Chapter 19, (pp. 187-192) revisits some of the topics pertinent to the rural sector. The main thrust of the argument is directed against the classical villa model of the Roman countryside and the presumed centralization of the farming estates and their usurpation by a narrow landowning elite. However, the nature of the evidence, and especially the way it is used, work against the formulation of well-founded counterarguments. For example, the idea that the large landed-estates were nothing new for Macedonia is solely based on the literary evidence and on our reconstructions of ancient Macedonian society. We do not know to what extent did the large estates dominate the pre-Roman countryside and, more to the point, we can only guess what happened to these estates after the Roman conquest. The other strand of the argument is that the sites in the countryside are too diverse to be subsumed under a single villa-type. But again, this does little to offset the classical villa model, especially because the author struggles to find even a handful of examples of small peasant holdings. The case for continuity in rural settlement is equally unconvincing because of the uncertain chronology of most rural sites. On the surface at least, it seems that it mirrors the developments in the urban sector.

The last chapter (Chapter 20, pp. 193-195) is a curious appendage to this study. It is a brief comparison of the trajectories of urban development in Roman Macedonia and Achaea. The conclusion is that, if towns could be ranked on a scale of Romanization, the towns of Macedonia would have ranked higher than the towns of Achaea. Because of their different backgrounds, Macedonia was much less urbanized than Greece in the pre-Roman period, and the urban fabric of Roman Macedonia is much closer to the empire-wide standards of urbanization than that of Achaea. Most of the urban tissue of Macedonia was created after the Roman conquest, and consequently the towns of Roman Macedonia were more open to foreign influences, both western and eastern, than the old towns of Achaea.

As it transpires from this detailed review, the study by Evangelidis has a number of weak points. These mostly pertain to the discussion of individual topics, but the most disconcerting are the ways in which the text is organized and the evidence presented. In principle, there are two ways to synthesize the source material for this study. One possibility is to write a purely architectural survey, providing thick descriptions of monuments and high-quality drawings and photographs. The other option is to relate the patterns observed in the relevant data to known or unknown trends in the economic, demographic and cultural developments in Roman Macedonia. This study falls somewhere in-between. Consequently, it neither offers a clear and well-illustrated overview of the architectural heritage of the province, nor does it bother to look for patterns in the distribution and date of construction activities that can be related to concrete historical developments.

Still, from a brighter perspective, this study does offer a theoretically informed introduction to the topic of architecture in Roman Macedonia and a useful guide to the archaeological research carried out in Greek Macedonia over the past few decades. It is an appropriate starting point for all those interested in the study of the building traditions and the urban fabric of the towns in the core area of Roman Macedonia.

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Karambinis, M. 2020. Urban Networks in Early Roman Macedonia and Aegean Thrace, in De Ligt, L. and Bintliff, J. (eds) *Regional Urban Systems in the Roman World*, 150 BCE - 250 CE: 440-481. Leiden: Brill.

Dimitri Van Limbergen, Sadi Maréchal and Wim De Clercq (eds) with contributions by Pierre Ouzoulias, Maaike Groot, Antoni Martin i Oliveras, Victor Revilla Calvo, César Carreras Monfort, José Remesal Rodriguez, Emlyn K. Dodd and Rinse Willet, *The Resilience of the Roman Empire: Regional case studies on the relationship between population and food resources* (BAR International Series 3000). pp. 152; 38 B/W and colour figures, 26 tables. Oxford: British Archaeological Reports, 2020. ISBN 978-1407356945, paperback $86.

Studies attempting to better understand the ancient economy have become increasingly popular amongst archaeological researchers in recent years. It is a broad, complex and often daunting topic to engage with, but one which can produce extremely insightful results with wide reaching implications

for studies of past societies and archaeology more broadly. The Roman Empire represents a particularly fertile ground for understanding ancient economies, with a relatively long and stable history covering a large expanse of diverse landscapes, with complex economic networks connecting the disparate corners of the Empire. Central to understanding the Roman economy is understanding the agricultural consumption and production and wider demographics, in what was always an overwhelmingly agricultural economy (Bowman and Wilson 2013). This volume addresses these topics, seeking to take the scholarship of the Roman economy beyond the limits of classical economics and into a more modern and nuanced understanding of ancient demography and agricultural production. The volume is split into seven distinct sections, an introduction and six chapters. Each chapter has a regional case study in which various questions are addressed, each focussing on the relationship between population changes and the impact of this on land use in the form of agricultural production and organisation.

The introduction (Van Limbergen, 1-7) is brief, but outlines the core focus of the volume very well. An important discussion which is revisited and discussed in every chapter is the difference between the Malthusian and Boserupian models of population. These are introduced and their importance to the volume made clear immediately (1). It is highlighted that these models will be deconstructed and their suitability for understanding ancient demography and agricultural production tested with specific case studies. This is an admirable aim, and one which is achieved successfully throughout. While the introduction admits the constraints of this volume, and the inherent limits and biases of archaeological data, the usefulness of the contributions within are emphasised (5-6). The acknowledgment of the limits is helpful, and the importance of the volume is presented in an entirely convincing manner.

Chapter two is an excellent contribution, greatly expanding on the discussion of the Malthusian and Boserupian models and examining case studies in Northern Gaul (Ouzoulias, 9-29). This chapter is essentially split into two, beginning with a long discussion of Malthus, Boserup and the place of classical economics in more recent studies of the ancient economy (9-13), before getting to the specific case studies. The discussion of the place of classical economics in modern scholarship is lengthy, but I believe is one of the most important contributions in the volume and sets up the rest of the discussion extremely well. Ouzoulias makes it quite clear that an unquestioning (or surface level questioning) acceptance of the validity of these outdated models is much to the detriment of scholarship. Indeed, some fairly harsh criticism is levelled against those clinging onto the "dogma" of the "traditional views of classic economists" (10). I find this entirely justified and applaud the weight of importance which is given to engaging with these centuries' old understandings of economics much more critically. Ultimately, Ouzoulias concludes that neo-Malthusian approaches are incapable of modelling the capacity for Roman agricultural production to intensify and modify the landscape in a way that Boserupian models are far better suited to (12-13). This is something which is emphasised clearly through the case study, and indeed the case studies of subsequent chapters. The idea of a form of "romanization" and the villa system forcing native (in this case Gallic) populations to peripheries where they undertook essentially subsistence level agricultural production is quite convincingly argued against (14). Indeed, it is clear that in each of the "peripheral" areas studied that agricultural production was both intensified and extended (16-17). All of this helps to emphasise the inadequacy of Malthusian models, and points to Boserup as a more suitable means of understanding the impact of population pressures on ancient agricultural production. Another key concept is the fact that much of the expansion and intensification being undertaken was by the basic unit of household/family farms (20-21). This is important, as such a setup is less affected by wages and as such less beholden to profit motives, a key component of Ricardian economics. Ouzoulias points to the work of Marx as highlighting alternatives to these economic models (20). Indeed, it is important to keep in mind that the suitability of classical economic models to understand the impact of labour was explicitly and convincingly called into question as early as 1859 (see especially Engels' preface to the English translation of Wage Labor and Capital, Marx 1891). Ultimately, this is a compelling chapter, and one which emphasises the importance of this volume as required reading for anyone seeking to better understand the Roman economy, especially the relationship between ancient demography and agricultural production, and move beyond the limited scope of a neo-Malthusian understanding of these concepts.

The third chapter builds upon the preceding arguments but has a greater focus on the specific case studies in *Germania* (Groot, 31-45). It is made clear that the Roman conquest was transformative, both demographically and economically, and that agricultural production had to change to meet increasing demand from a growing population

(33-35). Particularly insightful in this chapter is the discussion of the specific ways in which this increased demand could be and was met, whether through intensification (increasing the yield per unit) or extension (increasing the number of units). Rather than focus simply on arable land and its exploitation, an understandable approach taken elsewhere in this volume, the zooarchaeological evidence is given a much more central focus. This evidence, as Groot convincingly shows, can give insight into intensification based on the size of livestock. This not only indicates demand for more meat, but larger animals are also capable of ploughing fields more efficiently (33-34). Indeed, there is evidence both for larger animals and for later slaughter ages, all pointing to an intensification of ploughing and overall agricultural production (33-34). The age of slaughter can be particularly revealing, offering insight into specialisation, whether animals were being used as draft animals, for meat or for other products such as milk or wool (36). As Groot highlights, all of this fits better with a Boserupian rather than a Malthusian model. This is an excellent chapter and builds well upon the lengthy theoretical discussions that came before, with a more focussed case study. Any archaeologist analysing the nature of ancient agriculture would benefit from understanding the importance and potential of animal husbandry highlighted so clearly here (this has been a discussion in archaeology for many years (see Wilson 2009), but is expressed particularly well here). The intrinsic relationship between arable farming and animal husbandry is important to keep in mind for these studies, and vital to develop a complete understanding of ancient economies and demography.

Chapter four moves to the Laetanian region in what is now Catalonia, with a somewhat more methodological contribution focussing on demographic changes and the development and transformation of viticulture in Roman *Hispania Tarraconensis* (Oliveras *et al.*, 47-69). Immediately an emphasis is given to the inter-disciplinary nature of ancient economic studies (47). This is an important point and the urging for more quantitative approaches to understanding the ancient economy is heartening to see (49-52). The chapter itself remains largely qualitative but, as the authors explicitly state, it sets the stage well for future research to apply more rigorous use of "mathematics, statistics and linear programming models" to understand the nature of ancient agriculture and demography. Indeed, this is something which we can already see being undertaken more and more often, with invariably exciting results (see especially Brughmans and Wilson 2022, Dodd and Van Limbergen 2024, McLean 2024). Throughout the chapter, the inadequacy of the data to accurately model ancient demography is highlighted. This is not something new to ancient demographic studies, and certainly this is acknowledged by all contributors throughout this volume. However, the authors offer a more detailed discussion of exactly how some aspects of the available data fall short. Essentially, we cannot have precise demographic figures for the Roman empire, and must rely on archaeology, which is itself of course, incomplete and with inherent biases. While we can see an increased number of rural sites as evidence for increased population and agriculture, this is not the complete picture. These populations would likely have been quite mobile. Indeed, the infrastructure improvements following the arrival of Rome and the increased specialisation of production evidenced clearly in the chapter would have greatly increased the potential for mobility. This I believe is a particularly important aspect of this contribution, highlighting that this increased mobility contributed to the "invisibility" of a population (62). The authors argue for a deeper understanding of the nature of the population, not simply a "top-down" purely numerical approach (50). As is stated, "Human populations possess not only size but also structure" (53). This is an extremely well put and important point for understanding ancient demographic studies, and one which I think encapsulates the main aims of this volume, that is to move away from the simplistic Malthusian understanding of demography and economics, and begin to approach the topics with more nuanced, and indeed quantitative, methods.

The fifth chapter leads on well from the previous with another more methodological contribution focussing on modelling population and then looking towards the use of the *arbustum* to allow viticulture in central Adriatic Italy to cope with a growing population (Van Limbergen, 71-107). The first section of this chapter focuses on outlining and implementing the methodology for estimating the population of Roman *Picenum et Ager Gallicus* (72-84). This results in a very detailed and broadly reproducible methodology. The importance of reproducibility is something which has often been overlooked, particularly the more qualitative, but is something that is being acknowledged more explicitly in archaeology (for example the *Journal of Archaeological Science*'s new reproducibility prize; McLean and Rubio-Campillo 2022). The approach takes the available evidence, archaeological, literary, epigraphic etc. to determine the total size and internal plan of towns, and the percentage of the area which was given over to public buildings or infrastructure, and what remains could have

been residential space. Known information about private architecture in the region can then be used to calculate estimates for total populations in each town (73). The approach to the rural population is similar, again beginning with a solid archaeological basis, drawing on available surface scatter and dividing these into site types based on size, from "small rural units" to "village-like" (79). These groupings are adjusted so different outputs can be compared, which is extremely helpful to see, even if the outputs are broadly similar (83). This is a convincing and helpful means of estimating populations, though, as Van Limbergen is quick to acknowledge, they are just estimates, and cannot provide exact population figures (72). Furthermore, the methodology is reliant on some robust archaeological data, which will not be available in every context. Nevertheless, this undoubtedly represents an approach that should be built upon for understanding ancient populations. The acknowledgement of these as estimates is vital, and evidence should be drawn from detailed archaeological remains wherever available and extrapolated from elsewhere when not. With the population estimates established, Van Limbergen seeks to calculate the calorific requirements of this population and the land necessary to meet these (84-90). This is another detailed and evidence-based approach. The results are very convincing and offer a good estimate for the agricultural needs of a given ancient population. Calculating the land requirements is the point when this chapter comes to the central aim, understanding the response to growing population. The evidence for a growing population is clear, and the ability of the arable land to produce for the local population is clearly strained towards the higher estimates for the population (95% of land required), particularly with regard to wine, as the best land is reserved for essential cereal production and viticulture is increasingly relegated to less ideal land (89). Yet there is clear evidence for continued large scale wine production (if reduced maritime export) (90). Van Limbergen answers this by pointing to a "diversification" of production and the use of the *arbustum*, "an ingenious response to land pressure in Early/High Imperial central Adriatic Italy" (90). This is essentially the well documented practice of growing grape vines on and between trees, below which other crops, such as cereals can be grown (92-94). This is a persuasive solution to the pressures clearly being placed on the agricultural economy of Roman central Adriatic Italy. Often in economic studies this form of polyculture is underestimated or entirely neglected (see discussions of the issue of conflating monoculture and specialisation Tchalenko 1953; Horden and Purcell 2000, 274-275). It is clear that the ability of ancient people to respond to these pressures is not limited to cultivating new land or technological advancements to increase output of already cultivated land. Instead, it is clear that the land could be used more efficiently, and the *arbustum* represents a very clear and well documented example of this. This chapter is a detailed one, and one which does very well to build upon the arguments of the preceding and offers a very robust methodology for understanding ancient demography more broadly, as well as a wholly convincing argument for a specific form of diversified agricultural production in the study region.

Chapter six is a different contribution, as is noted in the introduction of this chapter and of the volume itself, not only going beyond the 3rd century AD focus into late antiquity and looking at the Eastern rather than Western Mediterranean, but importantly, looking at population contraction and "decline" as opposed to growth (Dodd, 109-127). The case study focusses on Late Antique Delos and the transformation of viticulture on the island. Central to the chapter is challenging the traditional historiography of Delos being in decline following the end of the Hellenistic period. It is clear that there was a "loss" of population and economic output, but Dodd argues that this should be viewed as a transformation, a change of the economic organisation of the populace of the island, rather than a straightforward decline as has been traditionally argued (118-119). The viticulture on the islands showcases this very convincingly as alongside the "loss" of population, there appears to be an expansion and intensification of viticulture, with several presses and vats associated with wine production evidence (115-116). Dodd highlights that terraces continued to be used during this period of supposed "decline", and argues that with a reduced population less of this land would be used for cereal cultivation and more (and better) could be used for viticulture (117). This is very believable and corresponds well with the archaeological evidence as well as what has been discussed in previous chapters, with increasing pressure from a growing population resulting in intensification and expansion of agriculture, particularly for cereals, which increasingly utilised the best soils, with other crops, such as vines, being forced into less suitable soils (117, Grigg 1980, 5, 32). It stands to reason that a reduced population and an easing of this pressure would free up these higher quality soils for viticulture. The author expands on this basic model in Delos, pointing to the concentration of presses inside the city

suggesting a centralised viticulture industry on the island, possibly by an institution such as the church, particularly given the Christian iconography found on some of the wine presses (120). This is far from conclusive, as the author makes clear, but it is a very plausible suggestion and works well with all of the archaeological data and our understanding of the pressures associated with growing populations made clear throughout this volume. Ultimately, this chapter, while quite different to the preceding chapters, is very well placed in this volume. It shows clear evidence that the idea of a growing population stimulating agricultural expansion and intensification makes sense alongside the concept of a decrease in population facilitating a transformation of agricultural production, rather than a straightforward decline. Beyond this, it adds much needed nuance to our understanding of "decline" in Late Antiquity, and particularly in the post-Hellenistic Aegean.

The final chapter is also slightly different from the first five, focuses on the Eastern Mediterranean (Asia Minor) and looks more specifically at urbanisation and its impact on population and agricultural production (Willet, 129-145; see further the author's monograph of 2020). Central to this chapter is taking a deeper look at what more cities actually means for Roman Asia Minor. There is clear evidence that the number of "cities" increases during the Roman period, but Willet attempts to determine how far this is just "more dots of the map" or how much it reflects a genuine increase in urbanism (130). This is an admirable undertaking, as it is tempting to see these dots on the map and immediately assume that this must mean a more urban environment. Willet looks to specific criteria to better understand urbanisation. Specifically, the evidence for increased monumentalisation across many of the cities of Asia Minor, alongside the increased number (132). Additionally, several sites show evidence for an expansion beyond the Hellenistic walls and the number of rural sites evidenced in the territories of many cities increased (133). All of this very convincingly points to an overall increase in urbanisation as well as an overall growth in population, both rural and urban. This is a very important approach, as while these facts might be taken for granted with evidence for more cities alone, Willet argues convincingly that this might not be the case without the accompanying change to existing urban centres and their rural surroundings. Following this, the chapter turns to four specific sites for closer analysis, two very large cities, Pergamon and Ephesos, and two smaller, Kyaneai and Sagalassos (139). This analysis focusses on the carrying capacity of the cities' surrounding territory, and draws the interesting conclusion that the agricultural needs of Pergamon and Ephesos' increased populations likely surpassed the carrying capacities of these territories, while at the smaller sites of Kyaneai and Sagalossos, the increased demand could be easily met with land in their immediate territory (139). This is an interesting observation, and once again works well with the Boserupian model as opposed to a Malthusian. It suggests that larger cities would likely have needed to intensify agricultural production in their immediate surroundings to meet the demands of increasing populations, and could have leveraged their cultural, social and economic importance to draw resources from wider territories, possibly utilising surpluses that could still be produced in smaller sites that did not seem to surpass the carrying capacities of their territories, even with an increased urban population. This chapter is a very good contribution, following a somewhat different approach but producing similarly interesting and important results as the rest of the volume. The importance of understanding "more dots on the map" with far more nuanced approaches than are often taken is made clear through the theoretical discussion and the specific case study (see earlier Roman urbanism studies such as Hanson 2016; Lo Cascio 2009). Furthermore, the suitability of Boserupian model of demographics and land use once again is shown to be greater than the traditional Malthusian.

This volume represents an extremely important contribution to studies of ancient demography and land use. While all of the case studies are interesting and produce convincing and important results in their own right, what I believe is most significant about this volume as a whole, is the unabashed criticism and questioning of more traditional approaches to the ancient economy and demography. The reluctance to move beyond neo-Malthusian and classical economics is of no benefit to the field and each chapter within this volume adds increasing weight to the importance of taking new and more nuanced approaches to understanding these complex concepts in antiquity. Four years on from the publication of this volume it is very heartening to see that not only are the nuanced more data driven approaches utilised and outlined in this volume being adopted and analysed with increasing frequency and vigour, but that the more computational and quantitative methods of understanding the ancient world that are recommended throughout, have indeed begun to be adopted more widely across the discipline (see again Brughmans and Wilson 2022, Dodd and Van Limbergen 2024, McLean 2024). Volumes such as

this act to pave the way to truly moving archaeology and our understanding of the ancient world forward and highlight the importance of challenging outdated traditional approaches and discussing and testing new methodologies in a discipline which can often adapt and develop at a frustratingly slow pace. Ultimately, this is a timely volume, and one which all archaeologists looking at ancient demography, land use, and the economy more broadly, would benefit from engaging with.

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Bowman, A.K. and A. Wilson (eds) 2013. *The Roman Agricultural Economy: Organization, Investment, and Production.* (Oxford studies on the Roman economy). Oxford: Oxford University Press.

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Georgios Deligiannakis, ***A Cultural History of Late Roman Cyprus*. Cyprus Research Centre Texts and Studies in the History of Cyprus XC. pp. 216, 42 ills. Nicosia: Cyprus Research Centre, 2022. ISBN 978-9963-0-8169-1, hardcover 20 euros.**

The title of *A Cultural History of Late Roman Cyprus* does not do justice to its content. The cultural element is dominated by religious questions. The introduction places the book among the work of historians, and the study draws largely on written sources and epigraphy, but also on archaeological evidence. The book discusses specifically the period from the reign of the emperor Diocletian (283-305) to the year 431 when the Church of Cyprus was granted the status of autocephaly. Finally, the analyses place the study of the island firmly in its wider Eastern Mediterranean context.

The book consists of five chapters on *Cypriot identities, The last pagans of Cyprus, Elite values and urban histories, Cypriot Christianity from Barnabas to Epiphanios,* and *Cyprus at the time of Epiphanios*. The chapters appear as almost independent essays, but none the less, they all support the same over-arching narrative of a strong elite interest in Greco-Roman urban culture and paideia unsuppressed by Christian ideology in the 3rd and 4th centuries. The author also argues for a seemingly peaceful co-existence of different religious groups and a non-violent transition to Christianity. Although the book is relatively short (150 pages) and its topic closely defined, it uses to its advantage a diverse source material to discuss and comment on too many aspects for this review to mention (35 pages bibliography). I will focus on the archaeological aspects.

The first chapter, *Cypriot Identities,* provides the historical context for the study with some reference to archaeological evidence. The next chapter on