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Urban-Rural Integration at Ancient Sagalassos (SW Turkey). Archaeological, Archaeozoological and Geochemical Evidence

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ABSTRACT: Archaeological and archaeozoological data from the antique site of Sagalassos (southwest Turkey) are combined with data from geochemical analyses of trace elements in archaeological animal bones, to document the changing relation between city and countryside from the 1st to the 7th century AD. These data reveal that during the Early to Middle Imperial period (*c*. 25BC – 300 AD) the city's subsistence requirements were largely met by the production capacity of its immediate vicinity, found to be a highly polluted area, and that the inhabitants of Sagalassos were relying little on the countryside. The integration of the city and the countryside was strengthened during the Late Roman period (*c*. AD 300-450), when more rural products seemed to reach Sagalassos. Animal bones are at that time significantly lower in metal content and must have originated from animals that were kept in areas beyond the zone of heavy pollution. At the same time, occupation density in the countryside reached its climax. Then, in the Early Byzantine time (*c*. AD 450-700), the inhabitants seemed to return to the situation of the Early to Middle Imperial period and were sustained by the exploitation of the land close to the city.

KEYWORDS: TURKEY, SAGALASSOS, IMPERIAL AND BYZANTINE PERIODS, ANIMAL BONES, HEAVY METAL CONTENTS, GEOCHEMICAL ANALYSIS, URBAN-RURAL INTEGRATION

RESUMEN: Datos arqueozoológicos y arqueológicos del yacimiento de Sagalassos (Turquía sudoccidental) se combinan con otros procedentes de análisis geoquímicos de elementos traza en los huesos animales para documentar la relación cambiante entre la urbe y el ámbito rural desde el I al VII siglo AD. Estos datos evidencian que durante el periodo imperial temprano y medio 25 BC-300 AD los requisitos de aprovisionamiento de la ciudad se fundamentaban mayoritariamente en la capacidad productora de su entorno más inmediato, una zona altamente contaminada, por lo que los habitantes de Sagalassos hacían poco uso del entorno rural. Durante el periodo Romano Tardío 300-400 AD se reforzó la integración entre la ciudad y su entorno rural y es, en este momento, cuando más productos rurales parecen haber alcanzado Sagalassos. En este último periodo los restos animales presentan un contenido significativo inferior de metales por lo que deben haberse originado en cabañas que se mantenían alejadas de la zona de contaminación intensa. Al mismo tiempo la densidad de ocupación del campo alcanzó entonces su clímax. En el periodo Bizantino Temprano (450-700 AD) los habitantes parecen haber retornado a la situación documentada en el Período Imperial Temprano y Medio siendo entonces mantenidos por la explotación de las tierras más próximas a la ciudad.

PALABRAS CLAVE: TURQUIA, SAGALASSOS, PERIODOS IMPERIAL Y BIZANTINO, HUESOS ANIMALES, METALES PESADOS, ANALISIS GEOQUIMICOS, INTEGRACIÓN URBANO-RURAL

INTRODUCTION

The tendency to undo the separation of town and country and re-unite the town with its non-urban environment has been firmly entrenched in classical studies for some decades (cf. Abrams, 1978). The advent and wide application of regional archaeological surveys, by their nature focusing on the rural aspect of societies, has substantially contributed to this change in perception. Most scholars would now agree that the ancient city needs to be seen in the context of its relations with the countryside. Although the exact nature of these relations has been fiercely debated (consumer *vs*. producer city, for a critical discussion see Whittaker, 1990), recent studies have convincingly indicated how artificial this type of classification is; reality is far more complex. The needs of the town for consumables were balanced by the needs of the rural landowner to raise cash to meet political and social demands; hence by implication the countryside needed the cash-generating capacity of the urban economy as much as the town required the food-generating capacity of the country (cf. Wallace-Hadrill, 1994: 121; Parkins, 1997: 86-96). Diachronic changes in this complex relation are sketched in terms of a strong urban territorial control in Imperial times, followed in Early Byzantine times by a «decline» of the cities and a loss of territorial hold, especially after the 6th century AD (Brogiolo *et al*., 2000; Burns & Eadie, 2001; Christie, 2004).

The current paper questions this proposed evolution by highlighting the varying degree in which, even in the Roman period, city and country were economically integrated. For that purpose, archaeological and archaeozoological data are combined with information furnished by geochemical research undertaken in the area of Sagalassos in southwest Turkey (Figure 1). The evidence for

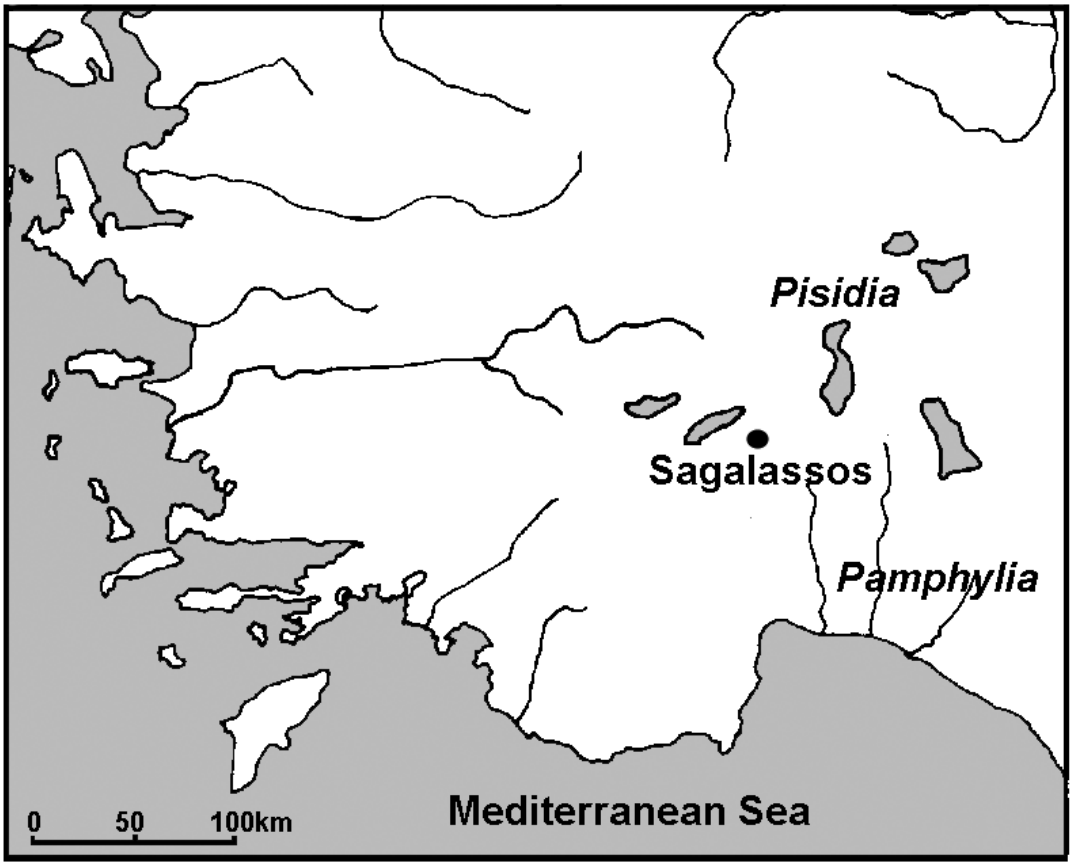

FIGURE 1
Location of Sagalassos in SW Turkey.

three periods will be discussed, delineated on the basis of the sequence of the locally produced *sigillata* ware (Poblome, 1999): the Early and Middle Imperial period (*c*. 25 BC – AD 300), the Late Imperial period (*c*. AD 300-450), and the Early Byzantine period (*c*. AD 450-700).

THE ARCHAEOLOGICAL EVIDENCE

The Early and Middle Imperial period (c. 25 BC – AD 300)

Upon its incorporation into the Roman province of Galatia in 25 BC, Sagalassos and its hinterland greatly benefited from the long-term stability inaugurated by the reign of Augustus, enabling easier and more widespread economic transactions. Blessed moreover with a wide and fertile countryside (Donners *et al*., 2000; Vermoere, 2004) the city's financial prosperity was reflected in the monumentalization of its centre. Suburban villas occupied the gentle slopes of the city's peri-urban area, interspersed with olive grovesyards and intensively cultivated gardens or orchards. In the countryside, site numbers drastically rose dramatically over the first three centuries of Roman occupation, dotting the plains with villages and farms (Figures 2-4), some of which were the residences of wealthy landowners (Waelkens, 2002; Vanhaverbeke & Waelkens, 2003: 241-265).

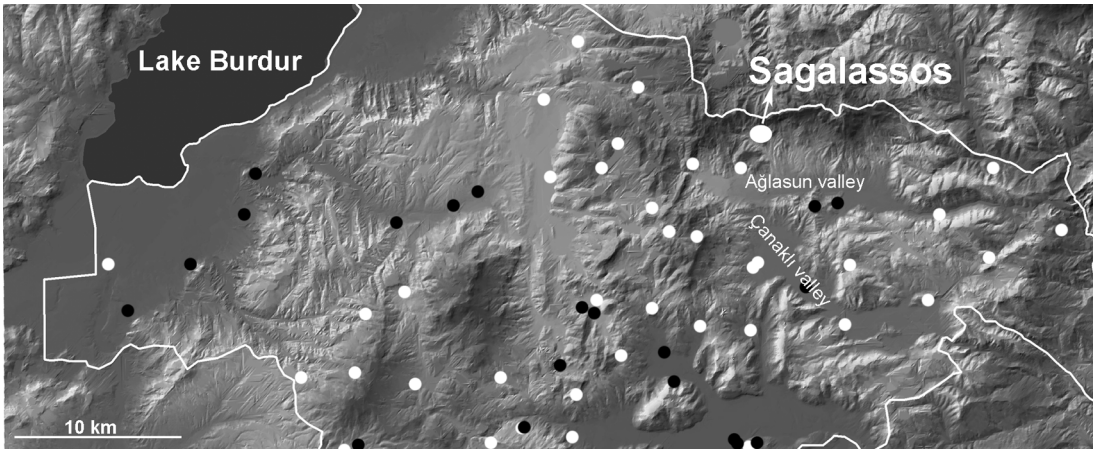

FIGURE 2

The territory of Sagalassos with indication of rural settlements from the reign of Augustus onwards. Villas or farms are indicated in white, villages (local centres with a surface of over 10.000 m²) are indicated in black. The category «other» indicated in Figure 3 is not shown here.

The Late Imperial period (c. AD 300-450)

In spite of some skirmishes with Ostrogothic mercenaries at the end of the 4th century AD and raids of the Isaurians, a mountain tribe living just east of the Sagalassian region in the 5th century AD, for most of the Late Imperial period Sagalassos maintained its status as a flourishing regional centre (Waelkens, 2002). The city's countryside witnessed the highest overall number of sites ever during the Late Imperial period (Figure 4). Gradually, locational preferences included less accessible mountainous areas (Figure 3). Possibly the threat caused by the Ostrogothic and particularly the Isaurian raids played a role, although the steady increase in the number of rural sites, and

	Early to Middle Imperial	Late Imperial	Early Byzantine
farms	15	12	7
villages	26	28	20
other	24	18	13

FIGURE 3

Site categories in the territory of Sagalassos. The category «other» includes sanctuaries, churches, necropoli, strategic sites, and quarry and kiln sites.

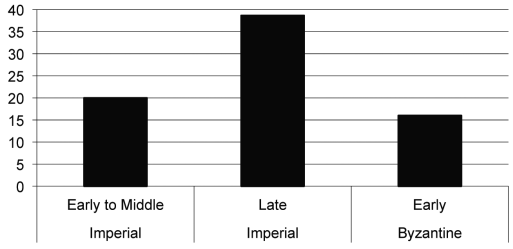

FIGURE 4

The number of sites, calibrated by cultural phase duration, in the territory of Sagalassos.

the fact that most were not fortified, clearly indicates that this threat did not determine the settlement pattern at large (Vanhaverbeke & Waelkens, 2003: 241-265; Vanhaverbeke *et al*., 2004, 2007).

The Early Byzantine period (c. AD 450-700)

Survey evidence has shown that Sagalassos remained densely occupied at least until the mid-6th century AD (Martens, 2005). After a devastating earthquake during the early 6th century, the city could still raise the funds and manpower necessary to restore its monuments. At the end of the 6th or the beginning of the 7th century AD, however, an earthquake of such magnitude struck that it disrupted the city's water supply. Sagalassos recovered, but its strength was probably undermined by the first outbreak of the bubonic plague in AD 542/543, and subsequent recurrent outbreaks. From the middle of the 6th century AD onwards, the city acquired a distinctively less urban character (Waelkens *et al*., 2006). While the villas in the city's suburban area remained in use, this area was increasingly involved in food production. The reason for this transformation may have been the rising demands of an increasing population at Sagalassos, which is questionable for the period postdating the mid-6th century AD, or a deterioration of the integration of city and countryside, which forced the city to procure its subsistence from the immediate environment. The overall number of rural sites markedly decreased in the Early Byzantine period (Figure 4), while a further increase in strategically located habitations is noticeable. The decrease in site numbers can partially be explained by a tendency for nucleation (Figure 3). Villages became the more preferred habitation and assumed a larger economic role as they increasingly became involved in artisan activities for their own provision (Vanhaverbeke *et al*., 2004, 2007; Waelkens *et al*., 2006).

THE ARCHAEOZOOLOGICAL EVIDENCE

Animal remains from Sagalassos have been studied since the very beginning of the excavations and these data have been used to determine several aspects of daily life in the city during the Imperial and Early Byzantine period (e.g., De Cupere *et al*., 1993, 2000, 2005, 2009; De Cupere, 2001). Subsistence was mainly based on the breeding of domestic animals, while game and fish played a minor role in the diet. The relative importance of sheep/goat, cattle and pig at Sagalassos changed through time (Figure 5). From the second half of the 1st until the 3rd century AD, the Early and Middle Imperial period, sheep and goats were slaughtered far more often than cattle and pig, but their relative numbers declined in the following centuries. Cattle were increasingly represented, reaching a maximum during the first half of the 4th century AD, in the Late Imperial period. Thereafter, in Early Byzantine times, ovicaprines again became more important. Goat herding was more common than sheep rearing, which can easily be explained by the rugged topography near Sagalassos and the fact that goats are less selective in their food choices. However, an exceptionally high proportion of sheep bones is noted for the second half of the 2nd century AD (Early to Middle Imperial period). The share of pig bones remained more or less constant through time, which is an indication of sound forest management (De Cupere, 2001: 137, 139, fig. 99, 141-143).

In general, from the 1st to the 7th century AD, pigs were slaughtered at a young age (before they were two years old) and probably mainly during winter months when fodder was scarce. This young slaughter age indicates that pigs were mainly bred for their meat. However, in the Late Imperial period (*c*. AD 300-450) a larger percentage of pigs were slaughtered at a later age of between 1 and 2 years (De Cupere, 2001: 77-80). Measurements taken on pig bones and teeth show a decline in size from the Late Imperial to the Early Byzantine period (*c*. AD 450-700). This suggests less successful keeping and/or breeding strategies (Vanpoucke, 2008). Pig herds were generally kept outside the town and pastured in oak, beech and chestnut groves and only brought to the town for consumption (De Cupere, 2001: 77-82, 142).

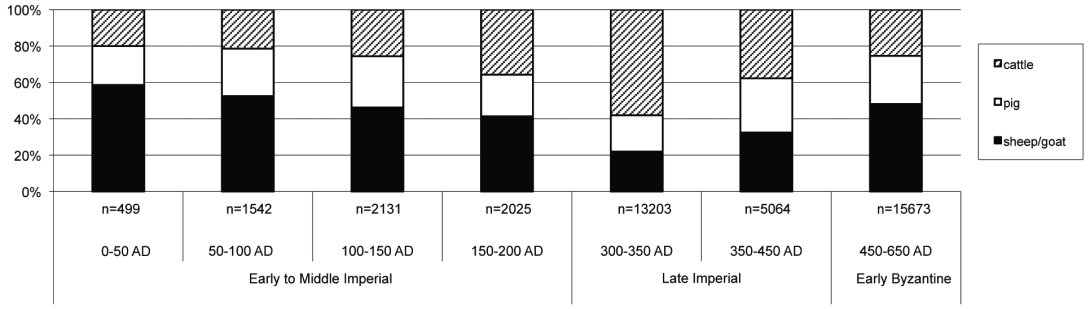

FIGURE 5
Diachronic changes in the proportions of sheep/goat, cattle and pig.

However, dental microwear carried out on the pig teeth of Sagalassos shows that the animals received a very soft diet, possibly indicating that they were briefly kept in an enclosure before slaughtering (Vanpoucke *et al*., 2009).

The advanced age at which most cattle were slaughtered suggests that they played an important role as transport and draught animals, which is also indicated by deformations on the extremities of their metapodials and phalanges (De Cupere *et al*., 2000; De Cupere, 2001: 92-94, 105-116; De Cupere & Waelkens, 2002). Since cattle primarily feed on grasses, large meadows need to be available. Moreover, these animals require large quantities of water each day. As a result, the feeding and drinking places of cattle need to be adjacent, thus limiting the array of land on which they can be herded (Zeder, 1991: 29).

Sheep and goats were also slaughtered when fully mature, indicating that, apart from their meat, they were primarily kept for the production of milk, and wool. In summer, herds of sheep and goat could be herded in a wide range of environments. Samples retrieved from the end of the 5th and the first half of the 6th century AD (the Early Byzantine period) show that, compared to earlier periods, a larger proportion of sheep and goats were slaughtered at a later age. In addition, animals from this last phase were significantly smaller, suggesting a less optimal herd management (De Cupere, 2001: 86-88, 90-92).

THE GEOCHEMICAL EVIDENCE

The larger part of the 1200 Km^2 territory of Sagalassos was studied in a geochemical prospecting campaign, during which 110 samples were taken and studied (Degryse *et al*., 2003) in order to assess the geochemical impact of ancient human activity on soil geochemistry. Geochemical anomalies identified in the territory are mostly associated with (natural geological) chromite and iron mineralization, characterized by high magnesium-chrome-cobalt-nickel and iron-vanadium-titanium contents in the soil. However, anomalies in the copper (Cu) and lead (Pb) content of the soil in this area are related to human habitation and artisan activity, such as metallurgy. Such anomalies are particularly obvious in an area of approximately 130 Km^2 near Sagalassos (Figure 6). No anthropogenic anomalies in soil geochemistry were found elsewhere in the city's territory, not even close to other archaeological sites (Degryse *et al*., 2003).

Though geochemical analysis of bone has gained recognition as a palaeodietary and non-dietary (geographical origin) indicator, most research is isotopic in nature (Burton & Price, 2000). Trace element studies have generally fallen into disfavour since there are many ways in which bones and their trace element content can be contaminated in burial (Burton & Price, 2000). Effects of diagenesis can be monitored, however, by a suite of elements whose abundances are not controlled by intake through diet, such as non-alkaline earth elements [(zirconium (Katzenberg, 1984), manganese (Burton & Price, 2000), uranium, and the REE ('rare earth elements') in archaeological tooth enamel (Kohn *et al*., 1999)]. Such data have also been used to document the susceptibility of archaeological bone to diagenesis and contamination (Price *et al*., 2002). In a non-contaminated situation, values for these elements are very low or below the level of detection.

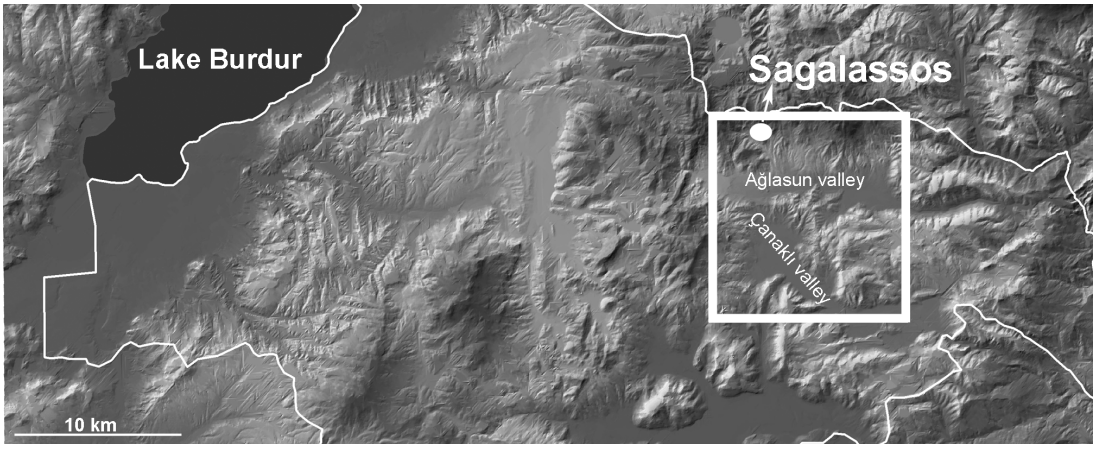

FIGURE 6

The zone of anomalous heavy metal contents in sediments, within the territory of Sagalassos (after Degryse *et al*., 2003).

A first analysis of archaeological and modern goat bone and fodder plants from Sagalassos was carried out by Degryse *et al*. (2004). Upon evaluating the degree and effects of diagenesis in the archaeological bone, contents of Pb and Cu in the ancient bone were found to be independent of the contents of the strongly correlated elements Cr-Co-Mn-Ni and the REE, typically involved in diagenetic enrichment or depletion (cf. Kohn *et al*., 1999; Burton & Price, 2000), and non-parametric testing has shown that alteration by diagenesis is less likely (Degryse *et al*., 2004). Hence, diachronic changes in these element contents may be an indicator of ancient (anthropogenic) pollution, though evident caution is needed as all bone will have been affected by diagenesis in burial.

The analytical procedure for further analysis in this study is discussed in detail in Degryse *et al*. (2004). In summary, 2 g samples were taken from dense, cortical, tissues of bone, cleaned mechanically and chemically, combusted and homogenized. 100 mg of ash was then dissolved in nitric acid for chemical analysis on a Hewlett Packard (Agilent) 4500 Inductively Coupled Plasma – Mass Spectrometer (ICP-MS). Measurements were checked against blanks and 1400 Bone Ash standard material provided by NIST.

Diachronic changes in the Pb-Cu content of the bone are remarkable, and could be explained in terms of different exposure to pollution (Degryse *et al*., 2004), especially since Pb is not associated with normal biological processes. Grazing animals readily pick up contaminants from the environment in which they live and feed, often in short single events where much polluting material is ingested, and bone is well-known to accumulate these polluting trace elements (Chessa *et al*., 2000). The age of the animals is less relevant in this way to the amount of pollutants ingested. It is rather the presence or absence of such elements in the bone that is indicative.

The preliminary study of Degryse *et al*. (2004) on goats from the first half of the 2nd century (Early to Middle Imperial period), the first half of the 4th century (Late Imperial period) and from the end of the 5th until the first half of the 6th century (Early Byzantine period) showed marked changes in Pb and Cu contents. This study was extended here to cattle and pig (Figure 7). It appears that during the Early to Middle Imperial period, the Pb and Cu content is relatively high in all animal groups analyzed. During the first half of the 4th century AD, at the beginning of the Late Imperial period, the Pb and Cu content is significantly low in cattle and goat bones, while a similar high level was still found in pig bones. High heavy metal contents, thus signals for pollution, are noticed again in all the three animal groups from the Early Byzantine period.

URBAN-RURAL INTEGRATION AT SAGALASSOS

In the following section, archaeological and archaeozoological data are combined with the

results of geochemical analyses in order to sketch changes in urban-rural integration at Sagalassos during Imperial and Early Byzantine times (*c*. 25 BC – AD 700) (Figure 8).

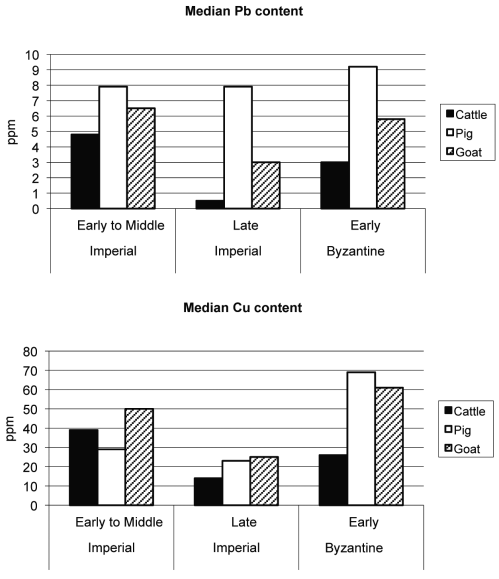

FIGURE 7

Median Pb and Cu content (ppm) in cattle, pig and goat bones retrieved for different periods at Sagalassos.

The Early to Middle Imperial period (c. 25 BC – 300 AD)

Cattle in this period were to a large extent used as traction animals, as indicated by both the late high age and deformations on their foot bones. Therefore, the pollution attested in cattle bone is probably indicative of practicing intensive agriculture in a polluted area, notably in the vicinity of Sagalassos. The animals were probably also used to transport clay from the valley of Çanaklı (Figure 6) to the city for the local manufacture of the mass-produced *sigillata* (Poblome, 1999).

Goats, and most likely also sheep, were herded in the same polluted habitat in spite of the high adaptability of goats to distinct environments. Apparently, sufficient grazing resources could be found close to the city, and no conflicts arose with the demands of agriculture. This would imply that the demand for goat-derived products (meat, milk, cheese) was rather low, and local provisions were sufficient, obviating the need to bring in animals from further a field.

Similarly, the chemistry of the pig bones could indicate that the animals were also herded in polluted areas close to the town. However, when compared to cattle and goat, the Pb content in pig is higher. Pigs are known to ingest significant quantities of soil when rooting (Fries *et al*., 1982).

		Early to Middle Imperial period (*c*. 25 BC – 300 AD)	**Late Imperial period (*c*. 300–450 AD)**	**Early Byzantine period (*c*. 450–700 AD)**
Archaeology		urban and rural prosperity	urban and rural prosperity	urban decline rural prosperity
Archaeozoology	Main animals	sheep/goats	cattle	sheep/goats
	Slaughter age		pigs slaughtered later	sheep/goats slaughtered later
	Animal size			smaller pigs & sheep/goats
Geochemistry		overall high levels of pollution	lower levels of pollution for cattle & sheep/goats	overall high levels of pollution
Urban-Rural Integration		**low**	**high**	**low**

FIGURE 8

Summary of archaeological and archaeozoological and geochemical research results relevant for the discussion.

Therefore, the high Pb levels in pig could be explained by the fact that the intake of this metal can happen through both ingested soil particles and plants, whereas in the case of grazers and browsers (i.e. cattle and goats) the intake only occurs through plants. An alternative explanation for this high content could be that pigs were, for at least part of their life, held in sties in or near the city and fed on urban organic waste, as dental microwear on teeth seems to suggest (Vanpoucke, 2008; Vanpoucke *et al*., 2009).

During the Early to Middle Imperial period, Sagalassos seems to have provided its inhabitants primarily with animal products sourced from within a nearby area. This observation is significant since it is generally assumed that at this time cities were well integrated with their territories, from which they obtained much of their subsistence. The increasing prosperity and ease of communication during the first centuries of Roman occupation apparently did not result in closer economic ties between the city and its countryside. Although nothing prevented Sagalassos from fully exploiting its large and fertile territory, on the basis of the geochemical analysis of the animal bones, this seems not to have happened. The immediate vicinity of the site sufficiently fulfilled the city's subsistence requirements at that time, thus obviating the need for imports. The Imperial and private estates attested in the city's territory consumed their produce locally or sold it to other cities, benefiting from the easy communication with the Pamphylian coast, the result of Roman road construction.

The Late Imperial period (c. AD 300-450)

The metal content in cattle and goat bones is significantly lower in the Late Imperial samples than in the earlier samples. Only in pig bones does the Pb content remain high. Apparently, the majority of cattle and goat in the samples were herded in (or fed on food obtained from) areas removed from the heaviest pollution, at some distance from Sagalassos, while pigs continued to be fed within the polluted zone.

The fact that the contribution of beef in the provision of meat reached a maximum during this period (Figure 8) may suggest that cattle was imported on the hoof to alleviate a high demand for meat. It could be related at the same time to changes in land use, i.e. an increased reliance on cattle as traction and draught animals, implying an intensification of farming, as well as an expansion of agriculture to more distant areas: hence the low level of pollution. Since it is not yet possible to track changes in the production rate of the local *sigillata*, the low pollutant levels in cattle bones cannot be related to a potentially higher demand for animals to transport clay during this period.

The chemistry of the pig bones suggests that they continued to be fed in polluted areas, close to the city. At the same time a larger percentage of pigs were slaughtered at a later age, possibly because that ensured a greater weight of the animal, and thus more meat.

All this evidence indicates that during the Late Imperial period goats and cattle consumed or used in the city originated from beyond the zone of heavy pollution. This may be an indication for a better integration of the Sagalassian countryside into the city's economy, in the sense that more rural products reached the city. This seems to be supported by ceramic evidence. From the middle of the 4th century AD onwards, rurally produced (wine ?) amphorae are commonly found at Sagalassos (Poblome *et al*., 2008). Why this change in subsistence strategy occurred is not clear at the moment. A demographic increase should be considered, since this period coincides with the highest ever overall number of sites ever in the countryside, and Sagalassos also continued to grow. A closer integration of villages and farms in the city's economy may have been necessary to ensure the provision of food for the city's population. Surplus could also be procured –at a price– from the nearby estates, which had previously been urban properties, but became increasingly confiscated by the imperial authorities to compensate for dwindling city endowments (Waelkens *et al*., 2006).

The Early Byzantine period (c. AD 450-700)

During the Early Byzantine period the bone chemistry of pig, cattle and goat closely reflects the situation observed for the Early to Middle Imperial period.

Pig bones continue to show high Pb and Cu contents, indicating that they were mainly being fed in polluted areas, i.e. in the city or its vicinity. During this period a less successful selection of

breeding animals was suggested by their average smaller size.

The high pollutant levels in cattle at this time suggest that import of cattle from beyond the polluted area declined. This may imply a reduction in the demand for meat in the city. In fact, the consumption of beef decreased during this period, after having reached a maximum during the Late Imperial period. Cattle may again have been involved as traction animals in agriculture near the city.

The high Pb and Cu contents in goat bones similarly indicate that they were kept in the vicinity of the city, although these animals can be herded almost anywhere. During the same period, the animals were significantly smaller than in previous periods, possibly as the result of less adequate herd management, in which less importance was attached, or less attention was paid, to the size and quality of the animals. This may have been the case if they were primarily kept for dairy, which is hinted at by the fact that during the Early Byzantine period a larger proportion of these animals were kept to an older age. Alternatively, the small size of goats may stem from stressful conditions, caused by the fact that they were herded close to the city where grazing land may have been scarce, especially if agricultural production was located in the same area.

The evidence for the Early Byzantine period thus shows that animals were again kept in close vicinity to the site. Now, however, marked changes had occurred both in the city and its territory. Sagalassos suffered from the first outbreak of the bubonic plague in AD 542/543 and recurrent outbreaks afterwards. After the middle of the 6th century AD the city and its suburban zone acquired a distinctively less urban character, the latter increasingly focusing on food production. In the territory, nucleated settlement in prosperous villages, following an economically more autonomous course, replaced the more dispersed settlement pattern of earlier centuries. Possibly aggravating the situation was the increasing economic focus of the confiscated estates on Constantinople, draining surplus away from Sagalassos (Waelkens *et al*., 2006).

These changes are not easy to interpret. It is clear that village life flourished, and villages grew more independent, while the urban fabric of Sagalassos itself gradually unravelled. The increasing nucleation of settlements and the strong emphasis on less accessible locations for habitation, observed in the territory during this period, have been interpreted as manifestations of some kind of stress, urging people to find protection in more densely populated settlements and in strategic locations. Culprits may have been the raiding mountain tribes mentioned above, who remained active throughout the 5th century AD, or a demographic decline resulting from the plague. During the same period, an increase in the importance of sheep/goat in the overall faunal record at Sagalassos was noted. This new emphasis on sheep/goats, rather than on cattle, has been interpreted as a reflection of unstable conditions in the region –ovicaprines being easier to move than cattle, and thus more flexible in times of danger. The same factors may have affected the overall economic situation, for instance rendering regular movements of herds to the city difficult. At Sagalassos the city continued to be densely inhabited, at least until the middle of the 6th century AD.

A large urban population would then have coincided with restricted opportunities to derive food from further afield. To remediate this situation, the suburban area seems to have witnessed an increased emphasis on cultivation to meet the demands of the urban population or, more probably from the later 6th century AD onwards, to counteract the effects of a weakened link between city and countryside.

CONCLUSIONS

Years of archaeological and archaeozoological research at Sagalassos and in its countryside have amassed a substantial body of information on the changes in city and countryside from the Imperial to the Early Byzantine period (*c*. 25 BC – AD 700). Evidence from geochemical analyses of trace elements in archaeological and modern bone has shown that trace elements (Pb and Cu) in long bones can be useful indicators of anthropogenic palaeo-environmental pollution. Both bodies of evidence are now combined to reconstruct how land use changed in the vicinity of Sagalassos, and differing degrees of territorial integration of the city and its countryside.

It is clear that the relation between city and countryside is not unequivocal. The evolution of the countryside does not merely follow the fate of the city. Moreover, the diachronic changes in this complex relation cannot be sketched in terms of a strong urban control of the territory in Imperial

times, as opposed to an increasing loss of territorial hold and «decline» of the city centre in Early Byzantine times. In the case of Sagalassos in the Early to Middle Imperial period (*c*. 25 BC – AD 300), the city was primarily exploiting its immediate vicinity, a heavily polluted zone. At that time the city's subsistence requirements were apparently met by the production capacity of its neighbourhood, while the villages and farms in its territory were rather involved in local production and consumption, while surplus was sold to external markets. The integration of the city and its countryside was rather weak, which contrasts sharply with the generally held view that both were closely interwoven entities. It was only during the Late Imperial period (*c*. AD 300-450) that more rural products reached Sagalassos. At that time occupation density in the countryside knew its apex. Many of the villages functioned to sustain the urban centre, while the imperial aristocracy, exploiting confiscated urban estates, found a ready market for their cash crops in the city. However, in Early Byzantine times (*c*. AD 450-700), Sagalassos seems to have become more dependent again on the polluted area nearby. At that time, the countryside, dotted with villages, became more independent, and insecure conditions prevented the easy transport of rural products to the city. The inhabitants of the city had to be primarily sustained by the exploitation of land close to the city.

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