



Universiteit
Leiden
The Netherlands

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Bintliff, J.L.

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Explorations in Boeotian Population History

In his *Topography and Population of Ancient Boeotia* (1988), John Fossey catalogued all the then-known archaeological sites of this ancient region of Central Greece, from prehistoric to Late Roman times, relating them when possible or relevant, to the available ancient sources. Following an excellent catalogue, he analyzed the settlement system for each period in terms of the distribution patterns and population changes.

One period stood out as the phase of maximal settlement numbers, and by implication of regional population - the Classical Greek (ca. 500-300 BC). Although the catalogue relied almost entirely on 'extensive' topographical research rather than the more recent field-by-field 'intensive' form of archaeological site prospection, so that it is likely to reflect trends in the occupation of the larger settlements rather than being an accurate reflection of absolute site numbers, nonetheless it does indeed reflect the maximum peak in site statistics discovered by subsequent intensive surveys such as our own¹, and in John Fossey's own small survey in the territory of ancient Chorsiai.² Whereas, however, the topographical database collected by John Fossey showed the next highest peak as Middle Bronze Age, followed by Early- to Late-Roman, here the under-representation of smaller rural sites in the *extensive* survey tradition needs to be drastically corrected by the results of later *intensive* field survey, because Late Roman in Boeotia, as over large areas of Greece, forms the next commonest category of site in the countryside wherever field-by-field survey has been conducted.

Two questions spring immediately to mind, one much easier to address than the other.

1. How do these ancient (Classical Greek and Late Roman) peaks compare to recent modern population levels in Boeotia?
2. Do site numbers always correspond to population levels?

Ancient versus Modern Population

It is possible to find a reasonable match between ancient indirect sources for Classical Greek regional population and the combined evidence from extensive and intensive survey.³ For Boeotia, a figure in the range of 165,500 total population of 64 persons per sq. km. can be justified at around 400 BC, the climax of regional Classical Greek development. A rather lower peak for Late Antiquity, but this time relying entirely on site numbers relative to those of the Classical Greek era, (since we have no regional population statistics to set against archaeological survey records), would result in the earlier florescence being the pre-Modern population climax. According to historic records for the Early Modern era, the Classical Greek level was only

¹ Bintliff & Snodgrass 1985, 1988.

² Fossey & Morin 1987.

³ Bintliff 1997.

approached again from the end of the 20th century AD⁴, but even as recent as 1981, with a census total of 125,849, not achieved. The intervening Medieval era, according to fragmentary sources and the localized detailed record from our own intensive surveys in several different districts of north, central and east Boeotia, must have been characterized by levels way below those even of Late Antiquity.⁵ As for the four hundred years of Ottoman Turkish rule (15th to early 19th century), we are fortunate now to possess reasonably full statistics for individual villages and the two towns of Thebes and Lebadeia between 1466 and 1687 - thanks to the pioneering research of Machiel Kiel in the Ottoman Imperial tax archives.⁶ According to my localization of named villages within the ancient borders of Boeotia, the peak of Ottoman-era population in the 16th century AD achieved a maximum of around 40,000 population (the two regional towns included), merely one quarter of the Classical Greek peak. I shall return later to these comparative figures, to ask how we should interpret such regional densities.

In conclusion, the Classical Greek peak seems to surpass all other periods, with the Late Roman on purely archaeological evidence not far below, and the remaining prehistoric and historic phases being considerably beneath these two high density occupations of the region (on the evidence of intensive survey).

Do Site Numbers and Sizes Translate Directly into Population Numbers?

My more tricky question relates to the absolute validity of using archaeological site numbers for inferring relative or even absolute populations - an issue which affects most pressingly the prehistoric periods when no meaningful overall population records exist from texts, and as noted above, Late Antiquity, where also our sources are inadequate in this respect.

Regarding prehistory, the Palaeolithic and Mesolithic millennia survive only as the merest palimpsests of archaeological evidence, and it is customary to deploy ethnographic analogies to model likely human densities from comparable environments - but this will result in levels below anything known or inferred from all subsequent historic phases.⁷

If we now turn our attention to later prehistory - the Neolithic and Bronze Ages, where archaeological data and research attention are both rich, an undoubtedly false sense of confidence has been engendered by the seemingly dense distribution maps one can make from regional catalogues such as that produced by John Fossey for Boeotia, or Aegean-wide catalogues such as the Hope Simpson & Dickinson Gazetteer.⁸ As I have discussed in a previous paper - also in relation to John Fossey's and our own work in Boeotia⁹, Neolithic and Bronze Age site maps for most parts of Greece - even those with intensive survey results - can in our present state of knowledge usually only indicate areas of the landscape where human activity was intense in each

⁴ Sauerwein 1991.

⁵ Cf. Bintliff 2000a.

⁶ Kiel 1997, cf. Bintliff 1995.

⁷ Cf. the thoughtful discussion in Perlès 2001.

⁸ Fossey 1988, Hope Simpson & Dickinson 1979.

⁹ Bintliff 2000b.

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phase. So much of the surface site record is eroded away or almost invisible¹⁰ - whilst sites with sherds of prehistoric age are hardly ever gridded to allow phase by phase dimensions to be calculated accurately (and even then, low numbers of finds and the possibility of lateral shifting of the occupation zone create imponderables in the path of simple population calculations) - that I have no confidence in previous prehistoric population statistics. Taking both our best data and a generous 'guesstimate' of what might be missing, however, makes me fairly confident that levels of population anywhere near those of Classical Greek times are very unlikely to have been reached even under the Mycenaean palace civilization of the Late Bronze Age.

Let us now return to the comparison of the two ancient peaks in settlement numbers recorded for the Classical Greek and Late Roman phases from the intensive survey record of Boeotia, a pattern duplicated in most but far from all recently-surveyed regions of Southern Mainland Greece.¹¹ As noted earlier, because the former is a highly-documented period, it is possible to match the population indices from texts with the survey record, and they agree (with some necessary allowances and correction factors incorporated) surprisingly well.¹²

In contrast, the Late Roman site florescence in Greece, confusingly 5th to 6th century AD in date (so following the sack of Rome itself), and hence also known as Early Byzantine, has very little detailed history, so that the archaeological data are dominant in the creation of an image of a densely-populated countryside. We should perhaps have been more cautious in creating this reconstruction, because our sources for Late Antiquity are far from portraying a prosperous countryside. A tied, almost serf-like peasantry, the *coloni*, attached to a wealthy landowning class, and much reference to abandoned lands, contrast with the assertive yeoman-farmers or hoplites of the Classical Greek cities of Greece, and a combined archaeological and textual record suggesting maximization of all available land for cultivation in the latter period.

For the area of Boeotia, where we currently possess the most detailed information, the southern inner *chora* or hinterland of the ancient city of Thespieae¹³, a strong warning that something is amiss with our models comes from an unexpected source, the so-called 'offsite' pottery. In Boeotia at least, these carpets of sherds are of staggering proportions, from 1 sherd for every 4 square meters around Thespieae to 1-2 sherd per square meter around our current research focus at the city of Tanagra.¹⁴ Lying *between* the sites and often far from any site, and always falling off in density the further away from the nearest ancient city or nucleated village-kome, the Boeotia surface sherd carpets are almost entirely attributable to urban/village manuring - and hence give us essential clues to the intensity of land use when they found their way amid the more desirable organic household waste into citizens' fields. They can be easily distinguished from the elevated density of surface pottery that usually immediately surrounds

¹⁰ Bintliff, Howard *et al.* 1999.

¹¹ Bintliff 1997a.

¹² Bintliff 1997b.

¹³ Bintliff, Howard & Snodgrass *in press*.

¹⁴ Bintliff, Farinetti *et al.* 2004.

ancient occupation sites, which we have termed 'site haloes', and which appear to have been created by natural weathering, plough disturbance, and rubbish disposal or garden-cultivation by the past inhabitants of these sites.

As ceramics, in theory at least these carpets are datable, but naturally the condition of sherds incorporated into rubbish and then field manure, dumped directly into the plough soil and subsequently tossed around by cultivation and the weather to the present day, is very poor compared to the sherds we find at the rural settlement sites themselves, where freshly-disturbed levels offer large and recently broken pottery in good diagnostic condition. One needs an army of tireless pottery specialists or a single genius to date sufficient of the offsite sherds to provide a statistically-reliable sample of their age. In our case we were lucky to have the genius - Professor John Hayes - whose knowledge of ancient and medieval to postmedieval sherds is unparalleled in the entire Mediterranean, and it was his success in dating most of our offsite sherds that opened up one of the major surprises of the Boeotia Survey record.

Whilst rural sites in the Boeotia Survey area climaxed in numbers in later Classical and Late Roman times, the offsite carpets around ancient Thespieae city were almost entirely Classical Greek; Late Antiquity played no greater role than Early Roman or Medieval in their creation, and that was very slight. If we follow the pioneer studies of Near eastern manuring carpets by Tony Wilkinson¹⁵, then dominant periods of manuring should reflect population pressure on agricultural production. It now appears that the Late Roman period was not such an era. On the other hand, in the Thespieae *chora* the total occupational surface area of Late Roman rural sites was larger than in Classical Greek times.

Our first explanation for this paradox has been known to us since the mid-1980s, and that was the fate of urban sites, which went in the opposite direction to rural sites: if Late Roman rural settlement was denser and larger than Classical Greek times, in contrast Late Roman towns and villages were generally smaller - or even abandoned - compared to their flourishing size and number in Classical Greek times.¹⁶ This might suggest that *total* urban plus rural population was considerably lower for Late Antiquity, hence there was no need for intensive agricultural manuring. Our later refinements to population calculations, however, for the rural hinterland of ancient Thespieae¹⁷, extrapolating the Late Roman site area and densities to the entire *chora*, come up with a *combined* urban and rural site area total - and by implication - a total settled population, at Classical Greek levels.

At this point a second refinement in intensive survey can be deployed to help resolve the paradox. This reveals a further important anomaly in the Boeotian rural site record: there is a curious disparity in the assemblages typical for Classical Greek and Late Roman rural sites. If the former has everything you expect of domestic agricultural life, the latter class contrasts a much larger site area with a highly-impooverished range of pottery types: roof tiles, storage and transport amphorae form the vast bulk of Late Antique rural site finds, with a notable poverty

¹⁵ Wilkinson 1989.

¹⁶ Bintliff & Snodgrass 1988.

¹⁷ Bintliff, Howard & Snodgrass *in press*.

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of evidence for food preparation and consumption and other varied farm activities (an observation found on other recent intensive surveys, such as Methana, L. Foxhall, *pers. com.*).

At least for the one sector of our Boeotia Survey which we have fully analyzed hitherto, the south *chora* of Thespieae city, we now believe that the rural estate centers were largely empty of resident personnel. A skeleton force of estate managers and slaves or other full-time maintenance staff oversaw large complexes of roofed storage facilities, but the work force we believe was drawn from paid or dependent labor resident in the regional towns and villages. The adoption of the 'agro-town' model from Early Modern southern Italy¹⁸ would account for the discrepancy between site extent and domestic debris at Late Roman rural sites, and the absence of a Late Antique manuring phase - total population was indeed low enough to suffice on extensive rather than intensive farming.

The Comparison of Population Densities in Boeotia

I would now like to turn to what I think is the most interesting, and potentially the most significant, set of questions concerning comparative population and land use levels in a region such as Boeotia, taken in the long-term perspective: what do such densities tell us about human ecological relationships, economic sustainability, and their role in social change?

One is immediately struck by the historical timing of the two highest population levels for Boeotia - ca. 400 BC and then from around 1880 AD onwards to today. Broadly-speaking, all that we know about the respective economies of the Classical Greek and Early Modern eras for Boeotia places them poles apart. Classical Boeotia had a negligible export of its primarily agricultural products and a low export of its metal ores, so that its economy was dominated by auto-consumption. Early Modern Boeotia had a growing agricultural and industrial export sector of considerable importance, stimulated like most of late 19th century AD Greece by expanding modern communication and commercialization systems emanating from Western Europe¹⁹, although a major part of its production still remained in more traditional regional production and consumption.²⁰ A continual trend to the present in Boeotia has been a greater and greater reliance on agricultural exports and related or unrelated factory employment boosting ever larger regional populations.²¹ The 'failure' to reach or exceed Classical Greek population levels in Early Modern times is due to waves of emigration out of the region, whether abroad or to the major cities of Greece - primarily Athens. In contrast, during Antiquity, Boeotian involvement in the founding of Archaic and Classical colonies is very slight, nor were Boeotians a major element in the population diaspora caused by Alexander's colonial activities in the new Hellenistic provinces of the Middle East.

If we relate the probable Classical Greek population of Boeotia to the modern calculation

¹⁸ Blok 1969; Ikeguchi 1999-2000.

¹⁹ Aschenbrenner 1972.

²⁰ Sauerwein 1991.

²¹ Slaughter & Kasimis 1986.

of cultivable land, and estimates of estate size, crop yields and food needs for ancient times, it becomes apparent that Boeotia around 400 BC must have been at the maximum limits of agricultural potential, and for any length of time, well beyond the limits of sustainability.²² Until late Hellenistic times we have no evidence to suggest that the region was a regular importer of food, so we have confidence in claiming that food production was under great strain to feed resident regional population. It is exactly in keeping with these calculations that our discovery regarding the single peak of intensive manuring in the Thespieae countryside, during Classical Greek times, finds its explanation: it was *overpopulation* that drove the people of Thespieae to intensive manuring of the entire landscape within 2-3 kilometers of the urban center. Following on from this scenario, the collapse of regional populations in the following period of Late Hellenistic to Early Roman Imperial times can reasonably be associated, to a major extent in our view, with the breakdown of food production consequent on rapidly-declining food yields from exhausted soils.²³

Our first provisional conclusion then, is that the closest matching for the 400 BC regional population, that demographic boom running from around 1900 AD to today, is fortuitous and not the product of similar models of land use and economy - indeed the opposite: one - the Modern - sustainable (at least in the medium to long term), and the other completely not so. Emigration out of the region can be seen as a safety-valve on local population growth in Boeotia from the late 19th century, and it continues today on a lesser scale.

In this context we would wish to suggest that Roman to Late Roman populations were associated with yet another kind of land use and economy, where extensive farming linked to large estates was prominent, and land far from maximally in use - hence also a sustainable economy. We are currently investigating the balance of export versus regional autoconsumption for the Roman-Late Roman centuries, but it is generally argued that the villa estates very common in Late Roman Greece would have been significantly oriented towards export of foodstuffs for the imperial cities and the Roman frontier armies, as well as providing food for their work forces and regional towns. We would provisionally postulate a low total population with a high degree of specialization in export crops.

Our current archaeological survey data would suggest (although the evidence is still accumulating) that following a likely demographic decline during the troubled post-Roman 'Dark Ages' (7th to 9th centuries AD), the recovery of Boeotia and other Mainland Greek regions during the 10th-12th centuries AD (the Middle Byzantine revival of Greece), saw the population of towns and villages grow together. There was probably a dominance of regional autoconsumption, and a minor export production of food and other products (silk being known for Thebes) for the wider Empire. Any food exports were probably associated with large private or monastic estate-owners, rather than peasant-producers. The Frankish-Crusader domination which followed in the 13th-15th centuries AD will probably have been organized in a similar fashion. Our survey data and limited historic sources point to populations in both town and

²² Bintliff 1997b.

²³ Bintliff & Snodgrass 1985.

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country increasing in the long-term from 900 to the 1340s AD, mirroring the rest of Europe.²⁴ Overall, however, the relationship of these Medieval populations remained well below regional maximum carrying-capacity, even if we took a more sustainable level for that, well below the overpopulation of ca. 400 BC discussed earlier.

The Ottoman Florescence and its Contribution to Boeotian Demographic History

After the heavy toll in local population resulting from the Black Death and almost perpetual warfare and piracy in the later 14th and 15th centuries AD, Boeotia follows the rest of Europe once more in witnessing demographic growth during the 16th century, stimulated by the tolerant and low-tax regime of the *Pax Ottomanica* - the most flourishing phase of the Ottoman Turkish Empire.²⁵ Evidence from Boeotia and Attica²⁶ agrees with this new growth phase far exceeding Medieval levels, while still falling well short of Classical Greek densities: a mere quarter of the level of ca. 400 BC by the late 16th century AD. Yet we now reach the hub of the debate: what do these comparative levels indicate for prosperity, peasant well-being, economic safety? We have reasoned that the Classical Greek farmers were increasingly under pressure of declining yields and overpopulation by late Classical times, and were driven to extreme measures such as recurrent and massive agricultural manuring programs to stave off starvation. These and other measures ultimately failed, and the region fell into demographic and apparently severe social decay²⁷, paving the way for the abusive exploitation of the former peasantry by the owners of medium to large estates which seems to characterize Roman times.

The 16th century AD Ottoman climax population of around 40,000 people is the product of a rapid demographic growth from a severe lowpoint in the late 14th century. Had the series of linked crises which afflicted the Ottoman Empire from the late 16th through the 17th century²⁸ not had the effect in many, but by no means all of its provinces, of creating economic and population decline and radical settlement restructuring, could we have expected a further growth which might have ended in a similar Malthusian overpopulation to that of 400 BC?

This might seem too speculative a question to address, since the highest Ottoman level is only in total a quarter of that suggested for late Classical times. This in itself rules out population pressure and land exhaustion as significant factors in the *overall* 17th century Ottoman decline (and calculated population densities in other provinces, for example Anatolia²⁹ or Palestine³⁰, are in agreement with far from maximal levels). Actually, however, the details

²⁴ Bintliff 2000a-b.

²⁵ Kiel 1997.

²⁶ Kiel 1987.

²⁷ Bintliff & Snodgrass 1985.

²⁸ Inalcik 1972.

²⁹ Faroqhi 1990.

³⁰ Hütteroth 1975.

of the Boeotian Ottoman village populations reveal a fascinating variability and one with a very clear historical explanation.

In 1466, our first-known *defter* or tax-register for Boeotia groups villages into Greek Christian and newly-created Albanian immigrant (fig. 1). The latter are numerous, ubiquitous but all small in size, and this probably reflects the extended kin social units fundamental in this semi-pastoral society, whose members had been invited to recolonize large areas of Southern Mainland Greece abandoned in the 14th to early 15th centuries due to the Black Death and continual warfare and piracy.³¹ The other group, the Christian Greek villages, are few, focussed in their distribution, and mostly much larger. They are old foundations, on or near settlements in existence since Byzantine and Frankish times. They survived the late Medieval crisis because they are usually upland refuges where the Greek population nucleated for protection. When, however, the settled conditions of the *Pax Ottomanica* inaugurated over a century of demographic growth, and all the Boeotian villages rose in size, these large refuge villages - even if growing at the same rate as the small Albanian - kept their size differential and became very large.

How large was that? Let us focus on the most prominent members of this group (fig. 2).

PANAYA (west-central Boeotia, see figs. 1-2)

This village is the natural successor to the ancient large village or 'comopolis' of Ascra, via possible continuity through the post-Roman Dark Ages and a Byzantine and Frankish village of only moderate size. It formed, however, a refuge village for regional Greek populations in the 14th century and took off during the first part of the Ottoman period. The early Ottoman settlement was deserted in the 17th century and its size at its late 16th century peak has been calculated through our gridded surface survey³², to have been almost exactly that of the ancient village - some 11 hectares. Our theoretical estimate for such a settled area in Antiquity would suggest a population of around 1200-1300 people, and rather satisfyingly the Ottoman register for Panaya's peak in 1570 is reasonably close to that (some 1075 residents). It must be added, however, that there are many more rural satellite sites around Ascra in Greek and Roman times than in the Medieval and Post-Medieval period, so that the total Valley population was significantly more elevated in Antiquity than during the 16th century AD. Nonetheless, for our purposes the remarkable discovery is that in the Valley of the Muses local population density is well on the way to achieving our ancient maximum, implying very full land use and a striking contrast to the majority of Boeotia, where densities were less than one quarter of Classical density.

So far we have not analyzed our data for the 'offsite' pottery from the Valley of the Muses, to test if there are manuring phases at other times than the single period around 400 BC evidenced in the south hinterland of Thespieae. Significantly, although there is also a Medieval

³¹ Bintliff 1995.

³² Cf. Bintliff 2000a.

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and late Turkish replacement village on and near the ancient city of Thespieae - Erimikastro, its population was always a mere fraction of that for the giant 100 hectare town of Classical Greek times. Up to 400 residents are registered in the census in the 17th century AD, although surface survey suggests the Frankish 13th century AD village was maybe twice as large. Classical Greek Thespieae, however, should have contained something like 12,000 people, and no repeat of its associated maximum intensity land use was required in Medieval-Postmedieval times.

VRASTAMITIS (Modern Ipsilanti, west-central Boeotia)

This is another large Early Ottoman period village which develops from a preceding Frankish village, which in turn is associated with the largest and most imposing Crusader feudal tower in Boeotia. It may occupy the niche of an ancient dependent village of nearby Haliartus city, although our surface survey at modern Haliartus also found there a Byzantine, Frankish and early Ottoman settlement (Harmena). From the comparative sizes, however, one can see that by the 16th century the ancient roles have been reversed, with Vrastamites as the dominant district center for the ancient territory of Haliartus and the settlement by the ancient city much less flourishing. At its peak Vrastamites has almost 900 residents (1540 AD), whilst the village by ancient Haliartus only reaches a contemporary maximum of 280 people. Ancient Haliartus may have reached some 4500 residents around 400 BC.³³ Even combined, Vrastamites-Harmena is still a population focus only a third to a quarter of the ancient Haliartus nucleation, and thus not much elevated over the general ratio of Boeotian 16th century AD population levels to those of Classical Greek times. Locally, at least, Vrastamites is a settlement of unusual size.

KAPRENA (western Boeotia)

On the ancient acropolis of the Classical city of Chaeronea lies extensive surface pottery of a large Medieval and Ottoman settlement. In the 16th century defters this village of Kaprena is another very large Greek Christian community surviving from a Frankish settlement. Here the largest 16th century Boeotian village (peak 16th century census of some 1445 residents) has replaced a moderate-sized Classical city on its own site. The area of ancient Chaeronea is far from certain, but a recent estimate suggests some 2000-3000 people for Classical Greek times.³⁴ Once again, although maybe only a half of the ca. 400 BC peak, Kaprena in the Ottoman florescence is a major regional nucleation considerably above the typical size of contemporary settlements elsewhere in Boeotia.

What we see then with these three refuge villages is that the prosperity of the early Ottoman era has encouraged them to grow within their geographical niches to a far higher level than the rest of Boeotian rural settlement; not reaching the stressful Classical Greek peak, but perhaps indicating a trajectory that might have taken them there in the longer-term. Ascra at

³³ Bintliff 1997b.

³⁴ Bintliff 1997b.

least was within reach of expanding to Classical Greek levels within the immediate future, by 1570.

Two different Medieval to early Post-medieval village trajectories have been identified:

1) Medieval villages which were abandoned in the 14th-15th century crisis and were resettled by small Albanian clans, then grew steadily to the late 16th century.

2) Medieval villages which acted as refuge nucleations during the 14th-15th century crisis, and which grew in the 16th century at the same rate as smaller villages but from a far higher starting population.

Type 1 villages stop developing around 1570 having only reached a quarter or less of potential human carrying capacity, type 2 by that date are higher density and seem to be growing towards a future maximization of land-use not far from Classical levels. Panaya/Askra and Erimokastro/Thespieae illustrate the two types well: the former is a large refuge village through the late Medieval crisis, whilst the latter is abandoned then and only reappears in the later Turkish 17th century. Only Panaya is moving towards recovering its Classical population level.

Are there any additional hints that these 'Super' villages have enhanced activities to suit their status in their 16th century climax? Machiel Kiel has commented on two unusual features for two of the group.³⁵ Panaya not only constructed ten water-mills (of which we have rediscovered three during our archaeological survey of the Valley of the Muses), but was also prosperous enough to found two small monasteries. Signs that Vrastamites was developing into a place of prosperity and importance are that it possessed two monasteries and was the site of a fair.

According to the view I have put forward earlier in this paper, were the whole settlement system of early Ottoman Boeotia to have continued to expand to the same population density as the handful of super-villages, then the region would have reached unsustainable overpopulation and within the following century or so should have succumbed to a Malthusian demographic crash, due to regional crop shortages. This is the scenario sketched by Le Roy Ladurie for population cycles in pre-Industrial Europe.³⁶ Pre-Industrial populations were fundamentally supported by agricultural productivity, but before modern agricultural technology, fertilizers, pesticides and advanced animal and crop breeding, intensive mixed farming could not be sustained in the long-term, creating characteristic boom-bust cycles of demographic rise and fall with wavelengths of some 300-500 years.

Are there possible first symptoms of economic stress in the economic records of the super-villages? Kiel's discussion of the evidence from the Ottoman tax records suggests that the pressure felt by Boeotian villages from the late 16th century was not yet from internal shortages but from increasing tax levels, whose imposition "seems to mark the point beyond which further expansion was not possible within the existing socio-economic and technical circumstances".³⁷ Our comparative discussion would seem to indicate that apart from Panaya, which was already

³⁵ 1997, pers. comm.

³⁶ Ladurie & Goy 1982, cf. Bintliff 1997a.

³⁷ Kiel 1997: 327; note that his population figures are rather differently calculated from mine.

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heading towards local production decline by this time, the other large and especially the dominant small villages of Ottoman Boeotia still had considerable growth potential before sustainability-problems would have become apparent. External developments within the Ottoman imperial infrastructure, however, intervened before this trajectory could unfold.

Leiden University
The Netherlands

John Bintliff

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