sherds (68%), identified on the basis of spiral grooving and combing; rims (6%), bases (2%), and handles (24%) together count for only a third of the total sherds of this class. By contrast, body sherds represent a minority (31%) of the total count of fine wares dated to the Late Roman period, while rims (54%) are predominant. Although the Early Roman period was poorly represented at the site, the majority of sherds (61%) are fine ware and only 12% belong to the class of coarse ware and amphoras.

Other Surveys

The examples discussed above could be multiplied by the addition of other extensive and intensive surveys in Greece, although rarely have the finds been recorded in sufficient detail to allow statistical analysis of wares, functional classes, and parts of vessels, so the results are necessarily more impressionistic. The Boeotia Survey, for example, employed a collection strategy that selected potentially diagnostic artifacts.[59] In a sample of 454 Late Antique to Early Byzantine sherds from 30 sites in the region, Joanita Vroom noted that fine wares constituted only 6% of this material; the overwhelming majority consisted of amphoras (29%), especially Late Roman 2, and beehive fragments (62% of all finds).[60] The Boeotia Survey was fortunate to recognize so many Late Antique sites, since almost all of the finds (perhaps even the Late Roman 2 amphoras) were locally produced. Indeed, if it were not for the identification of a single type of pottery, the Late Roman beehive fragments, the remains of this period would appear much thinner on the ground.

This conclusion is consistent with the results of many other topographic and intensive surveys in Greece and the Mediterranean in which a Late Roman component has been identified only or mainly on the basis of combed, ridged, or grooved surface treatment on body sherds. The Argolid Project, for example, divided the Roman period into an Early (50 B.C.–A.D. 200), a Middle (A.D. 200–400), and a Late phase (A.D. 400–650), but the catalogue of sites suggests that Early and Middle Roman pottery was rarely identified with much confidence, while Late Roman wares occur frequently, with numerous amphora sherds and domestic coarse wares, as well as red-slipped fine wares, and the occasional coin, lamp, roof tile, and cooking vessel.[61] Whether the apparent disparity is a product of an actual difference in ceramic abundance or merely a difference in ceramic visibility can only be determined by a closer examination of the data.

Altogether, these analyses indicate that the distinctive surface treatments of some types of Late Roman pottery provide a higher degree of diagnosticity, which in turn leads to greater confidence in dating and contributes to the period's higher visibility in the field. Indeed, the tendency of survey projects to sample only potentially diagnostic sherds reinforces rather than corrects for these biases toward easily recognized types.[62] A

59. Vroom 2004, p. 308.

60. Vroom 2004, pp. 308–324, esp. p. 311, table 2B.

61. Jameson, Runnels, and van Andel 1994, pp. 415–538.

62. Cf. Caraher, Nakassis, and Pettegrew 2006.

sampling method that favors body sherds with distinctive surface treatments and decoration is likely to exaggerate the differences between periods, while removing body sherds as an identifying class significantly diminishes the evidence for the Late Roman period in some regions. This is not to argue that the pattern of settlement expansion in the Late Roman period is a product of survey method alone, but rather that differential visibility is a primary reason for the relative abundance of Late Antique material in both artifact and site catalogues.

QUANTITATIVE COMPARISONS WITH EXCAVATED SITES

Before discussing the implications of this rereading of the ceramic evidence for the interpretation of Roman settlement patterns, it will be useful to compare typical ceramic surface assemblages for the Early and Late Roman periods with corresponding ceramic assemblages from excavated contexts.[63] The introduction of quantitative data from a range of excavated Roman contexts provides interesting points of comparison between material identified on the basis of stratigraphic context and deposits (excavation assemblages) and material typically identified on the basis of recognized and sampled type fossils (survey assemblages). Such a comparison demonstrates that a typical Early Roman surface assemblage (i.e., the sum of identified type fossils of that date) differs significantly from an expected total population of Early Roman artifacts, while typical Late Roman surface assemblages, which are characterized by larger percentages of coarse wares, more closely resemble assemblages recovered from excavation.

The quantification of pottery has been an important component of excavation and survey projects for three decades, especially in the western Mediterranean.[64] Although the practice of quantifying excavated assemblages is a more recent development in the eastern Mediterranean, it is becoming an increasingly common way of presenting Roman and Medieval ceramic finds.[65] The counting of artifacts, of course, has long played a rôle in the presentation of survey data, but the quantification of the types of artifacts found in intensive survey and the interpretation of survey data and settlement history in light of such counts are more recent developments.[66]

63. I appreciate Kathleen Slane's insightful critique and suggestions on the following discussion.

64. On the value of quantification, see Riley 1976, pp. 125–131; 1979, pp. 97–111; Slane 2003. Important early studies in the western Mediterranean include Hayes 1976; Riley 1976, 1979; Fulford and Peacock 1984, pp. 253–262, 273–275.

65. Quantified studies in Greece include Sanders 1987, 2003; Papadopoulos 1991; Slane 2000, 2003. For recent examples of the practice applied to Roman and Medieval pottery, see Rautman 2000, 2003; Manning et al. 2002; Gerstel et al. 2003.

66. See Fentress and Perkins 1989; Poulter 1998, pp. 464–475, 503–511; Rautman 2000, 2003; Manning et al. 2002; Vroom 2004; Caraher, Nakassis, and Pettegrew 2006.

While these studies indicate that excavated assemblages vary greatly in the relative proportions of functional classes, other similarities between surface assemblages and excavation assemblages encourage comparison.[67] In the following discussion I consider three examples of excavated contexts of Roman date for which the pottery has been completely collected, recorded, counted, and catalogued: an industrial complex in Corinth, an urban house in Carthage, and a rural Early Christian basilica in Cyprus. My aim is not to establish a standard of proportions, since the amount and proportions of pottery of each functional class vary at each site, depending largely upon the nature of the context. Rather, my goal is to demonstrate the degree to which typical Early and Late Roman surface assemblages differ from the range of corresponding excavated assemblages in terms of the criteria discussed above.[68]

Corinth: Industrial Buildings East of the Theater

For comparison with the data from EKAS, the most immediately relevant work is Kathleen Slane's quantitative study of the ceramic material recovered from four buildings, probably used for industrial purposes, excavated in the 1980s east of the theater at Corinth.[69] The excavations generated nearly 12 tons of Roman pottery, of which Slane has studied 127,370 pieces. The material dates principally between the 1st and 4th centuries, with the greatest amount belonging to the Early Roman period (late 2nd–early 3rd century);[70] there is a break in the depositional sequence at the beginning of the Late Roman period (early 4th to mid-5th century), after which the ceramic sequence continues to the 7th century. Slane's study tabulates the relative percentages of functional classes over time, with an eye toward delineating shifts in imports and local production. Amphoras constitute 47% of the overall pottery by count, with the highest percentages in the 1st and 2nd centuries and in the 5th century. Fine wares show the same general pattern, with the highest percentages in the late 1st to early 2nd century (10%–12%) and again in the 5th century (12%–14%), and a low point in the later 2nd and 3rd centuries (5%–7%). Cooking wares and plain

67. The following discussion assumes that similarities between the composition of excavated deposits and surface assemblages are to be expected. There may, of course, be differences between assemblages found in town and countryside, but there is no reason to think that such differences would make a comparison impossible. In both urban and rural contexts, for example, we should expect that the ratios of rims, bases, and handles to body sherds will not differ greatly. An ideal comparison of excavated and surface assemblages would compare contexts from the same region, but this is not always possible.

68. I have tabulated functional classes (e.g., fine wares, coarse wares, kitchen wares) and extant parts (RBHS) based on count rather than weight, since count facilitates comparison with counted artifacts from regional surveys. Since the classes defined by EKAS (fine ware, coarse ware, medium coarse ware, kitchen ware) are not exactly equivalent to those used by the excavation projects, I base my conclusions on only two broad criteria: the ratio of fine wares to other wares, and the ratio of RBH to body sherds. Because the preceding discussion of the survey data focused on the differences between the Early and Late Roman periods, I attempt, as far as possible, to relate these excavated assemblages to the same periods.

69. Slane 2000, 2003, pers. comm. The first of these studies is based mainly on the fine wares, a body of material that is more sensitive to imports, and does not calculate for amphoras and coarse wares. The present discussion relies especially on Slane 2003; for the percentages by RBHS, see p. 333 and figs. 19.11, 19.12.

70. K. Slane (pers. comm.).

wares, by contrast, vary the most: together they constitute on average a little more than 40% of the pottery, but in the 3rd century that number increases to as much as 60%, while the numbers of amphoras and fine wares decline.[71]

Carthage: Roman Peristyle House

In domestic deposits from a Late Roman peristyle house excavated by the University of Michigan in 1975, amphoras constituted some 50%–60% of finds dated to the 1st century A.D., as well as those dated to the 5th and 6th centuries, with significantly lower amounts in the 2nd and 3rd centuries. African Red Slip ware comprised 8%–10% of the Roman-period ceramic material after the 2nd century.[72]

The published counts and weights of pottery types in each of 13 stratigraphic units show differing relative frequencies for the parts of vessels.[73] Body sherds typically make up 80%–95% of each deposit, rims 4%–10%, bases 1%–4%, and handles 1%–3%. For fine wares specifically, rims (20%–40%) and bases (generally, 9%–25%) constitute a greater proportion of the total count, and body sherds a much lower percentage (as low as 45%, but for most groups, 50%–65%).[74] Handles, whether fine or coarse, form a consistently low percentage of the overall assemblage.

Maroni Petrera, Cyprus: Early Christian Basilica

Sturt Manning and his colleagues investigated an Early Christian basilica at Maroni Petrera in Cyprus between 1990 and 1997.[75] Limited excavations there produced 4,202 potsherds (85.5 kg), although most of these were found in the plow zone; only two closed deposits were revealed, the first dating to the Early Roman period (early 2nd century A.D.; n = 559), the second to the Late Roman period (late 4th to early 5th century A.D.; n = 128).

There are considerable differences between the two deposits, but in both, amphoras have the highest proportional representation of the ceramic groups: 33% of the Early Roman, 66% of the Late Roman. Fine wares constitute a small percentage of the total count: 6.3% (n = 35) of the Early Roman assemblage and 12.5% (n = 16) of the Late Roman. Cooking wares are much more important in the Early Roman group (17%; n = 95) than they are in the Late Roman (0.8%; n = 1). Pithoi constitute 5% (n = 28) of the Early Roman count and 11% (n = 14) of the Late Roman. Lamps, when they appear, as they do in the Early Roman deposit, are proportionally insignificant. Regardless of functional class, body sherds make up the bulk of the pottery by count (Early Roman 87.3%; Late Roman 79.7%); of the remaining RBH fragments, rims are more common than bases and handles. In both deposits the amphora fragments are predominantly body sherds, which form 94.1% and 89.4%, respectively, of the total counts for Early and Late Roman amphoras. Among fine wares, however, body sherds make up only 57% of the total count; in both the Early and Late Roman periods, RBH fragments constitute a greater proportion of fine wares than of coarse wares.

71. On average, cooking ware makes up 17% of the overall assemblage, and plain ware 25%. Lamps do not fluctuate above 2%–3% across the entire period.

72. Hayes 1976, pp. 84, 114.

73. The following percentages are based on the figures presented in Riley 1976, pp. 132–156, tables 1–15.

74. Riley 1976, tables 3a, 5a, 5b, 7a, 8a, 11a, 11b, 12a, 13a, 13b.

75. Manning et al. 2002. For the pottery, see pp. 41–57, with a breakdown of counts on pp. 44–47, tables 6.1, 6.2.

Comparison of Excavated and Surface Assemblages

Any excavated assemblage is bound to reflect the context from which the pottery derived, and we should consequently expect great variety in the functional and morphological makeup of assemblages from one site to another. Moreover, the relative proportions of RBHS are closely related to functional classes: amphoras, cooking wares, plain wares, and fine wares fragment differently, producing different sherd sizes and different numbers of rims, bases, handles, and body sherds. Consequently, these proportions will also vary, reflecting the functional character of the assemblage and the context that produced it.[76] In the excavated assemblages discussed above, however, two consistent patterns stand out, which are comparable to the patterns seen in the data from EKAS and other regional survey projects.

First, at none of the three sites do fine wares account for more than 15% of the overall ceramic population, and they typically range between 6% and 10%. This remains the case in spite of shifts in the relative proportions of functional classes between periods. Although there exist archaeological contexts in which fine wares do represent a far greater proportion of the total Roman ceramic population,[77] the data from a broad range of contexts indicate that proportions of fine ware are usually less than 20%, and often much lower.[78]

Second, the evidence for the relative proportions of RBHS at Carthage and Maroni Petrera suggests that despite significant variation, body sherds constitute the great majority of pottery (80%–95%) counted in both Early and Late Roman deposits, RBH forming a consistent minority (5%–20%). The more proportionally significant fine wares become in a deposit, the more RBH proportions approach those of body sherds, but at most sites and in most assemblages, body sherds form the vast majority of finds.[79]

76. In the case studies discussed above, for example, amphoras ranged from 33% to 66% or more of the ceramic population, cooking wares 1%–30%, and plain wares 20%–50%; local vs. imported proportions varied between sites. Body sherds formed a much lower proportion (ca. 50%) of the overall population of fine-ware deposits than they did for plain ware and amphoras, a product of the relatively smaller size of the original fine-ware vessels.

77. E.g., Limyra on the Lycian coast, where fine wares make up some 29% of the Late Roman material. The high percentage may be a product of the location of the excavation, adjacent to monumental buildings and shops, or of the city's role as an episcopal see and pilgrimage site. Cf. Vroom 2004, pp. 291–294, 307–308.

78. Two other examples can be added to the case studies presented above. Excavations conducted in the 1960s by Dumbarton Oaks and the Archaeological Museum of Istanbul at the church of St. Polyeuktos at Saraçhane in Istanbul generated some 350,000 to 400,000 sherds dating from the Late Roman to Early Modern periods (A.D. 400–1900). In both Late Antique and Byzantine deposits, fine wares form about 10% of all finds; only in later Byzantine periods, as amphoras become less important, do fine wares and kitchen wares come to represent a greater proportion of the total (Hayes 1992, pp. 3, 53). Excavations at Carthage by the British Academy between 1975 and 1978, mainly of Late Antique and Byzantine domestic buildings, produced ceramic data that were quantified by weight. Fine ware constituted a steady minority of the finds, usually 6%–10% of the assemblage, occasionally lower or higher (Fulford and Peacock 1984, pp. 253–254, 273–275).

79. Again, I offer two additional examples. Excavations between 1976 and 1978 in the lower city and isthmus of Torone produced 5,241 pieces of pottery attributed to six types of Late Roman amphora. Of these sherds, 87.3% (n = 4,577) were body fragments, while only 12.7% (n = 664) were RBH. Moreover, these numbers are based only on sherds that could be assigned to a specific amphora type; there was a larger group of 5,598 body sherds that probably represented Late Roman 3 amphoras but could not be designated to that class with certainty, and these were excluded from the analysis. If we were to add these sherds to the group, body sherds would represent 93.9% of

These two patterns can be compared with the assemblages of Roman, Early Roman, and Late Roman date produced by regional survey projects. The EKAS data for the Late Roman period (Table 6) yield proportions for the functional classes that are closest to those of assemblages produced by excavation: an overwhelming predominance of coarse wares, amphoras, and kitchen wares, with much smaller amounts of fine wares.[80] In the Early Roman and the broad Roman periods, on the other hand, fine wares are proportionally overrepresented (38.3% and 19.8%, respectively), while the percentages of coarse wares and amphoras are much lower, a fact that suggests that many Roman and Early Roman coarse wares were assigned to broader chronological groupings such as Roman–Medieval or Ancient. In other surveys, these are the kinds of pottery that might be ignored altogether.

In neither EKAS nor the Methana Survey do the RBHS ratios for the Early and Late Roman periods (Tables 8–10) correspond well to that of an excavated assemblage with roughly 80%–90% body sherds and 10%–20% RBH, but in both surveys the Late Roman percentages more closely approximate the expected proportions. In the Late Roman period, body sherds constitute 71.4% of the total Late Roman count at Methana and 71.2% in EKAS, whereas the percentages for Early Roman body sherds in both surveys (36.2% at Methana; 41.1% in EKAS) are much lower than we might expect based on our knowledge of excavated assemblages. The Early and Late Roman surface samples, in other words, differ significantly in their similarity to fully excavated assemblages of the same periods.

DISCUSSION: UNDERSTANDING ROMAN SURFACE ASSEMBLAGES

Throughout the preceding analysis I have argued that the Early Roman and Late Roman periods have significantly different degrees of visibility in typical regional surveys, and that the two periods are therefore very unevenly represented in most archaeological surface samples. The type fossils of the earlier period are generally fine wares and RBH sherds that in excavated contexts normally constitute only 5%–20% of the overall assemblage;[81] the type fossils of the later Roman period also include fine wares and RBH sherds, but they include coarse-ware body sherds as well, which often form a significant proportion of excavated ceramic assemblages. To draw archaeological and historical conclusions from the number of type fossils

the total count, and RBH would fall to only 6.1% (Papadopoulos 1991, p. 82). At Pyrgouthi in the Berbati valley, excavation of a Late Antique farmstead by the Swedish Institute at Athens produced a total of 8,500 sherds, of which 11.8% (n = 1,000) were RBH (Hjohlman, Penttinen, and Wells 2005, p. 234).

80. The greater significance of the functional class labeled "Other" in the totals for the broader Roman period (see Table 6) is mainly due to ceramic roof tiles that were not assigned a more specific date. Forty-eight nonceramic artifacts (glass, architectural fragments, ground stone, tesserae, plaster, etc.) were also included in this count, but these do not greatly affect the overall proportions of the sample.

81. In some cases fine-ware sherds may constitute an even smaller fraction. In a survey of the Late Roman fortification and Early Christian basilica at Louloudies, south of Thessaloniki, Late Roman fine ware amounted to less than 1% by weight of the total amount of pottery collected (M. Beckmann in Poulter 1998, pp. 503–511).

alone, without correcting for these differences in visibility and sampling biases, is to compare apples and oranges, exaggerating the evidence for the later period relative to the earlier. This simple fact has a variety of implications for the praxis of regional archaeological survey generally, the interpretation of changing settlement patterns on the basis of surface assemblages, and our understanding of regional diversity in the Roman and Late Roman landscapes of Greece.

Implications for Archaeological Survey Method

The conclusions presented here have two major implications for those conducting archaeological surface survey. First, survey projects have a responsibility to explain how their sampling strategies have produced their ceramic data sets and how their historical interpretations are derived from that data. Despite a growing murmur in Mediterranean survey circles against uncritical quantification,[82] counting pottery is in some respects an indispensable prerequisite for archaeological interpretation. Although quantitative studies add a degree of intensity that may slow down a survey crew whose aim is to move efficiently through the countryside looking for sites, it is essential to understand how a ceramic sample relates to the original ceramic population, and thereby affects historical interpretation.[83] Regional surveys must publish their ceramic finds in a manner complete and transparent enough to permit a reader to follow the entire process that leads to the interpretation of settlement patterns, and in a way that allows for and encourages reanalysis of the kind presented above.

Second, the recent emphasis in ceramic publications on fabric analysis and local wares is one of the most valuable developments in regional survey, for it significantly increases the number of type fossils available for certain periods.[84] The local ceramic typologies produced by Joanita Vroom in her analysis of post-Roman ceramic assemblages for the Boeotia Survey, for example, have made it possible to fill out the settlement history of the region.[85] Melissa Moore Morison has examined Hellenistic to Late Antique utilitarian pottery from southern Epirus, establishing regional ware groups for survey pottery based on petrographic analysis and dated with a knowledge of locally excavated pottery; these groups are then used to measure changing levels of imports and local wares.[86] Clare Pickersgill's ongoing study of locally produced Roman coarse and fine wares from Sparta should provide similar insights and help to clarify the confusing picture of the Roman period presented by the data from the Laconia Survey.[87] Such studies of local ceramics are indispensable for the interpretation of survey data, especially in regions where imports are few or lacking.

82. See, e.g., Fentress 2000.

83. Caraher, Nakassis, and Pettegrew 2006.

84. See, generally, Moody 1985; Haggis and Mook 1993; Armstrong and Hatcher 1997; Moody et al. 2003; Kiriatzi 2003; Alcock et al. 2005, pp. 194–204; Broodbank and Kiriatzi 2007.

85. Vroom 1998, 2003, 2004.

86. M. G. Moore 2000, 2001.

87. Pickersgill's doctoral dissertation (in progress) examines Roman coarse and fine wares from excavated contexts at Sparta and produces new typological sequences for local wares. Some of the results of this study are reflected in Pickersgill and Roberts 2003, in which the authors analyze 10 pottery groups from the Roman stoa and theater at Sparta and conclude (pp. 593–597) that locally produced pottery, rather than imported wares, fulfilled local demand throughout the Roman period.

TABLE 11. FACTOR INCREASE BETWEEN EARLY AND LATE ROMAN PERIODS IN THE METHANA SURVEY AND EKAS (BY RBHS VS. RBH)

	Early Roman RBHS	*Late Roman RBHS*	*Factor Increase by RBHS*	*Early Roman RBH*	*Late Roman RBH*	*Factor Increase by RBH*
Methana	315	801	2.5	201	229	1.1
EKAS	331	1,707	5.2	195	492	2.5

Measuring Change in Ceramic Deposition, Land Use, and Habitation

Given the problems of differential visibility and uneven representation discussed above, how should we use survey data to interpret historical change in the landscape? There is no simple computation by which we can correct for Early Roman underrepresentation, and any attempt at calibration must be tentative insofar as it rests upon unstable premises and attempts to move from a known sample to a putative total ceramic population that must always remain unknown. Nevertheless, attempts at analysis and calibration, however imperfect, are preferable to a simple and uncritical comparison of the sample populations of both periods, and they can lead to a better understanding the Roman data and the settlement patterns they represent.

The simplest way to minimize the effects of differential visibility without calibration is to compare the two periods on the basis of similar artifact types. Rather than simply comparing the total number of sherds for each period, one can eliminate body sherds from the counts altogether, since these are so unevenly represented. The results of the application of this method to the Methana Survey and EKAS data are displayed in Table 11, in which the factor increase between Early and Late Roman based on total counts can be compared to the increase based only on RBH. With this adjustment the Late Roman presence is much reduced: the explosion of Late Roman settlement becomes a gentler upturn in the eastern Corinthia and a pattern of stability in Methana. Figures 5 and 6 display the adjusted pattern for the EKAS area. Contrasted with Figures 2 and 3, which show the density of RBHS (i.e., the total count) for each period, Figures 5 and 6, which are based on the density of RBH without the body sherds, show a less explosive increase in the Late Roman period, although a material upturn is still evident.[88]

A related way of measuring relative differences between periods is to restrict the comparison of ceramic remains to functional classes that are less susceptible to radical differences in relative visibility and identification (cf. Table 12, below). In the case of the EKAS data, comparison of the fine wares, kitchen wares, and lamps shows a variable degree of increase between the Early and Late Roman periods, but nothing like the change that is suggested by comparison of the total counts for each period. If we also exclude body sherds from the medium coarse wares and amphoras and instead rely solely on RBH counts, the number of Late Roman coarse-ware fragments drops from 1,417 to 235, a figure much closer to the Early Roman count of 118. Measured in this way, the factor increase in ceramic material from

88. The density scale in Figs. 5 and 6 has been adjusted to better display the reduced amounts of pottery resulting from the removal of the body sherds and to permit easier comparison of the relative densities of the two periods.

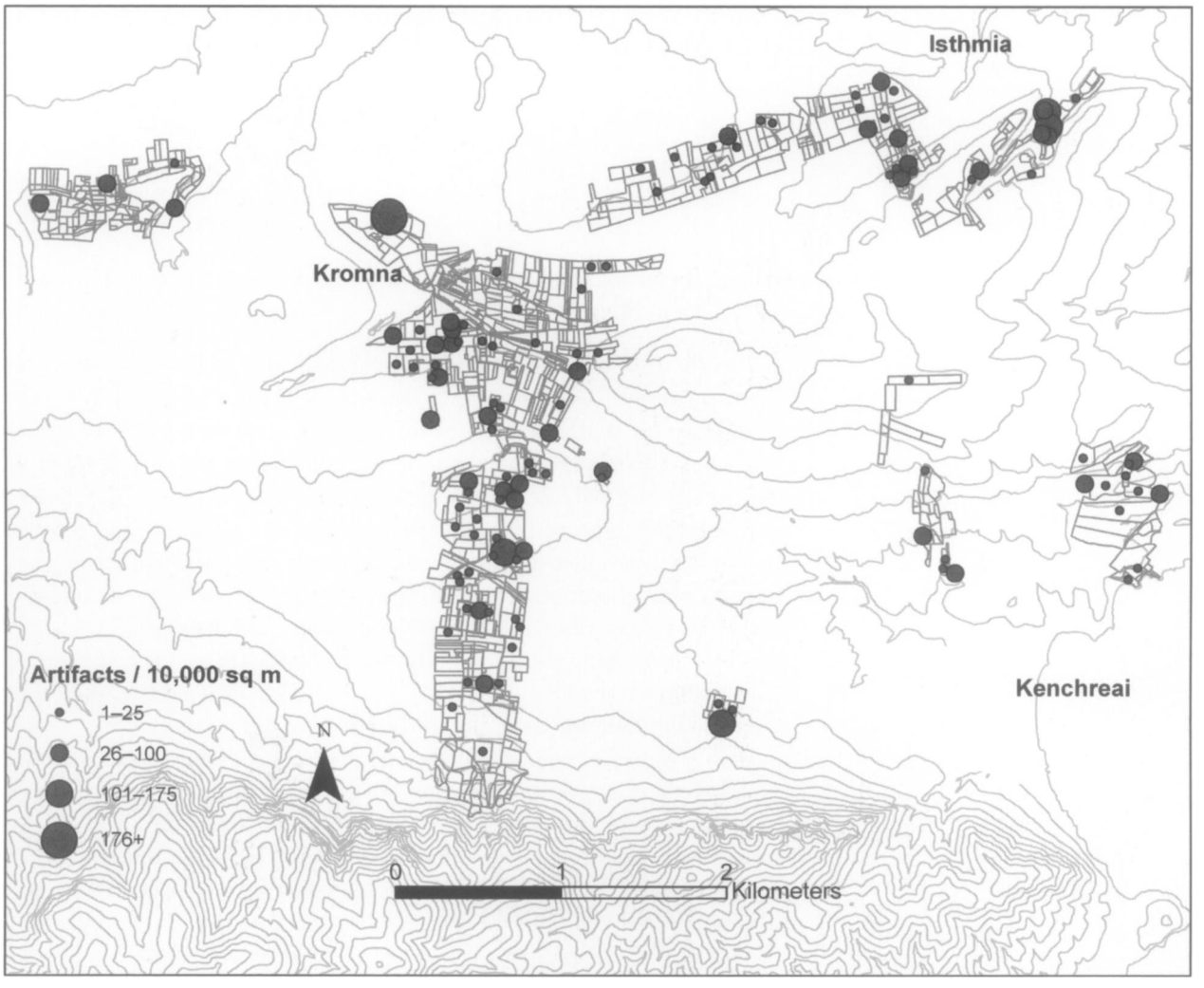

Figure 5. Density per hectare of Early Roman rims, bases, and handles in the main EKAS survey area

the Early to the Late Roman period ranges from 1.2 to 2.1, depending on which class one takes as the standard of measurement.

Yet another, more subtle, method of comparison is to analyze differences in the numbers of rims, handles, and bases in each period (Tables 8, 9). In the eastern Corinthia the number of bases (33 ER vs. 37 LR) and handles (111 ER vs. 110 LR) remains constant between periods, but the rims increase significantly (49 ER vs. 322 LR). In Methana the number of rims almost doubles (76 ER vs. 130 LR), but handles remain constant (74 ER vs. 75 LR) and bases decrease by 50% (51 ER vs. 24 LR). Comparing the periods in this way shows that, at least in these two surveys, an increase in rims is chiefly responsible for the overall increase in the count of RBH for the Late Roman period. The disadvantage of such an approach is that the results will vary according to the shifting ratios of functional classes with different RBHS ratios: amphoras, for example, produce far fewer rims and bases than fine-ware plates.[89]

If our ability to identify pottery remained constant between periods, we might also be able to reclaim some of the pottery dated to the broader Roman period by using the ER:LR ratio of the more precisely dated sherds

89. On the other hand, amphora rims tend to be better preserved than fine-ware rims due to their thickness, and amphoras also have handles, as plates do not.

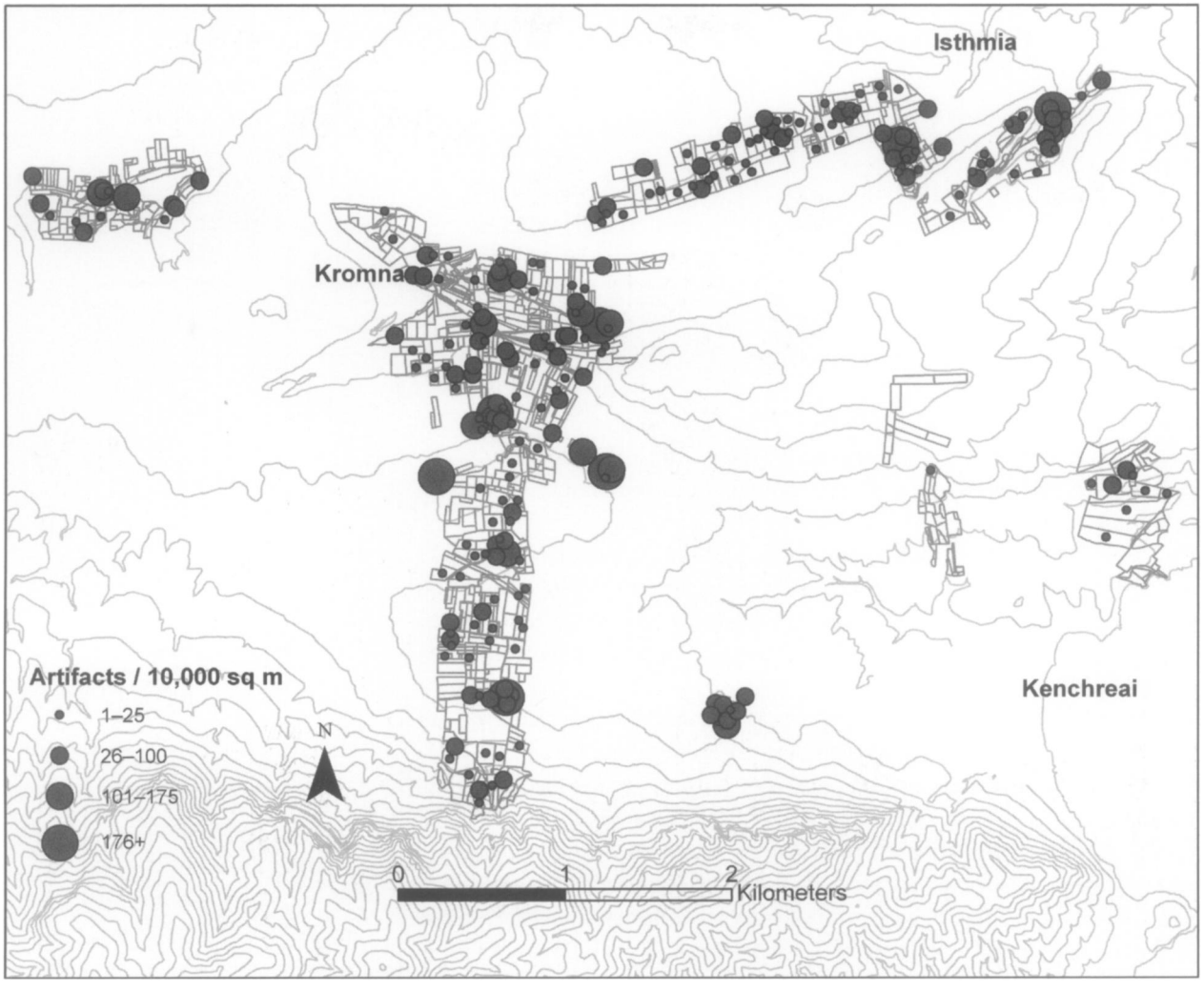

Figure 6. Density per hectare of Late Roman rims, bases, and handles in the main EKAS survey area

in each of the functional classes. For example, EKAS identified 127 Early Roman fine wares and 165 Late Roman fine wares, a ratio of 43.5% to 56.5%. The number of fine-ware sherds dated to the broad Roman period is 438; using the same ratio, we would estimate that 191 of these are Early Roman and 247 Late Roman. The addition of these numbers to those of the precisely dated sherds would produce adjusted total fine-ware counts of 318 and 412 for the two periods. The adjusted counts for this and other functional classes are presented in Table 12.[90] Although these adjustments affect the total counts, they do not appreciably change the overall ratio of Early to Late Roman.[91]

Accepting, however, that most surveys do not identify Early and Late Roman pottery at equal rates, we can apply a variety of calibration factors to correct for the difference. Ratios derived from ceramic assemblages produced by excavation (see above) provide a useful starting point. Assuming an expected RBH:S ratio of 10:90, we can use the known value of Early Roman RBH (n = 195) in the EKAS sample to estimate an expected body sherd population of 1,755; such a calibration factor would increase the total Early Roman ceramic population to 1,950, approximately six

90. These calculations are based on the figures for the Roman period in Table 6. The figures for coarse ware and amphoras are calculated using RBH only.

91. Using the unadjusted figures, Late Roman (n = 502) outnumbers Early Roman (n = 330) by a factor of 1.52; the adjusted factor increase is 1.49.

TABLE 12. FACTOR INCREASE IN EKAS FOR FUNCTIONAL CLASSES BETWEEN EARLY AND LATE ROMAN PERIODS BASED ON ADJUSTED COUNTS

Functional Class	*Early Roman*	*Late Roman*	*Roman*	*Ratio*	*Adjusted Early Roman*	*Adjusted Late Roman*	*Factor Increase*
Coarse ware and amphora (RBH)	118	235	399	33.4% : 66.6%	251	501	2.0
Fine ware	127	165	438	43.5% : 56.5%	318	412	1.3
Kitchen ware	82	96	294	46.1% : 53.9%	218	254	1.2
Lamp	3	6	34	33.3% : 66.7%	14	29	2.1
Total	330	502			801	1,196	1.5

times the number of ER sherds (n = 331; Table 6, above) identified by EKAS. The use of a more moderate RBH:S ratio of 20:80 reduces the estimate to 780 body sherds, which would increase the total Early Roman ceramic population to 975. Performing the same calculations for Late Roman RBH (n = 492) would bump up the LR ceramic population to 4,920 (using the 10:90 ratio) or 2,460 (using the 20:80 ratio). This calibration significantly changes the relative ceramic representation of the two periods, producing Late Roman totals only 2.5 times greater than the Early Roman totals.

Similarly, taking 10% as the expected percentage of fine wares, we can estimate from the 127 Early Roman fine-ware sherds an expected population of 1,143 coarse and cooking-ware sherds, bringing the potential total population of Early Roman material to 1,270. These figures suggest that the EKAS total count for the Early Roman period (n = 331) underrepresents the original population by a factor of at least three and possibly much more. Applying the same calibration to the Late Roman fine-ware count (n = 165) produces an estimate of 1,485 coarse and cooking-ware sherds and a potential total population of 1,650, a figure very close to the actual count of identified LR pottery (n = 1,707). This calibration, then, reduces the degree of difference between the Early and Late Roman periods: the adjusted LR population outnumbers the adjusted ER population by a factor of only 1.3.

The analyses presented above, in which the factor of increase ranges between 1.2 and 2.5, demonstrate that the Early and Late Roman ceramic populations in EKAS are in fact more equal than they initially appear. Moreover, because the two periods are of unequal length—281 years in the case of the Early Roman period (31 B.C.–A.D. 250), and at least 450 in the case of the Late Roman (A.D. 250–700)—modest increases in the total amount of pottery might be expected. Based on the proportion of 281 to 450, we might expect the Late Roman ceramic population to be 1.6 times greater than the Early Roman, assuming a constant rate of ceramic deposition across the entire Roman period. This number falls well within the calibrated range of 1.2–2.5.

Calibration and correction for differential visibility is an important step in the process of interpreting change in the Roman countryside. Survey archaeologists must carefully examine their data in order to determine whether such problems of differential visibility apply to their regions, and

if so, which calibration factors will serve them best. This is true not only for those whose primary interest lies in the Early and Late Roman periods, but for those studying other "boom-and-bust" cycles in the ancient landscape as well. Might the expansion of settlement in the Late Classical period, for example, also be at least partly a consequence of similar source issues?

Reading the Late Roman Landscape of Greece

Finally, this study encourages us to consider different paradigms for interpreting the overall pattern of activity in Greece and the Aegean during the Roman period. Previous interpretations have related the explosion of Late Roman material to the proliferation of Late Roman sites and, by inference, to historical and economic factors such as population growth, an increase in intensive agriculture, changes in imperial land-use policy, and general economic prosperity. Levels of Late Roman abundance may, however, also speak to complex issues like the extent of a region's connections to broader networks of exchange and distribution over time. The critical question is whether a lack of Early and/or Late Roman pottery in some regions indicates a genuine absence of rural settlement, or whether it simply reflects a poor sample for the period, caused by limited regional access to more easily identifiable imported pottery and a dependence on local wares that remain unidentified.[92]

Archaeologists have tended to prefer the former explanation, but there is some evidence to suggest that the latter explanation is often the correct one, for the pattern of dramatic increase in Late Roman settlement is most striking in regions with the readiest access to coastal sites and exchange systems (Fig. 1). The island of Keos, the southern Argolid, and the Methana peninsula are all situated close to the sea and positioned along major trade and distribution routes, and are all regions where surveys have produced abundant evidence for Late Roman expansion.[93] By contrast, the pattern of Roman settlement in inland regions such as the Nemea valley, the Berbati valley, Megalopolis, the Asea valley, and the Laconia survey area is less clear.[94] Even Boiotia, which might seem to be an exception because it is

92. Cf. the thoughtful and critical discussion by Andrea Berlin and Sebastian Heath of similar interpretive problems in the data collected by the Pylos survey: Alcock et al. 2005, pp. 194–204.

93. For Keos, see the comments of Sutton (1991, p. 253) on the island's "outward-looking economy," well-connected with plenty of imports. Similarly, in the southern Argolid, van Andel and Runnels (1987, pp. 116–117) have linked the return of prosperity in the Late Roman period to the region's proximity to the sea. The Pylos survey area, while producing fewer imported ceramics than Keos, the southern Argolid, and Methana, still produced significantly more than inland regions (see n. 94, below). The evidence from Pylos suggests that east–west exchange networks and dependence on imported wares changed significantly from the Hellenistic to the Late Roman periods, with higher levels of imports from the 4th to the 6th century A.D. Berlin and Heath have suggested that fluctuations over time in imported vs. local fine ware and amphoras have greatly affected the number of rural settlements identified for different periods: Alcock et al. 2005, pp. 194–204.

94. Sutton (in Wright et al. 1990, pp. 657–659) suggests that the paucity of imports in the Nemea valley during most periods should be seen as a consequence of the isolation of the region rather than a sign of depopulation, and wonders whether the greater frequency of Middle Byzantine wares in the valley might simply be a result of greater local production. The Berbati valley survey, with a study area approximately the same size as that of EKAS, counted only a few pieces of Italian sigillata and a total of only 58 fragments of Red Slip ware (Forsell 1996, pp. 330–331), a bare fraction of the EKAS total. At Megalopolis the picture of settlement recovery in the Late Roman period seems clear, but the growth is not explosive (Roy, Lloyd, and Owens 1989, pp. 149–150); Lloyd (1991, p. 188) has noted the

not geographically or commercially advantaged, yet still conforms to the typical pattern of Late Roman settlement expansion, turns out to prove the rule, for not only was the region weak in imports, but the ceramic evidence for the Late Roman period is based almost entirely on locally produced imitations of Late Roman amphora forms and beehives.[95]

An argument that relates ceramic abundance to distribution networks would also explain the Roman ceramic data from EKAS.[96] Although EKAS surveyed intensively a much smaller overall area (ca. 4 km^2) than many other regional surveys, the amount of fine-ware and imported amphoras recorded for both the Early and Late Roman periods exceeds that of many other regions. Because of the survey area's location at a Mediterranean crossroads, and its proximity to the port of Kenchreai, the sample includes many ceramic types that were widely distributed in the Roman period, with a resulting increase in the period's visibility (Table 13).[97] That the 1st–2nd and 5th–6th centuries appear to shine most brightly in this analysis does not necessarily mean that those centuries saw the highest level of settlement; it may simply indicate that these were the periods of greatest regional connection to broader networks of exchange.[98]

To settle such questions, further research is needed on the relationship between patterns of exchange, period visibility, and exurban settlement. There may be a relationship between the density of rural settlement and

difficulty of recognizing diagnostic Roman material because imported table wares reached the countryside only in small quantities. In the Asea valley the investigators found a flourishing Late Roman landscape, but also noted a paucity of imports and a dependence on local wares during the Early and Late Roman periods (Karivieri 2003, pp. 275–276, 288; Forsén and Karivieri 2003, p. 307). In Laconia, the investigators have suggested that a lack of imported red-slipped ware and amphoras might account for our poor understanding of the Late Roman period in the survey area: see n. 14, above, and cf. Pickersgill and Roberts 2003 for the importance of local ceramic production at Sparta.

95. For the paucity of imports, see Hayes 2000, pp. 106–107. In Vroom's breakdown of 19 sites with Late Roman sherds (2004, pp. 308–324), fine wares (locally produced Askra ware especially) constitute 6% of all Late Roman finds; amphoras (probably locally produced imitations of Late Roman 2) 29%; coarse wares 3%; and locally produced beehives 62%. Without the amphoras and beehives, the evidence for settlement in this period would be much less clear.

96. Cf. Pettegrew, forthcoming b, for a fuller discussion of the interpretation of the boom-and-bust cycle in the Corinthia, including the "abandonment" of the 3rd–4th centuries.

97. The dates assigned to pottery types in Table 13 are derived from Hayes 1972 and from recent work on the Roman pottery from Corinth. Slane has shown (*Corinth* XVIII.2, pp. 47–54; 2000; 2003, pp. 330–331) that Eastern Sigillata A is uncommon in both urban and sanctuary contexts after the middle of the 1st century A.D.; that Eastern Sigillata B can date to the early 1st century A.D., but especially occurs in 2nd-century deposits and can even be pushed into the 3rd century; and that Çandarlı ware is used as early as the late 1st century, but has its heyday in the 2nd to 3rd century. Some of the fine-ware and red-slipped sherds noted in Table 13 presumably represent local wares. Although the data show that imports came from both the western and eastern Mediterranean, the latter was a much more important source; this is not surprising, given that the survey area lies immediately north and west of Kenchreai.

98. The scholarship on Late Roman distribution systems is divided between those who favor state-driven explanations (Whittaker 1983; Wickham 1988, 1998; Abadie-Reynal 1989; Fulford 1996; Durliat 1998) and those who favor explanations based on market or demand (overview in Kingsley and Decker 2001b; see also the other articles in the same volume, especially Kingsley 2001 and Ward-Perkins 2001). On widespread wealth and purchasing power in late antiquity, see Blake 1978, pp. 436–440; Banaji 1996; Maguire 2001; and Banaji 2001, pp. 60–65, 218–221, with response and discussion in Kehoe 2003. There is also a middle course: see Ward-Perkins 2000b, pp. 369–381; 2001, p. 168. See Wickham 2005, pp. 693–824, for the role of aristocratic demand in generating regional exchange. However we explain the patterns, imported ceramic commodities such as fine wares and amphoras were certainly widely distributed in the Mediterranean from the 5th to 7th century: cf. Blake 1978, pp. 436–440; Wickham 1988, p. 190; 1998; Reynolds 1995; Ward-Perkins 2000b; Kingsley 2001, pp. 55–58; Kingsley and Decker 2001b, pp. 11–13; Rautman 2003.

TABLE 13. COUNTS OF ROMAN FINE WARES (BY EXTANT PART) IN EKAS

Date	*Chronotype*	*Rim*	*Base*	*Handle*	*Body Sherd*	*Total Count*
Roman						
1st B.C.–late 7th A.D.	Roman fine ware	29	14	3	92	138
1st B.C.–late 7th A.D.	Roman Red Slip	68	39	0	110	217
1st B.C.–late 7th A.D.	Roman semifine ware	13	3	2	8	26
2nd–7th A.D.	ARS	12	4	0	41	57
Subtotal		122	60	5	251	438
Early Roman						
1st B.C.–3rd A.D.	ER semifine ware	0	0	2	0	2
1st B.C.–3rd A.D.	ER Red Slip	3	1	0	7	11
1st B.C.–3rd A.D.	Eastern Sigillata	8	2	0	16	26
1st B.C.–1st A.D.	Arretine	1	0	0	0	1
1st B.C.–1st A.D.	Eastern Sigillata A	3	5	0	10	18
1st–3rd A.D.	Eastern Sigillata B	2	2	0	12	16
1st century A.D.	Eastern Sigillata B1	1	0	0	6	7
1st–3rd A.D.	Eastern Sigillata B2	10	5	0	29	44
1st–3rd A.D.	Çandarlı ware	0	0	0	2	2
Subtotal		28	15	2	82	127
Late Roman						
3rd–4th A.D.	ARS 50	1	0	0	0	1
3rd–late 7th A.D.	LR fine ware	2	0	0	0	2
3rd–late 7th A.D.	LR Red Slip	9	5	0	4	18
Late 4th–late 7th A.D.	Egyptian Red Slip	0	0	0	2	2
Late 4th–late 7th A.D.	Cypriot Red Slip	0	1	0	2	3
4th–7th A.D.	Phocaean ware	39	19	0	10	68
5th–6th A.D.	Phocaean ware 3	44	0	0	2	46
5th–6th A.D.	ARS 99	9	0	0	0	9
5th–6th A.D.	ARS 104–106	8	0	0	0	8
Late 6th–early 7th A.D.	Phocaean ware 10	8	0	0	0	8
Subtotal		120	25	0	20	165
Total		270	100	7	353	730

ER = Early Roman; LR = Late Roman; ARS = African Red Slip

the development of systems of exchange, as some scholars have argued, but we need not assume that the relationship is necessarily linear or even regular.[99] It is even conceivable that imported fine wares might be more abundant in the countryside during periods of lower overall settlement or population.[100] A deeper understanding of ceramic chronologies, supply, and distribution will certainly help us to understand historical change in Roman landscapes.

99. The economic argument made for the southern Argolid by van Andel and Runnels (1987, pp. 113–117), relating settlement, population, economic growth, and access to Mediterranean markets, is fascinating but difficult to evaluate. An obvious test would be comparison with Late Roman settlement patterns in an inland region in Greece, but in such regions the pattern is often less visible because of the paucity of diagnostic artifacts distributed through commercial networks. For another argument linking the development of Late Antique settlements to the growth of markets, see Sarris 2004.

100. See, e.g., Sanders 2004, pp. 165–166.

CONCLUSION: THE LATE ROMAN CORINTHIA

The eastern Corinthia, lying between Corinth, its eastern harbor, Kenchreai, and the site of Isthmia, was one of the busiest territories in Roman Greece, as is evident from the abundance and distribution of artifacts throughout the area.[101] I have argued that the shifts in ceramic abundance between the Early and Late Roman periods are a product of artifact-sampling systems common to regional surveys and the differential visibility of the two periods in the field, and that they are also connected to broader patterns of supraregional exchange. Calibration of the survey data to correct for the difference in visibility reduces the evidence for an explosion of Late Roman settlement and reveals a more constant and continuous pattern of ceramic deposition (and, by inference, of habitation as well), rather than a dramatic cycle of boom and bust. Still, the quantity of imported amphoras and fine ware testifies to the large number of houses, farmsteads, villas, shrines, and agricultural installations that existed in the shadow of Corinth during the Late Roman period, as well as to the vitality of systems of exchange on the Isthmus into the 7th century.[102] This generally positive depiction of Late Roman Corinth has, of course, also been recently confirmed by scholarship on the urban center.[103]

Other historical factors may also have contributed to the ubiquity of Late Antique pottery in the eastern Corinthia. What effect, for example, did the construction of the Hexamilion fortress and the establishment of a garrison in the early 5th century have on the local economy and the regional distribution of pottery?[104] Did the flurry of Early Christian church construction provide an economic stimulus as well?[105] However such factors may have influenced the ceramic record, they are further examples of ways in which the Isthmus remained "busy" in the Late Roman era.

Just as recent scholarship on Corinth itself has begun to revise an overly pessimistic picture of the Late Antique city, so the history of activity and settlement in the territory east of Corinth needs to be read in a more positive light.[106] Every indication suggests that this busy countryside continued to function and flourish throughout the entire Roman period, in spite of the disasters of plague, earthquake, and invasions. If the Corinthia suffered from the 3rd-century crisis that affected the empire as a whole,

101. Although I have focused here on ceramic source analysis, I have elsewhere discussed the patterns of Roman and Late Roman settlement on the Isthmus as revealed by the EKAS data: Pettegrew 2006, forthcoming a, forthcoming b, in prep.

102. On the importance of the Peloponnese generally in east–west trade routes during this period, see Abadie-Reynal 1989, p. 56.

103. Slane 2000; Slane and Sanders 2005.

104. For the impact of the Hexamilion fortress, see Kardulias 2005. Recent scholarship has suggested that the militarization of society could have stimulated the local economy: on the role of the army, the government, and the church in creating localized economic hotspots in the Late Roman empire, see Fulford 1996, pp. 158–162; Kingsley and Decker 2001b, pp. 5–11; Dunn 2004. Karagiorgou (2001) has suggested that the wide distribution patterns of Late Roman 2 amphoras in the Aegean and the Balkans should be understood in terms of military involvement in these areas, since these vessels contained olive oil used for the provisioning of border troops. Such amphoras are, of course, not restricted to border areas, but the possibility of such a connection is nevertheless an interesting one to consider for the Corinthia.

105. On churches in the Corinthia, see Caraher 2003; Sanders 2005. For consideration of the same issue elsewhere, see Bowden 2003, pp. 151–154.

106. For revisions to the historiography of town and country, see Gregory 1985; Kardulias, Gregory, and Sawmiller 1995; Sanders 1999, 2004, 2005; Rothaus 2000; R. S. Moore 2000; Robinson 2001; Caraher 2003; Slane and Sanders 2005; Brown 2005, forthcoming a, forthcoming b; Kardulias 2005; Pettegrew 2006, forthcoming a, forthcoming b; Rife et al. 2007.

permanent discontinuity in rural settlement and building activity was not the result. If a late-4th-century earthquake made Corinth tremble, there is no evidence that its long-term effects on the countryside were crippling. If the Heruls or the Visigoths ransacked the region, the countryside recovered. Even in the wake of the 6th-century plague and at a time of alleged Slavic invasion, imported pottery was being used and deposited at some of the major rural sites on the Isthmus. Only in the 7th and 8th centuries do the lights of the Corinthian crossroads dim and go out. This localization of the regional economy marks the decisive end of the role of the Isthmus in the life of the ancient city.

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