

Societal changes in the Hellenistic, Roman and early Byzantine periods. Results from the Sagalassos Territorial Archaeological Survey 2008 (southwest Turkey)

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Abstract

This contribution discusses the Hellenistic, Roman and early Byzantine pottery collected during archaeological survey in the Bereket valley (territory of ancient Sagalassos, southwest Turkey). This collection contains both pottery imported from as yet unknown production centres and wares produced in the Potters' Quarter of Sagalassos. Changes in the proportions of pottery produced at Sagalassos and those produced at other locations become visible in the fourth-century AD material and reflect the evolving relationship between the peripheral valley of Bereket and the regional centre of Sagalassos. Yet, the undiminished quantity of pottery collected suggests that human activity continued without significant changes in habitation density. However, pollen cores from the same valley show that at more or less the same time crop cultivation diminished and was largely replaced by pastoralism. This shift occurred at a time when climatic conditions had become more favourable for crop cultivation. A somewhat similar decrease in crop cultivation is also observed in Gravgaz marsh. In both valleys, this shift occurred about 300 years earlier than in the rest of the territory of Sagalassos. Although the reasons for these changes cannot be determined on the basis of the study of survey pottery alone, the results presented show the importance of intensive survey and the study of peripheral areas for understanding inter-regional interaction patterns.

Özet

Bu çalışma, Bereket Vadisi'nde (antik Sagalassos'un teritoryumu, Türkiye'nin güneybatısı) yapılan yüzey araştırması sırasında toplanan Hellenistik, Roma ve Erken Bizans seramiklerini ele almaktadır. Bu koleksiyon hem şuan için yeri bilinmeyen seramik merkezlerinden ithal edilen, hem de Sagalassos'daki Çömlekçiler Mahallesi'nde üretilen seramikleri kapsamaktadır. Sagalassos'da üretilenler ile diğer merkezlerde üretilen seramiklerin oranlarındaki değişiklikler M.S. 4. yy'daki materyalde belirginleşmektedir ve Bereket Vadisi'nin çevresi ile Sagalassos'un bölgesel merkezindeki gelişen bağlantıyı yansıtmaktadır. Zira, az olmayan miktarda toplanan seramikler, insan aktivitesinin yerleşim yoğunluğunda belirgin bir değişiklik olmadan devam ettiğini göstermektedir. Yine de, aynı vadideki polen çekirdekleri neredeyse aynı zamanda tarımın azaldığını ve yerini büyük oranda hayvancılığa bıraktığını göstermektedir. Söz konusu geçiş, iklimsel koşulların tarım için daha elverişli olduğu bir zamanda meydana gelmiştir. Tarımda görülen kısmen benzer bir azalma Gravgaz bataklığında da gözlemlenmiştir. Her iki vadide bu geçiş, Sagalassos'un geri kalan teritoryumundan 300 yıl kadar daha önce gerçekleşmiştir. Her ne kadar bu değişikliklerin nedenleri sadece yüzey araştırmasından elde edilen seramiklere ait çalışmalar üzerinden belirlenemese de, ileri sürülen sonuçlar yoğun yüzey araştırmalarının ve çevresel alanlardaki çalışmaların, bölgelerarası etkileşim modelinin anlaşılmasındaki önemini göstermektedir.

In 2008 the Sagalassos Territorial Archaeological Survey conducted by H. Vanhaverbeke, working within the scope of the Sagalassos Archaeological Research Project, concentrated on the high-altitude valley of Bereket (Vanhaverbeke et al. 2011b). Previous surveys had already identified the presence of remains from the Hellenistic and Roman imperial periods in this valley (see below). The collected pottery provides, amongst other things, insights into the community inhabiting the valley during the Hellenistic (333–25 BC) and especially Roman imperial (25 BC to AD 300) and late Roman/early Byzantine periods (AD 300–650). During this time-frame, the region was incorporated into the Hellenistic and later Roman world. Sagalassos developed from a modest settlement into a central city with a large territory. But how strong was Sagalassos' grip on the villages in its territory and did the relationship between Sagalassos and its hinterland change over time?

The survey results of the peripheral Bereket valley shed some light on these questions. Not only do the 20 years of excavation at Sagalassos provide a good basis for dating the discovered pottery, but the identification of a pottery production centre at Sagalassos allows the study of pottery dispersal and the influence of the centre throughout the period. Additionally, the results of the survey can be correlated to previous palynological research. The combination of archaeology and palynology can provide information on the subsistence of the communities under investigation and possibly explain the choice of a certain settlement location. Furthermore, investigation of climatic changes may provide some understanding of challenges posed by the environment to people in the past. This combination of archaeological survey data, the well-established chronology of the pottery production centre at Sagalassos and the palynological research provides an excellent basis for the study of the character of habitation in the Bereket valley, its relationship to the city of Sagalassos and how this changed over time.

Natural setting

The Bereket valley (37°32'42.65''N; 30°17'42.23''E) is located in the southwestern part of the territory of Roman imperial Sagalassos at a distance of ca 25km from the city of Sagalassos (fig. 1). The valley forms part of the western Taurus mountains and the valley bottom lies at an altitude of 1,410–1,440m above sea level. This makes the valley the highest intramontane valley within the territory of ancient Sagalassos. It is surrounded by two mountain ridges, the Kokayanık Tepe in the west and the Beşparmak Dağları in the northeast. Two rivers drain the valley towards lake Burdur, the Aykırđak Deresi and the Büğdüz Çayı. The valley bottom consists primarily of

alluvial deposits. The presence of springs in combination with the poor draining capacity of the soils has resulted in the development of a marsh. This once extended over an area of ca 35ha, but the marsh has now been completely drained and transformed into farmland. Today, the winters in the Bereket valley are long and cold with a dense snow cover, while the summers are short and dry. This mountain valley is part of the upper Oro-Mediterranean vegetation belt and its present-day vegetation is characterized by mountainous forest species like *Juniperus excelsa*, *Pinus brutia*, *Pinus nigra* and *Cedrus libani*, together with shrub vegetation in the form of *Quercus coccifera*, *Juniperus excedrus* and *Atraphaxis* spp. In areas where the woodland has disappeared, grasses and herbs, such as *Artemisia herba-alba*, Caryophyllaceae and Ericaceae, are present (Kaniewski et al. 2007: 2202).

Given its mountainous location, the Bereket valley can be considered as a peripheral area with regard to the city of Sagalassos. In this mountainous region the most direct routes are rarely the easiest. In the past, there may have been two options for the occupants of the Bereket valley to reach the area of ancient Sagalassos. One route runs from Bereket to the north along the river, then turns east at the confluence towards Kayaaltı and crosses the pass further to the east, entering the Ağlasun valley from the west (fig. 1). This option measures about 37km and involves a total of 550m of ascent and 500m of descent. A slightly longer option leaves the Bereket valley from the east in the direction of Bağsaray, first climbing a small pass, then descending into the valley of Çeltikçi, after which a turn to the north is made to enter the valley of Ağlasun. This 40km-long route with 650m of ascent and descent is both longer and slightly more difficult than the other route, but it passes several ancient sites. However, both routes between the Bereket valley and Sagalassos are long and strenuous.

Previous research

The Sagalassos Territorial Archaeological Survey was not the first research of its kind to have taken place in the Bereket valley. In 1884, two scholars, W.M. Ramsay and A.H. Smith, explored the region and noted archaeological remains just outside the modern village of Bereket. Based on an inscription, they associated these remains with the Roman village of Moatra (Smith 1887: 229–30; Ramsay 1895: 338). In 1956, 1957 and 1959, G.E. Bean investigated a wider area including the Bereket valley (Bean 1959: 111). In 1996, the Sagalassos Archaeological Research Project, as part of its extensive survey campaigns, surveyed the valley and was able to add more detailed information to the previous accounts (Waelkens et al. 2000b: 54–64; Vanhaverbeke, Waelkens 2003).

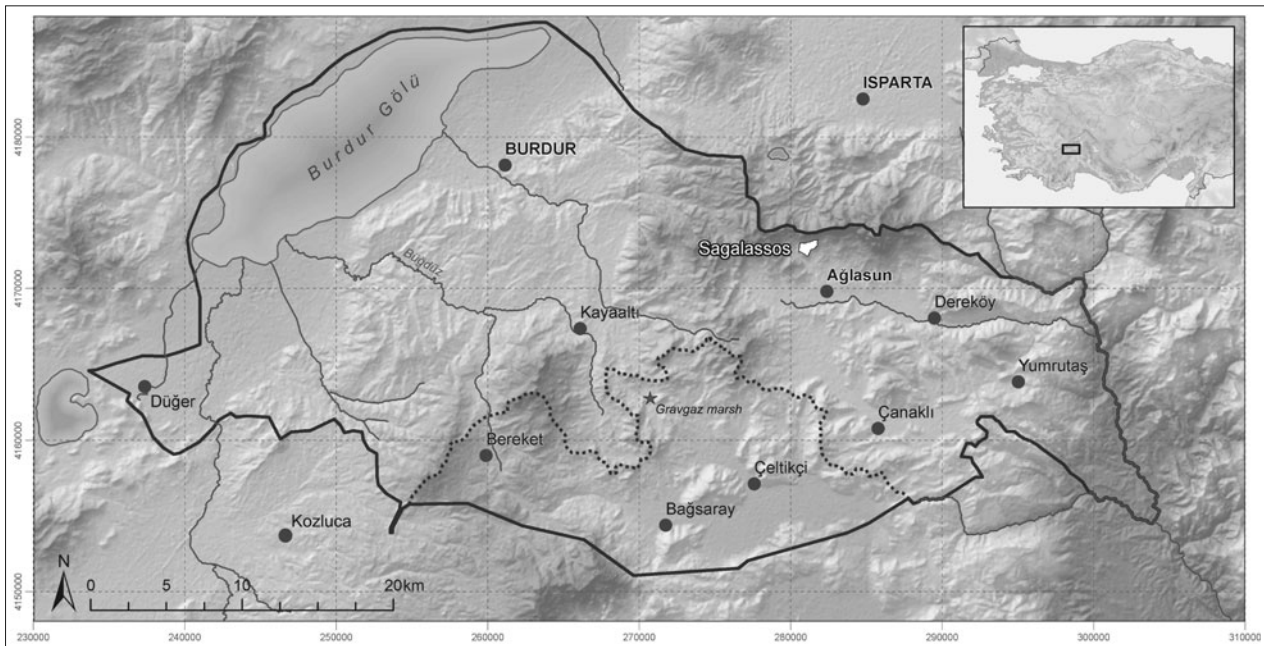


Fig. 1. The territory of Sagalassos in the Roman imperial period (solid line) and Hellenistic period (dotted line), with the Bereket valley located in the southwest. Apart from Sagalassos, all place-names refer to modern villages and towns

The most conspicuous remains that were noted during these visits to the Bereket valley consist of the lower courses of what is described by all surveys as a large and monumental building located about 600m to the south of the modern village of Bereket (fig. 2, IV). Smith writes that there were ‘still in situ the four lower courses of a heroon or some such building, whose dimensions were 26ft. 5in. × 32ft.’ (8.05m by 9.75m) (Smith 1887: 230). Bean describes the building as measuring 8m by 10m and still standing 4–5m (Bean 1959: 111). It seems, however, that Bean’s height of 4–5m is slightly exaggerated. It is more likely that he witnessed four or five courses instead of metres. Unfortunately, today only one course remains. The 1996 survey by the Sagalassos Archaeological Research Project was able to provide more detailed information. A structure made of large ashlar blocks, measuring ca 9.7m (east–west) by 4.7m (north–south) was documented. This large building is visible (in outline) approximately 150m to the east of a low rise in the landscape on recent aerial photographs (Waelkens et al. 2000b: 54) (fig. 3). This low rise is called Kirselik by the villagers, and on its top and in its immediate vicinity high pottery densities were discovered (Vanhaverbeke et al. 2011b: 142). Based on the *in situ* remains and associated architectural elements in the immediate area of the village of Bereket and its cemetery, M. Waelkens identifies the structure as a monumental tomb (Waelkens et al. 2000b: 54). Throughout the modern village of Bereket, and especially in its cemetery, architectural fragments of this

tomb can be found. Based on these scattered remains and particularly the decorated pieces amongst them, it is possible to reconstruct the shape and the date of the structure. The fragments of fluted columns, a fluted frieze (a so-called *pfeifen* frieze) and an architrave indicate that the tomb was probably shaped as a *distylos in antis* temple and built during the reign of Tiberius or his immediate successors (Waelkens et al. 2000b: 54).

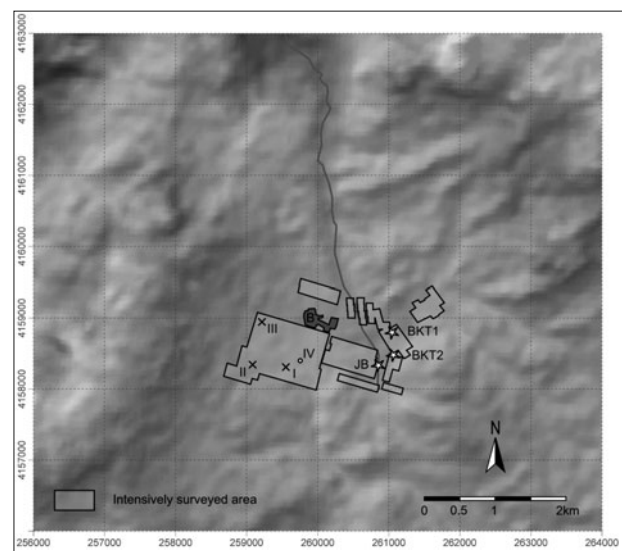


Fig. 2. Overview of the Bereket valley and the surveyed area, with sites Kirselik I (I), Kirselik II (II) and Kavaklık (III), the monumental tomb (IV), the modern village of Bereket (B) and pollen cores (stars)



Fig. 3. Overview of the Bereket valley and a selection of the funerary and architectural remains scattered in and around the village of Bereket

The architectural decoration shows strong parallels with Augustan and Tiberian monuments at Sagalassos. In fact, the similarities are such that these monuments may have been created by the same craftsmen (Waelkens et al. 2000b: 63, 67, fig. 62).

Other funerary remains have been recorded in the vicinity of the monumental tomb (Bean 1959: 111; Waelkens et al. 2000b: 63). Ramsay (1888: 266) records an epitaph at an unmentioned location in Bereket: [A]πολλώ / νιο[ς] M- / ενάνδρ- / ο[v]. Bean (1959: 111) claims to have found a sarcophagus lid with three reclining figures whose arms rest on the shoulders of their neighbours and whose heads unfortunately had been lost. Today, this lid can no longer be found. An ostotheca was also detected by Bean in the village of Bereket. On its front he recorded three damaged figures, a door on the left short side, two figures on the other short side, and a shield crossed by a sword and sheath on its rear (Bean 1959: 111). This is a common type known at Sagalassos and datable there to the late Hellenistic and early Roman imperial periods (Köse 2006). The 2008 survey identified a few other heavily damaged remains of sarcophagi and architectural remains scattered in and around the village of Bereket (fig. 3). A kline lid found in a field outside the village shows a reclining figure. The lid is damaged, but can be dated to the second century AD (Vanhaverbeke et al. 2011b: 144). The presence of these funerary remains scattered in the vicinity of Kirselik, as well as the size and the decoration of the temple-like tomb, together with similar finds from elsewhere in the territory of Sagalassos suggest some élite investment in the countryside from early to middle Roman imperial times (Waelkens et al. 2000b). The

skilled execution and elaborate decoration show that certain inhabitants of the Bereket valley were able to commission expensive funerary monuments that followed the trends of the wider region. Sarcophagi with kline lids were very expensive, especially when made from Dokimeian marble, and even limestone sarcophagi, such as those found at Bereket, could only be afforded by wealthy individuals.

Additionally, fragments of sculpture have been discovered that point to the presence of specific cults. Ramsay and Smith report a stone, 1.37m high, depicting a Herakles figure with lion skin, club and *patera*, but lacking a head. On the side of the block, the figure was further identified by an inscription reading 'Herakles of the komè of Moatreis' (Smith 1887: 229). This is the only preserved reference to the ancient name of Bereket. Together with a site northeast of lake Burdur, this is the only place in the Sagalassos territory for which the ancient name has been preserved (Waelkens et al. 2000b). Furthermore, the inscription commemorates by whom the monument to which it belonged was dedicated (Manès, son of Tatas, and Attalos, son of Apollonios) and who carved it (Troilos, son of Arnetes and grandson of Tudes) (Smith 1887: 229). In the 1950s, Bean noted a frieze block in the fountain of modern Bereket with a damaged relief depicting a torch, a bow, a bust and something he called 'a weird creature like a coiled snake expanding into nine fingers'. On one of the sides of the block, he could discern a damaged 'Hermes with caduceus' (Bean 1959: 111, pl. XXc). The Hermes cult was popular in the countryside of Sagalassos (Talloen 2003). In 1996, a small altar that was later built into a Bereket house was discovered. This altar shows a female bust with a

dedication by someone with an indigenous name (Mamatis) and the acclamation 'to the goddess' underneath it (Waelkens et al. 2000b: 64). Based on the style of carving, the altar can be dated from the late Hellenistic to the early Roman imperial period (Waelkens et al. 2000b). Throughout the Roman imperial period, indigenous Anatolian names are frequently found in the Sagalassos countryside, including an inscription in Pisidian dialect (Waelkens et al. 2000b: 73). In contrast, the urban onomastica at Sagalassos are almost exclusively Greek.

Many of the architectural remains documented in earlier surveys seem to stem from funerary monuments. These tombs suggest the presence of elite estates inhabited by their owners, in addition to their managers or tenants. Elucidating in more detail what kind of human occupation occurred in the Bereket valley and how long this lasted was, therefore, one of the aims of the 2008 Sagalassos Territorial Archaeological Survey.

The Sagalassos Territorial Archaeological Survey

In 2008, the Sagalassos Territorial Archaeological Survey, coordinated by H. Vanhaverbeke, investigated the Bereket valley (Vanhaverbeke et al. 2011b). The aim of the survey was to determine the general settlement history in the outlying valleys of the territory of Sagalassos and to establish what happened to these more remote parts of the territory whilst they were under the control of Sagalassos and afterwards. During the 2008 field season, the valley bottom and foothills were intensively surveyed (fig. 2), while the surrounding hills were examined by random survey as line-walking proved impossible on the often steep slopes. The intensive archaeological survey of the Bereket valley was carried out by line-walking with an average of five surveyors. The visibility of the surface was scored on a scale of 1–5. Almost the entire valley is used for cereal cultivation. When fieldwork commenced, all the fields had already been harvested and in a few instances also ploughed, providing almost perfect visibility throughout the valley (fig. 3). All cultural artefacts were collected, including body sherds, and documented in grids of 100m by 100m. During the course of three weeks, 198 grids were covered, forming a total surveyed area of as much as 1.98km² (Vanhaverbeke et al. 2011b: map 1). In the field, three artefact concentrations from the period under discussion were identified as sites: Kirselik I, Kirselik II and Kavaklık (fig. 2). Based on the composition of the pottery assemblage in combination with the funerary remains in the vicinity, the sites of Kirselik I and II were initially interpreted as having a domestic function, possibly in the form of a small village or large estate, dating to the Roman imperial period, while the habitation site of Kavaklık remained

unclassified according to date and function (Vanhaverbeke et al. 2011b: 143). The pottery was studied in more detail during the summer of 2009. A total of 5,017 sherds were collected from the Bereket valley together weighing as much as 827.5kg. Slightly over one-fifth of the total pottery assemblage, i.e. 1,044 sherds, could be dated to the late Hellenistic/early Roman imperial period (200 BC to AD 300) or late Roman/early Byzantine period (AD 300–650). Although the sherds form about one-fifth of the total collection, their weight represents only one-eighth of the total assemblage (105kg). This is mainly due to the large quantity of table wares in this collection, making up 65% of the total late Hellenistic to Roman imperial collection. In weight, the table wares represent only 33% of this collection. The detailed processing of the finds confirmed the initial interpretation that all three locations functioned as habitation sites, based on the range of functional categories of pottery represented. However, based on the pottery alone, it is impossible to distinguish whether these sites were estates, small villages or large hamlets. The finds from Kirselik I and II were nicely clustered, as would be expected for buried archaeological features. In contrast, the finds discovered at Kavaklık were more widely scattered, possibly implying that the focus of this concentration is located outside the surveyed area or that the concentration has been ploughed out (see below).

Pottery research

The pottery analysis aimed to establish the macroscopic fabric group, vessel type and date of feature sherds, i.e. rims, bases, handles and decorated fragments. By assigning the non-feature or body sherds to specific macroscopic fabric groups, attempts were made to date them and, when possible, to determine the shape of the original vessel. All fabrics have been macroscopically analysed according to the guidelines described by Peacock (1977). Although some fabrics were in use throughout various periods, there are also fabrics that can be linked to a specific time-frame and sometimes even to a specific type of vessel. The fabrics and vessel types identified in the Bereket valley and described in the following sections have been placed into the wider ceramological context of the study region of ancient Sagalassos.

Slipped table wares

Slipped table wares form a considerable proportion of the pottery collection of the Bereket survey. These are made from a fine, levigated clay, containing few small inclusions, and are covered in an orange, reddish to red-brown slip. Morphologically, a range of shapes occurs, indicating usage for beverage and food consumption. Slight differences in fabric, morphology and slip make it

possible to differentiate between production centres and/or chronological periods. Considering the state of preservation of the surface material, three main periods can be distinguished in the material: Hellenistic, Roman imperial and late Roman/early Byzantine.

The Hellenistic pottery is represented by sherds made of a very fine orange fabric, whose few inclusions cannot be identified macroscopically. Most characteristic, however, is the orange (mottled) slip covering (part of) the vessels. Based on archaeometric analysis of material collected at Sagalassos and at Kozluca Höyük, located ca 15km southwest of Bereket, local production of Hellenistic table ware at Sagalassos has been established (Poblome et al. 2002: 875). The fabric and finish of the studied table ware were macroscopically similar to those at both Sagalassos and at Kozluca Höyük. The slip, on the other hand, was notably different from Roman imperial Sagalassos red-slip ware. Based on the specific nature and quality of the slip and shape morphology, the sherds and fabric are attributed to the Hellenistic period. This ware is usually slipped orange to brownish-red. Different colour combinations, such as orange-brown or reddish-brown and blackish-grey, also occur. Overall, the slip is thin, sometimes dull and watery in appearance, and it does not always adhere well to the ceramic vessel. Occasionally the exterior lower part is not slipped, while the zone of the rim may be accentuated by a band of darker slip. Compared to Roman imperial Sagalassos red-slip ware, the Hellenistic fabric from the Bereket valley tends to be somewhat softer and slightly more buff in colour, but no macroscopic differences are consistently apparent. The paste is very fine and highly microporous, ranging in colour from reddish-yellow to brown (7.5YR 5/4 brown; 5YR 6/6 reddish-yellow).

Feature sherds of this ware collected in the Bereket valley include mastoid drinking cups (fig. 4.2), the most common type of drinking cup at contemporary Sagalassos; ring-footed bowls, possibly of the echinus type (fig. 4.4); shallow dishes with thickened rims (fig. 4.3), for food consumption; jugs with an almond-shaped rim for serving liquids (fig. 4.1); and lekaneis (fig. 4.5), for food or drink preparation. Recently, comparable material has been studied from fill layers inside a badly damaged pottery kiln excavated beneath the odeon of Sagalassos (Poblome et al. forthcoming). The assemblage is dated to the end of the third century and (the first half of) the second century BC and, apart from the shallow dish with thickened rim, this dating could also apply to the Bereket finds. The dish is best attributed to the very end of the Hellenistic period, based on parallels found in defined stratigraphic contexts at Sagalassos. Morphologically, this shape would come to evolve into Sagalassos red-slip ware type 1C170 (Poblome 1999).

Although macroscopically only one Hellenistic table ware fabric could be defined, archaeometric analysis at Sagalassos resulted in the definition of two groups with different clay compositions and provenances. Half of the Hellenistic table wares from Sagalassos was made from clays collected from the red weathering horizon of the ophiolitic bedrock of the Potters' Quarter of Sagalassos, whereas the other half was made from clays quarried in the northwest part of the nearby Çanaklı valley (Poblome et al. 2002: 880), which would also serve the production of Roman imperial Sagalassos red-slip ware. Recent research indicates that the ophiolitic clays exhibit a range of signatures, due to the heterogeneous nature of the parent rock, slope activity, mass movements and/or human activity. As a result, the clays that were shown to have been quarried in the Potters' Quarter (Six 2004) are similar to other raw clay materials in the Ağlasun valley, Dereköy and the Classical/Hellenistic site of Düzen Tepe located 1.8km southwest of Sagalassos (Neyt 2012). As there are no indications for local production of pottery in these other locations with ophiolitic raw clay materials, we presume that the clays were transported to the Hellenistic potters at Sagalassos. Also in the case of the clays from the northwest part of the Çanaklı valley, no archaeological indications of local production were noted in the area, nor elsewhere in the Çanaklı basin for that matter, not even for the Roman imperial period when these clays were the main production material of Sagalassos red-slip ware (Degryse, Poblome 2008: 245). The Çanaklı clays were actually found in a Roman imperial potter's workshop in Sagalassos' eastern suburb, making it likely that such transport of raw clay material was already being organised in Hellenistic times. Thus far, Sagalassos seems to have been the only active production centre of Hellenistic table wares in the study region. Production of pottery also took place at Düzen Tepe (Vanhaverbeke et al. 2010: 116; Braekmans et al. 2011), but these potters never adopted a Hellenistic form repertoire. The Sagalassos Hellenistic table ware was distributed throughout the study region (Vanhaverbeke, Waelkens 2003; Poblome et al. forthcoming), including now the Bereket valley. There is no direct link between distribution patterns of material culture and patterns of socio-cultural and/or political hegemony. Therefore, it is difficult to establish whether the consumption of Sagalassos pottery by the inhabitants of the Bereket valley goes beyond mere economical exchange, and possibly reflects the increasingly central role of Sagalassos as it established its territory.

Within the Roman imperial slipped table ware collection, a distinction can be made based on fabric, slip characteristics and morphology between vessels that were made in the Potters' Quarter of Sagalassos, defined as

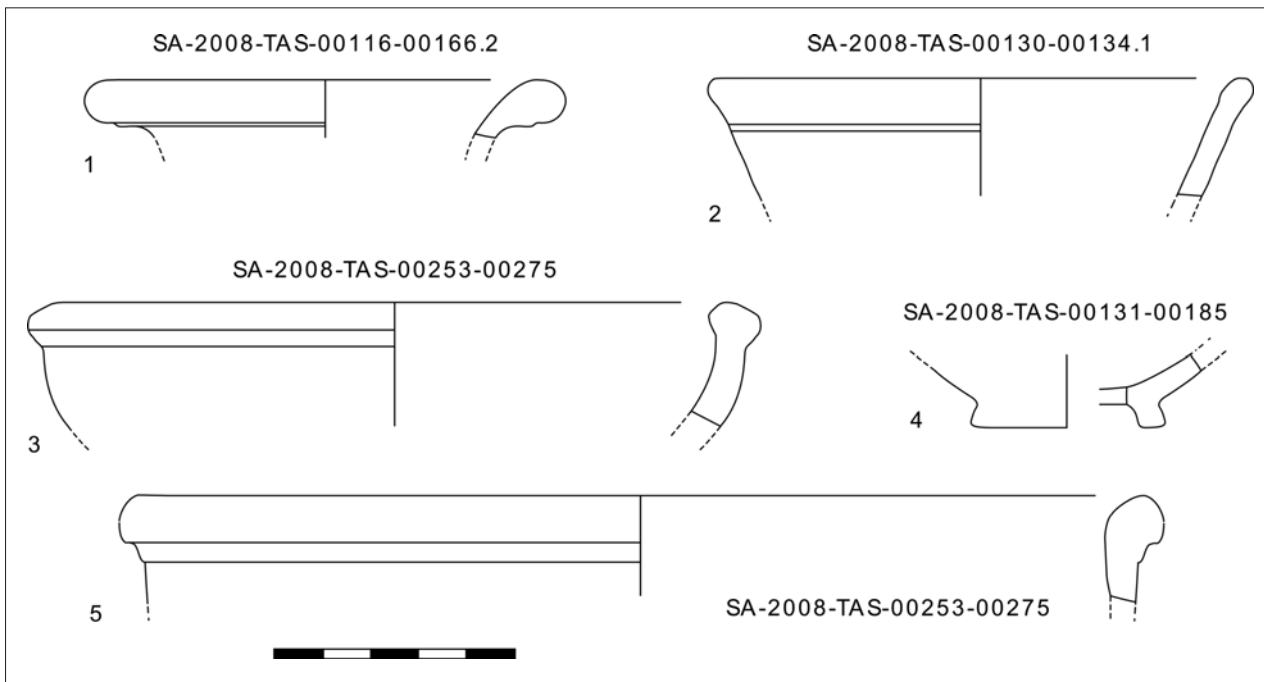


Fig. 4. Hellenistic pottery from the Bereket valley. 1: serving jug. 2: mastoid drinking cup. 3: shallow dish. 4: ring-footed bowl, possibly echinus type. 5: lekaneis

Sagalassos red-slip ware (SRSW) (Poblome 1999), and those that were acquired from other, as yet unknown, production centre(s) (denoted generally as red-slip ware or RSW).

The RSW from the Bereket valley consists of a group of 178 sherds that were made at one or more production sites. This category of red-slipped table ware sherds is characteristically dissimilar from SRSW. Internally, the RSW sherds are a heterogeneous group. Two main groups can be identified. The first group consists of sherds with a deep-red coloured fabric that contains only a few small inclusions (<0.5mm), such as lime particles and micropores. Like most table wares, this group has a very fine, levigated fabric in which the inclusions are difficult to identify macroscopically. A total of 25 sherds made in this fabric were identified. A second group, represented by 24 sherds, is formed of a fine orange fabric that has a moderate amount of lime particles (<1.5mm). It, furthermore, contains small pores and a few stone particles, but these are so small that macroscopic identification is impossible. It is considered likely that the sherds from these two fabric groups were each manufactured in a single workshop. Among the other RSW sherds, homogeneous groups cannot be macroscopically identified.

The sherds identified as SRSW are all made from Sagalassos Fabric 1 (Degryse, Poblome 2008: 238). This fabric is the common denominator of all red-slip ware vessels produced at Sagalassos (Poblome 1999: 27).

Inclusions are rarely visible in this fabric, although in the larger vessels small pores or small fragments of white limestone are sometimes present. Whereas the colour of the fabric is very consistent in all SRSW vessels, the slip colour shows considerable variation. The production of SRSW at Sagalassos started in the early Roman imperial period and continued into the seventh century AD (Poblome 1999). Throughout its production, the clays from the northwestern part of the Çanaklı valley provided the main ingredient of SRSW. In the Bereket valley, a total of 269 SRSW sherds were identified.

In table 1 the relative distribution between RSW and SRSW sherds calculated against the total slipped table ware collection is given for the three identified sites. It is clear that Kirselik II has the highest relative proportion of RSW, although this is about half the proportion of SRSW sherds. At Kirselik I and Kavaklık, RSW sherds occur in lower relative frequencies. When the spatial distribution is considered, it becomes clear that the RSW sherds are

	<i>RSW</i>	<i>SRSW</i>	<i>Total collected</i>
Kavaklık	28%	65%	116
Kirselik I	21%	75%	150
Kirselik II	31%	61%	331

Table 1. Percentages of identified RSW and SRSW of the total slipped table ware collection per site, including unidentified and Hellenistic table ware sherds



Fig. 5. Distribution of Roman imperial RSW sherds (I = Kirselik I, II = Kirselik II, III = Kavaklık)



Fig. 6. Distribution of Roman imperial SRSW sherds (I = Kirselik I, II = Kirselik II, III = Kavaklık)

also clustered more at the site of Kirselik II than at the other concentrations (fig. 5). This stands in contrast to the spatial distribution of the SRSW sherds, which shows more comparable densities at Kirselik I and II (fig. 6).

The SRSW found on the surface of the Bereket valley correlates well with the general typo-chronological framework of the ware. A large proportion of the identified forms consists of drinking cups and bowls for

food consumption. This is the case with all three sites. Frequently occurring cups are, for example, type 1A100, a small cup with a plain rounded or slightly thinned rim (Poblome 1999: 30), and type 1A130, a mastoid cup with slightly flaring rim (Poblome 1999: 37). At Sagalassos, type 1A100 was produced between 25 BC and AD 300, while type 1A130 occurred from the start of the early Roman imperial period until ca AD 150. A common bowl

at Bereket is, for example, type 1B150 which occurs as many as ten times. This is a small to very small bowl with a plain rim and convex walls that curve towards a ring base (Poblome 1999: 61). Dishes and containers/lekaneis were also identified, albeit in smaller numbers. Type 1C100, a small dish with outspread, straight or slightly concave walls, and type 1C140, a large shallow dish, are common (Poblome 1999: 106, 128). Among the containers/lekaneis, types 1F140, 1F150 and 1F160 occur frequently (Poblome 1999: 168–72).

The identifiable RSW/SRSW vessel types are of course only a minority in the collection. The majority of the surface material, i.e. body sherds, remains morphologically unidentified and therefore lacks precise dating. Nevertheless, the small collection of identified vessel types makes it possible to date a selection of the red-slip ware sherds to a specific window within the Roman imperial/early Byzantine period (see table 2).

Although RSW is, thus far, not attested at Sagalassos and most likely not produced there, the vessel shapes are comparable to SRSW examples. This situation need not imply patterns of morphological or socio-cultural dependency between production centres, but could be taken as another indication of the recently defined regional koine of table ware, under the umbrella of late Roman D ware (Poblome, Firat 2011). Given the morphological similarities, some RSW vessel shapes can be dated by external association. Fig. 7 illustrates a selection of the identifiable RSW vessel shapes. Except for two sherds that could be dated to the early Roman imperial period, such as the mastos cup (fig. 7.2), all other identified RSW shapes are dated to the late Roman and/or early Byzantine periods (n = 68). Both the rims and the bases are comparable to contemporary jugs (fig. 7.1) and containers/lekaneis, such as SRSW types 1F160 (fig. 7.4) and 1F170 (fig. 7.5).

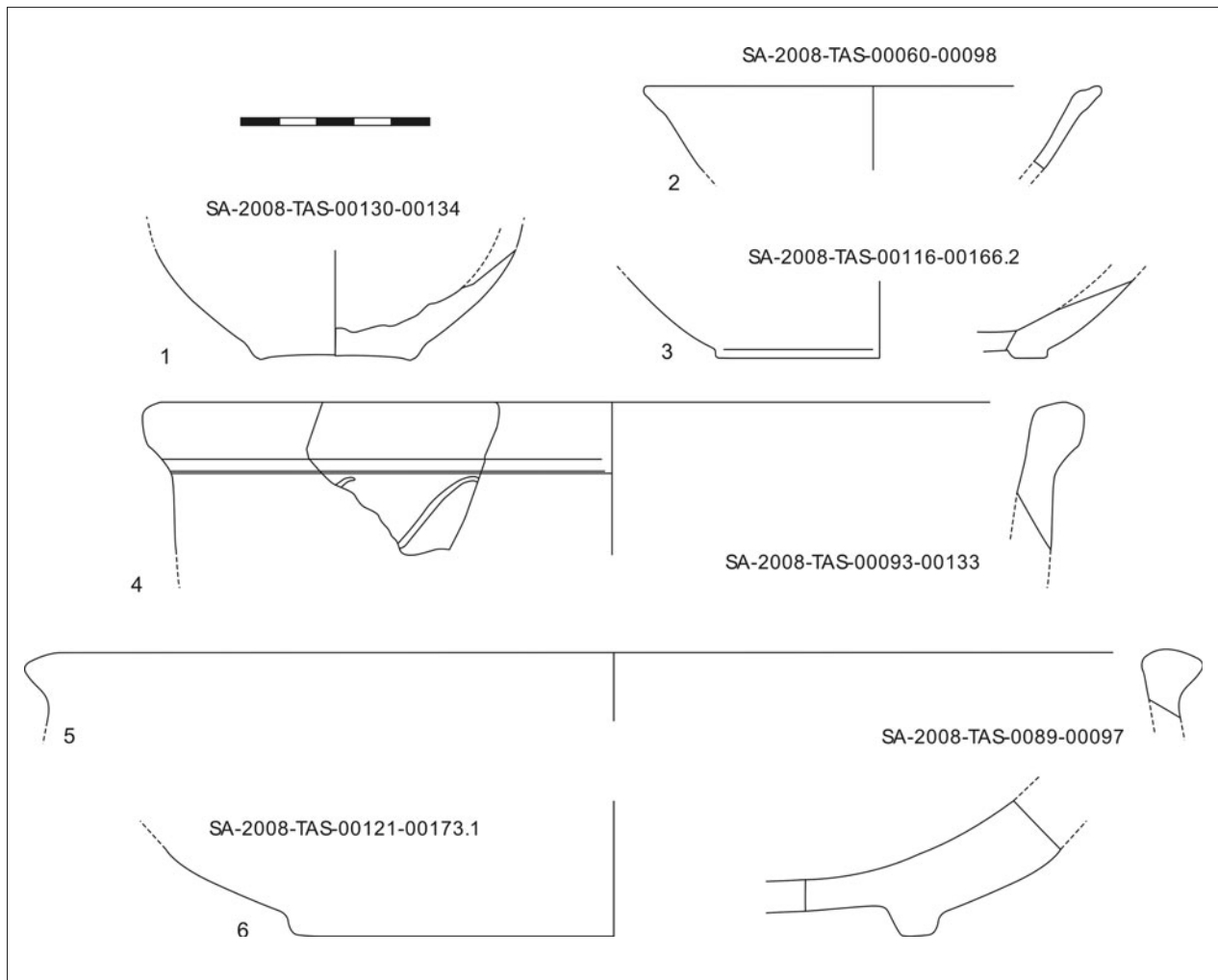


Fig. 7. RSW feature sherds collected in the Bereket valley. 1: jug similar to SRSW examples. 2: mastos cup. 3: base (of a bowl or small container). 4: container morphologically similar to SRSW 1F160. 5: container morphologically similar to SRSW 1F170. 6: container

A portion of the slipped table wares can be dated specifically to within the Hellenistic (ca 200–25 BC), to the early Roman imperial (25 BC to AD 300) or to the late Roman/early Byzantine period (AD 300–650). Table 2 details the relative proportions by period for the three sites. Although there are some differences, the general proportions are very similar at all three sites with a slightly higher percentage of sherds dating to the late imperial/early Byzantine period. This similarity in periodisation probably reflects a close relation between the three sites, which is, of course, only to be expected given their close proximity.

When the RSW and SRSW sherds are separated into periods, a distinction becomes clear (table 3). The RSW dates predominantly to the late Roman/early Byzantine period and is largely absent during the early Roman imperial period. Alternatively, at Kirselik I and II SRSW is abundant in the early Roman imperial period, while it is greatly reduced in the late Roman/early Byzantine period. At Kavaklık, the number of SRSW sherds is, for some unknown reason, the same for both periods. However, the overall number of SRSW sherds is rather limited at this site, which makes the frequencies less reliable as usable data. The overwhelming presence of SRSW sherds at Kirselik I and II during the early Roman imperial period is considered indicative of the continuing link of this outlying valley to the regional centre of Sagalassos, where this pottery was manufactured. This stands in contrast to the late Roman/early Byzantine period when most of the red-slip table wares originate from other, as yet unknown, production sites. A smaller number of SRSW vessels was, however, still present, showing that the exchange with Sagalassos did not cease altogether, but (at least in a ceramic sense) its significance was greatly reduced.

Roman imperial pottery: the coarse wares

In addition to the red-slipped table ware sherds, other material found during the survey of the Bereket valley can also be dated to the Roman imperial period (fig. 8). The chronological attribution was based either on the morphological characteristics of the pottery in question or on the macroscopic fabric identification. This group of Roman imperial pottery is, however, not very large and consists of a total of 68 sherds. Nevertheless, a much larger group can be attributed to the less specific, Hellenistic/Roman imperial/early Byzantine period. The distribution resembles that of the red-slipped table ware sherds and clusters around the sites of Kirselik I, Kirselik II and Kavaklık. Although densities are not very high and the concentrations are diffuse and not clearly delineated, the virtual absence of Roman imperial sherds in the northern and eastern parts of the survey area demarcates the sites of Kirselik I, Kirselik II and Kavaklık even more strongly.

During the detailed macroscopic examination of the pottery collected during the Bereket survey, three unknown coarse-ware fabrics were identified which can be dated to the Roman imperial period. These fabrics have not been encountered previously in the wider study region of Sagalassos and are at the moment only attested in the Bereket valley.

The first of these new fabric groups was labelled Bereket Fabric 71 and it consists of a reddish-yellow/grey matrix (5YR 6/6–5/2). The paste contains micropores, a small amount of mica, small lime particles and possibly some grit. Inclusions are small (on average <1mm), their number is small to medium, while their sorting is good. The fabric is high fired and sherds generally range

	<i>Hellenistic</i>	<i>Early Roman imperial</i>	<i>Late imperial/early Byzantine</i>	<i>Total collected</i>
Kavaklık	7%	9%	12%	116
Kirselik I	4%	9%	12%	150
Kirselik II	8%	5%	13%	331

Table 2. Percentages of dated slipped table wares of the total number of such wares per site

	<i>RSW</i>		<i>SRSW</i>	
	<i>Early Roman imperial</i>	<i>Late Roman/early Byzantine</i>	<i>Early Roman imperial</i>	<i>Late Roman/early Byzantine</i>
Kavaklık	1	6	9	9
Kirselik I	1	14	37	5
Kirselik II	0	37	33	8

Table 3. Datable RSW and SRSW sherds per site (in absolute numbers)



Fig. 8. Roman imperial sherds other than red-slipped table wares (I = Kirselik I, II = Kirselik II, III = Kavaklık)

between 4 and 4.5 on the Mohs scale. Based on the hardness, the fine and homogenous fabric, the wall thickness, the morphology and the exterior appearance of the sherds, it is suggested that the fabric might have functioned as a material for cooking vessels. Unfortunately, only a few sherds in this fabric were identified. Two rims that, based on their morphology, were dated to the Roman imperial period and identified as cooking vessels were discovered at the site of Kirselik (fig. 9). A rim of a bowl that might also be made of this fabric was discovered as an isolated find in the eastern part of the basin.

Bereket Fabric 72 is somewhat more common and has a uniform surface treatment. This fabric consists of a pink matrix (5YR 7/3–7/4) with many micropores, small grit and small lime inclusions. As with Fabric 71, inclusions are small (<1mm), few in number and their sorting is good. The fabric is made of a fine clay, has a straight break and is rather soft (between 2.5 and 3 on the Mohs scale). Ten sherds of this fabric were discovered (with a total weight of 163g). The sherds that allowed identification of the original vessel form include the rims of a bowl and a holemouth jar, and the neck of a jar or jug. The relatively fine nature of the fabric and the occasional application of red slip make it likely that the vessels made of this fabric had food serving and consumption functions. The sherds of this ware were not found in an identifiable cluster, although they were restricted to the southwestern part of the valley in the area of sites Kirselik I and II.

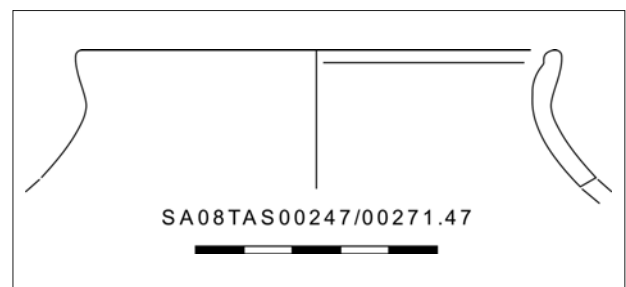


Fig. 9. Globular cooking pot with constricted neck and ledge for a lid

Examples of Bereket Fabric 73 comprise three rims of pithoi that, by means of morphological analogy with Sagalassos types, can be dated to the period between the first century BC and the seventh century AD. Two of the fragments show a similar thickened, rounded rim with a small neck (fig. 10.1), datable to the Roman imperial period, while the other is characterised by a triangular rim with a horizontal top and grooves on its exterior (fig. 10.2), datable to the early Byzantine period. This fabric has a pink/reddish-yellow colour (5YR 7/6–8/4). Inclusions consist of grit (elongated but with rounded corners), lime and pores, and they are of medium quantity and medium sorting. They are generally smaller than 1.5mm. The fabric is rather soft (3.5 on the Mohs scale) and breaks are rough. The sherds have an even surface feel and the clay is quite fine and homogeneous. All three rims were collected on or near the site of Kirselik I.

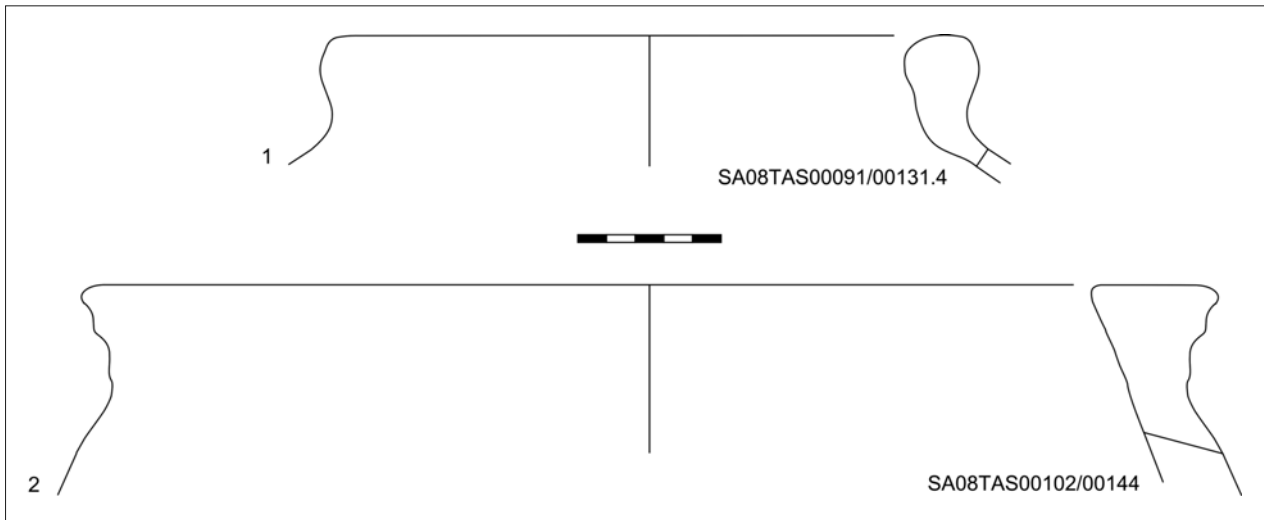


Fig. 10. Pithoi of Bereket Fabric 73

Other Roman imperial sherds

Besides the three newly identified fabrics, several sherds were found that, based on their morphology, could be dated to the Roman imperial period but whose fabric occurred only once. These isolated fabrics could not be classified into distinct groups and more information can only be offered when a larger sample is collected. Nevertheless, their morphological characteristics often allow for fairly secure dating, and these sherds therefore shed further light on activities in the Bereket valley. Additionally, there are a few isolated fabrics that resemble fabrics encountered during the excavations at Sagalassos.

Three pithoi found in the Bereket survey were made from fabrics that very closely resemble Sagalassos Fabric 2 ($\times 2$) and Fabric 3 ($\times 1$) (Degryse, Poblome 2008: 245). These were made mainly from ophiolitic- and flysch-derived clay, raw materials found at and near the site of Sagalassos (Neyt 2012). Because of their size and weight pithoi are considered to be unlikely items for transport over large distances. Lacking archaeometric analysis of these sherds, it is not possible to propose their provenance and establish whether these items were actually transported to Bereket. Considering the fact that pithoi were made in much lower numbers than table wares and were perhaps even made on a need-only basis, their fabric composition may have varied through time and space. The nature and function of these large storage vessels would also allow for more fabric variation. These factors complicate provenance studies. Moreover, ophiolitic clays are part of the geological build-up of the Büğdüz river valley (D'Haen 2012: 73, fig. 4.1). Although there are no specific indications for the availability of raw clay materials from the Büğdüz river valley, let alone their exploitation by local artisans, the ad hoc nature of pithos production does not entirely rule out this option.

Late Roman amphorae

Another example of sherds that, by virtue of their morphology, could be attributed to the late Roman period is a group of 14 handles which have multiple grooves or are twisted or have a single ridge or are lunate in shape. These types of handles have also been discovered at Sagalassos where they were first identified in the backfill deposits of the destroyed Neon Library (Waelkens et al. 2000a; Poblome et al. 2008: 1001). In the excavations, further vessel parts, rather than just handles, were discovered, which allowed the identification of a specific type of local amphora in Sagalassos Fabric 4. Typologically, these vessels have an ovoid body with its widest diameter in the upper half, a flat or slightly concave base and a fairly short neck with an open or closed rim that can be either plain, thickened on the outside or with an inner flange. Four types were identified based on a combination of morphological features, of which, in the case of Bereket, only the shape of the handle is relevant. The first type, 4P100, has twisted handles, while the handles of 4P120 amphorae have multiple ridges. Amphorae of the 4P130 type have single-ridged handles and type 4P140 has handles that are lunate in section while the necks of these amphorae are smaller (Poblome et al. 2008: 1003).

The handles found in the Bereket valley follow the Sagalassos typology (fig. 11). In the survey collection, two examples of type 4P100 are present. The multiple-ridged handles of amphora type 4P120 are, with seven examples, the most common type. Only a single handle of type 4P130 has been discovered, while four handles of the 4P140 type amphora were collected. The fact that only handles could be identified as amphora fragments in the Bereket valley can be partly explained by the rim shapes of the different amphora types, which are not

uniform and which are shared with some jug types. The fragmented nature of the survey material does not assist in attributing typological classification. Moreover, the Bereket amphora handles display macroscopic variation in fabric composition. As a result, the lack of a uniform fabric makes it difficult to identify the rim or body fragments related to the handles, and, of course, potential amphora rim or body fragments could actually belong to other vessel types. If during the course of future research a larger assemblage of handles of these amphora types is collected, it might be possible to define fabric groups that will allow non-diagnostic sherds to be classified as amphora sherds.

Stratigraphic analysis followed by the seriation of ceramic assemblages excavated at Sagalassos has located the start of the production of Fabric 4 amphorae in the third quarter of the fourth century AD (Poblome et al. 2008: 1006). Production continued into the seventh century AD. No local or regional line of amphora production has been documented in the Sagalassos study region in Roman imperial times. Considering the typological similarities of the handles, those collected in the Bereket valley are presumed to belong to the same chronological frame. The distribution of these amphora handles (fig. 12) shows a clear link with Kirselik I and II. Two sherds were found (in isolation) a few hundred metres to the east of Kirselik I.

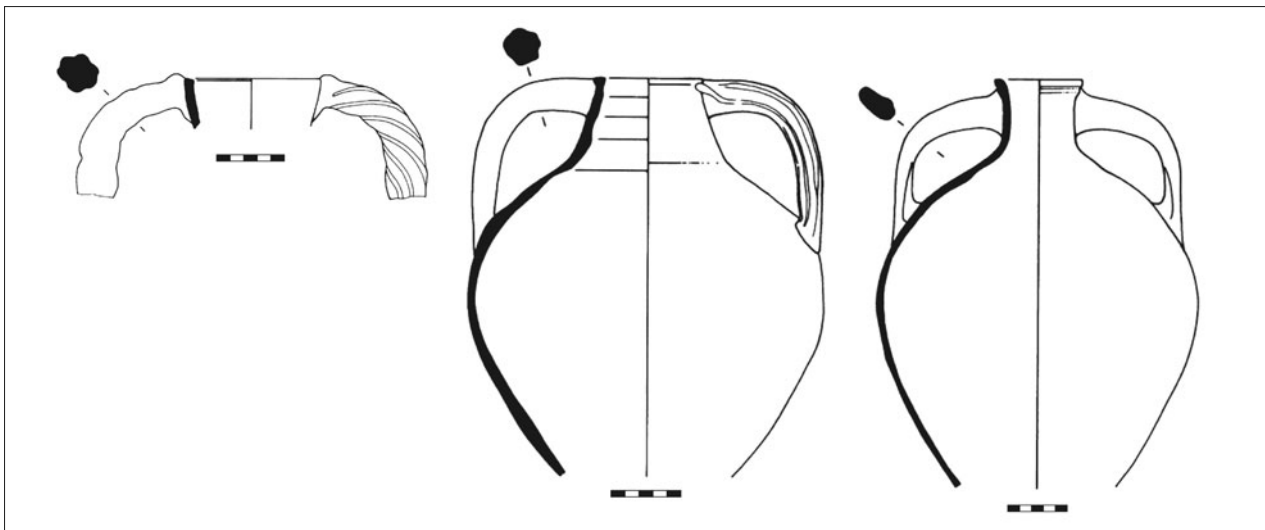


Fig. 11. Examples of (from left to right) types 4P100, 4P120 and 4P130 amphorae from the excavations at Sagalassos



Fig. 12. Distribution of late Roman amphora handles (I = Kirselik I, II = Kirselik II, III = Kavaklık)

At Sagalassos all four amphora types were made of Fabric 4 (Degryse, Poblome 2008). This fabric was initially considered to be locally processed into pottery at Sagalassos, as some examples were made from the weathered ophiolitic and flysch clays that are available at several locations on the site and in its vicinity (Poblome et al. 2008: 1002). However, the study of a larger assemblage has now identified greater compositional diversity in the fabric (Neyt et al. 2012). This, together with the absence of production indicators in the Sagalassos Potters' Quarter, such as misfired Fabric 4 sherds, and the likelihood that amphorae were produced near the place of cultivation of the substance to be packed, suggests that Fabric 4 amphora production did not take place at Sagalassos itself, but was carried out at several different locations within the Sagalassian territory (Poblome 2006). This archaeological assumption was recently corroborated and refined by matching the fabric with a variety of ophiolitic clays. These raw materials were available near Düzen Tepe, Sagalassos and in the central part of the Ağlasun valley (Neyt et al. 2012: 1304), where intensive archaeological survey campaigns have identified several contemporary agricultural estates (Vanhaverbeke et al. 2007: 622). None of the analysed Fabric 4 samples had a composition corresponding to clays beyond the Ağlasun valley; however, exact provenancing within the Ağlasun valley is not possible.

Although Sagalassos Fabric 4 displays variation in composition, the examples discovered in the Bereket valley do not fit into this picture. They were made from several different fabrics, that macroscopically resemble Sagalassos Fabric 4 in that they have similar physical characteristics, such as colour, feel, coarseness, hardness and type of inclusions, but as a whole they are different from Sagalassos Fabric 4. No samples of these Bereket amphora handles have been archaeometrically analysed as of yet, leaving the provenance question unresolved (as is the case with Sagalassos Fabric 2 and 4 pithoi). Either we are dealing with other sources within the Ağlasun valley or with estates in one or another of the valleys within the study region engaged in amphora production using geologically similar clays. The survey collection of Bereket does not offer any indication of local attempts at pottery/amphora production. The fact that the amphora fabrics found in the Bereket valley do not resemble the material collected during the large-scale excavations and intensive surveys in and around Sagalassos may indicate that these amphorae were not made within the Ağlasun valley. It is to be expected that the produce from the latter valley would have been targeted first and foremost by Sagalassos and that the fabric variation attested at Sagalassos reflects a cross-section of the range of Ağlasun agricultural production that would have been stored in the amphorae.

Amphorae are generally thought to have contained wine, olive oil or fish products and were mainly used for long-distance transport across the Mediterranean and other waterways. Especially in late antiquity, the use of amphorae was well established and particular types had become associated with their content and region of production (Tomber 2004). Recent residue analysis of amphorae from Sagalassos has included several Fabric 4 amphorae. In 15 of the 17 Fabric 4 amphorae that were analysed, residue of fatty acids was identified, while in eight cases this fatty acid could be identified more specifically as vegetable oil (Romanus et al. 2009: 904). In two examples, the vegetable oil was identified as walnut oil (Romanus et al. 2009: fig. 4). Although wine is generally regarded as one of the prime contents of amphorae, this study identified polyphenols indicative of wine residue in only two of the 31 amphorae analysed. One of them was a Fabric 4 amphora (Romanus et al. 2009: 903). At Sagalassos most amphorae seem to have contained vegetable oil. It is likely that this vegetable oil was olive oil, although this cannot be established with certainty. Amphorae in which wine was attested form only a small percentage of the assemblage. However, the analysed Fabric 4 amphorae stem from early Byzantine contexts and, therefore, represent a period after the fourth-century AD initiation of design, production and original use of these amphorae. With the Bereket amphorae we can only speculate what their contents may have been. Moreover, it is uncertain whether Bereket was the place of production of the agricultural supplies or their destination. The palynological data from the Bereket valley may shed some light on this.

Bereket pollen cores: a change in agricultural practice?

From a palynological point of view, the Bereket valley is amongst the most intensively investigated areas within the territory of Sagalassos. Within the Sagalassos Archaeological Research Project, two palynological studies have been carried out in this valley (for the locations of the pollen cores, see fig. 2) (Kaniewski et al. 2007; 2008; Bakker 2012). Both studies concern well-dated pollen records, which were collected within the former Bereket marsh at the centre of the Bereket basin. The cores of D. Kaniewski (BKT1 and BKT2 on fig. 2) provide a detailed overview of vegetation change in the vicinity of the marsh from the fourth century BC onward. Unfortunately, the C^{14} -based chronology of these two cores proved unreliable for the period after ca AD 650. Therefore, a new pollen core was collected in 2009 by J. Bakker at a location ca 70m south of the sample sites of Kaniewski (JB on fig. 2). This more recent core spans a period from ca the fifth century BC

to the 16th century AD, but shows the highest-resolution data for the period from the late Roman period onward. For both studies, the cores were collected using a 100cm-long end-filling Eijkelkamp percussion drill (diameter 7cm), although Kaniewski also used an end-filling Dachnowsky corer (length 43cm, diameter 4.3cm) where the sediments were soft enough. For further details concerning the methodology of the corings, see the original publications (Kaniewski et al. 2007; 2008; Bakker 2012; Bakker et al. 2013).

Kaniewski's pollen data suggest that the so-called Beyşehir Occupation Phase (BO-Phase), a period characterised by an increase in the amount and variety of indicators for crop cultivation and attested in large tracts of Turkey and Greece (van Zeist et al. 1975), started in this valley around 280 BC (Kaniewski et al. 2007: 2210). In general, the start of the BO-Phase is placed around 1000 BC (Bottema 1982; Bottema, Woldring 1990) and linked to a climatic amelioration which apparently occurred throughout the eastern Mediterranean. The late start of the BO-Phase at Bereket appears to follow closely the onset of the Hellenistic period in the territory of Sagalassos, which started with the conquest of the city and its territory by Alexander the Great in 333 BC. Bakker et al. (2013) therefore suggest that the onset of the BO-Phase was a direct result of the political reforms, increased importance and wealth of the city of Sagalassos and its surrounding region, rather than of any local or regional bioclimatic shift.

In the BO-Phase, a range of cultivated plants is inferred: *Cerealia*, chestnut (*Castanea sativa*), mannaash (*Fraxinus ornus*-tp), walnut (*Juglans regia*) and grape (*Vitis vinifera/sylvestris*), with traces of olive pollen (*Olea europaea*) (Kaniewski et al. 2007: 2210). This initial stage of the BO-Phase (280–40 BC) incorporates two periods of abandonment in which the natural local vegetation reappeared (Kaniewski 2007: 2210). These abandonment phases are interpreted as evidence that all cultivars were introduced by the Hellenistic inhabitants of the region (Kaniewski et al. 2007: 2210). In the subsequent phase of Kaniewski's cores, dated from ca 40 BC cal. to AD 350 cal., a high degree of anthropogenic indicators is visible, suggesting that the valley saw intensive crop cultivation during this period (Kaniewski et al. 2007: 2210). The same cultivars as before are present, albeit in greater abundance, and also include pistachio (*Pistacia atlantica*-tp), hazel (*Corylus*) and larger abundances of olive pollen. The fact that olive was present in these pollen cores is remarkable, as at present the climate in this high-altitude valley is too cold for the cultivation of olives. Today, olive trees typically occur at altitudes between 837m and 1,186m above sea level, and in the territory of Sagalassos they

occur only in small stands (Vermoere et al. 2003: 232). It is suggested that climatic conditions were more favourable for the cultivation of olives during the Roman imperial period (Vermoere et al. 2003: 219). The notion that the presence of olive pollen does not necessarily imply local olive cultivation, since it could come to the area through long-distance transport instead, has been dismissed by Eastwood et al. (1998), who state that the presence of high mountain ranges provides a barrier to long-distance pollen transport. The local production of olives is also suggested by the discovery of a counterweight from an olive (or wine) press in this valley by the Sagalassos extensive survey in 1996 (Waelkens et al. 2000b: 69, fig. 67).

In the period after AD 150 cal. and until AD 350 cal., all pollen records indicate a distinct decline in crop cultivation, albeit various cultivars seem to have disappeared at different times. Palynological data suggest that grape, which had been quite abundant, decreased, to be present in trace values only by around AD 125 cal., and disappeared completely by AD 130 cal. (Kaniewski et al. 2007: 2210). Yet other cultivated species appear to have continued longer, such as *Juglans regia*, *Castanea sativa* or *Corylus* (Kaniewski et al. 2007: 2211; Bakker 2012: 124–25; Bakker et al. 2013: 70). The exact date for the disappearance of intensive crop cultivation is impossible to establish, but, based on the recent high-resolution chronological framework of Bakker et al. (2013), it is estimated to have occurred sometime during the second half of the third century AD. Thus, the end of the BO-Phase in the Bereket valley should probably be placed somewhere around AD 300–350. This is markedly earlier than the estimates generally given for the end of the BO-Phase in the Ağlasun valley near Sagalassos (Vermoere 2004) and elsewhere in the wider region (Bakker 2012), where the BO-Phase continues until at least the mid sixth century AD. However, this early end to the BO-Phase is also observed in the nearby Gravgaz marsh (Bakker et al. 2013: 70), indicating that the underlying driving forces behind the observed shifts in land use at Bereket are not of a purely local nature.

The pollen data indicate that after the disappearance of intensive crop cultivation, open steppe and juniper/evergreen oak maquis became much more important (Bakker et al. 2013: 82). These vegetation types are often interpreted as resulting from heavy overgrazing by sheep and goats (Vermoere 2004).

The shift away from crop cultivation and towards pastoralism seems not to have been guided by a climatological need. The whole of the Roman imperial period fell in what is known as the 'Roman Warm Period' (Izdebski 2011; Bakker 2012: 84). This period contains

wetter and drier episodes and the period from ca AD 300 to 640 is generally considered to have been very wet (Bakker et al. 2012b: 258, 261). The presence of moist bioclimatic conditions prevailing after the end of the BO-Phase at Bereket is illustrated by the local occurrence of *Quercus cerris*, a species of evergreen oak characteristic of wet valley floors, in the vicinity of the sample sites of Kaniewski. With regard to the cultivation of fruit trees and perennial crops, warmer and wetter conditions are an amelioration of the climate. Climatologically, there seems to be no reason for the decline in crop cultivation, and in many parts of the Roman empire intensive crop cultivation continued or even intensified during this period (Izdebski 2011).

The apparent disappearance of fruit trees, the decrease in other cultivated species and the indications of a larger pastoral element, together with the continuation of habitation as shown by the pottery collection, suggest a shift in subsistence strategies, away from crop cultivation/arboriculture and towards pastoralism. It is, however, likely that this was a shift in focus along a continuum, with exclusive pastoralism at one end and exclusive crop cultivation at the other. It is likely that both pastoralism and cultivation were always part of the subsistence strategies of people in the region, albeit with differing levels of intensity. Exclusive pastoralism, relying only on animal products, and exclusive crop cultivation, without the use of animal products, are relatively rare among human societies, and most communities occupy a place somewhere along the continuum between the two (Cribb 1991: fig. 2.1).

As a result, the late imperial/early Byzantine people of the Bereket valley may have been reliant on the import of certain foodstuffs. The late Roman amphorae could be a case in point, used to supply foodstuffs that were not produced in the Bereket valley which were brought in to compensate for the lack of certain horticultural products, such as olive oil and wine. Although crop cultivation may have persisted, it was at such a low intensity that it does not find expression in the pollen rain. Many species of cereals produce relatively little pollen, which is also not transported over very long distances. As such, when no cereal pollen is found in the pollen record, cultivation may still have been present at longer distances from the swamp, but still within the Bereket basin. The relative source area of pollen from other species, such as cultivated trees, can be assumed to be much larger. The complete disappearance of cultivated species from multiple pollen records within the Bereket basin, coinciding with shifts in pollen indicative of specific local and regional bioclimatic conditions, can still be interpreted as signalling a profound shift in land use.

What changed in the Bereket valley?

The initial foundation of the sites of Kirselik I, II and Kavaklık can be dated to the (Late) Hellenistic period. Around the same time (ca 280 BC) the pollen data suggest the beginning of the oldest well-established human interventions in the landscape in the forms of cereal cultivation and arboriculture. The expansion of human activity into the upland Bereket valley that these data suggest, fits well with the changes in human habitation visible across the wider region. In the Hellenistic period, sites not only became more numerous, but a trend started in which sites overlooking the agricultural lands relocated from the high slopes and hilltops favoured in previous periods towards the valley plains (Vanhaverbeke 2003: 230, 242). Slipped table wares similar to those from Sagalassos and Kozluca suggest that a link between Bereket and Sagalassos existed already in the Hellenistic period. This relationship clearly intensified during the early Roman imperial period when the typical SRSW appeared in the Bereket valley. The intensive cultivation in the period between 40 BC and AD 300–350 suggested by the pollen data and archaeological remains (i.e. pottery, funerary and architectural remains) is mirrored in the settlement pattern of the entire territory of Sagalassos. The number of settlements increased markedly and sites were founded in the valleys near fertile agricultural lands (Vanhaverbeke 2003: 242, graph 10). At Sagalassos, the city grew explosively (it almost tripled in size over the course of a century) (Waelkens 2011b: 66). During the reign of Augustus and the first emperors, the élite of Sagalassos invested in architectural projects in the city, and many monuments and funerary remains in the territory can be dated to the same period (Vanhaverbeke 2003: 244–47; Waelkens 2011b: 66). The funerary and architectural remains of the Bereket valley fit this trend perfectly. The construction of the Via Sebaste around 6 BC gave the territory of Sagalassos easy access to the sea. It has been suggested that this increased accessibility contributed to a large degree to the growing importance and economic boom of the city of Sagalassos as ceramic and agricultural products could now reach a much wider market (Waelkens 2011b: 61). The period from ca 300 BC to AD 300 can thus be characterised as a period of growing economic and agricultural productivity as well as regional integration, with Sagalassos as the uncontested centre. The Bereket valley was part of this phenomenon which is identified throughout the territory.

At some point in the first-half of the fourth century the intensification of crop cultivation halted in the Bereket valley and the focus of agricultural activity shifted from crop cultivation to pastoralism. As there are no environmental reasons that can explain fully this shift, attention

should turn to potential socio-economic factors. Around the same time or slightly after the Bereket shift in agricultural strategy and the end of the BO-Phase in the valley, a ceramological shift is noted. This involves the relative proportion of SRSW, which was dominant during the early Roman imperial period, to RSW, which was dominant during the late imperial/early Byzantine period. This ceramological shift cannot be directly dated by means of absolute-dating techniques, but rather by analogy with pottery from excavated sites. The ceramological chronology of Sagalassos, which forms the basis of most comparisons, is well established; it is based on over 20 years of excavation and more than 53,500 excavated SRSW sherds (Poblome 1999). Although no specific dates can be given, the shift in predominance between SRSW and RSW seems to have occurred at some point in the late Roman period, i.e. the fourth or early fifth century AD.

The question is whether this ceramological shift reflects the amount of contact the Bereket valley had with the regional centre of Sagalassos or a change in the nature of the contact. Taken at face value, the decline in abundance of SRSW sherds in the late Roman and early Byzantine periods can easily be construed as a decline in the amount of contact with Sagalassos. As the people in the Bereket valley were possibly no longer producing marketable crops, such as olives and grapes, or olive oil and wine, the link with Sagalassos would have been lessened, as this was where they previously traded their surplus produce and procured SRSW vessels as well as other products.

Clearly, the situation is somewhat more complex. The shift from crop cultivation to pastoralism does not seem to be a forced change. Environmentally, there are no reasons to stop crop cultivation in a period when climatic conditions were becoming more favourable for this type of agricultural activity. There are, furthermore, no indications to assume a depletion of the soil. Poor river drainage resulted in continued sediment accumulation during most of the Late Holocene, which delayed soil exhaustion (Dusar 2011: 173). In the archaeological record of the Bereket valley there are no indications of a crisis that forced people to change their mode of agricultural activity. The shift from crop cultivation to pastoralism is therefore more likely to have been a change for positive reasons and might suggest a form of economic specialisation. Indeed, the high mountainous region of the Bereket valley is well suited to pastoralism. Both crop cultivation and pastoralism were probably always part of the agricultural activity of the Bereket inhabitants. It might be that by the end of the BO-Phase (at the latest and possibly already earlier), people decided, for positive reasons, to place greater emphasis

on the pastoral element of their agricultural activities. There are no signs of a crisis or decline around the end of the third century AD in the Bereket valley, which leads to the conclusion that the shift was a deliberate, rational decision.

At Sagalassos, decreased levels of pollution (lead and copper) in late Roman bones of cattle and sheep/goat suggest that these animals did not live in the polluted environment of Sagalassos (Vanhaverbeke et al. 2011a: fig. 7). This does not imply that the animals came specifically from the Bereket valley, but it does indicate that the town and its territory were integrated to a somewhat higher degree and that forms of intra-regional economic specialisation were probably in place. In the periods prior to and after the late imperial period, pollution levels in cattle and sheep/goat were higher, suggesting the provenance of consumed meat products was closer to the city (Vanhaverbeke et al. 2011a: fig. 8).

The change in proportion between SRSW and RSW might also be indicative of changes at Sagalassos. In a previous study, data distribution techniques were applied to a large, representative selection of SRSW retrieved during 20 years of the urban excavation and surveying programme at Sagalassos (Poblome et al. 2013). Without going into the detail of the methodological framework of the study, most data distribution techniques highlighted the first half of the fourth century AD as the lowest point in the production cycle of SRSW (with the lowest level of represented output). The trends in SRSW output are complementary to the general building history of Sagalassos. Architectural studies and excavations (mainly within the monumental centre) demonstrate a substantial building boom in the imperial centuries into the Severan period, as well as a thorough early Byzantine urban reorganisation, partly instigated by the introduction of Christian rituals and architecture (Waelkens 2011a). From all points of view, the first half of the fourth century AD may have been somewhat more problematic for the local community than, for instance, the 'troubles' of the third century AD. The archaeology of Sagalassos is pretty silent on this period, however. Pisidian Antioch, and not Sagalassos, was installed as the capital of Diocletian's *provincia Pisidia*. The moving of courts and magistrates to the new capital and the reduced importance of the neokoros titles with their related festivals and other (possible) urban services may have reduced the regional influence of Sagalassos (Waelkens 2011a). A newly introduced line of SRSW, the launch of the production of oinophoroi and other coroplast products, as well as the attempt at amphora production all took place from the middle of the fourth century AD onwards and might be considered as attempts to reverse the fortunes of the community (Poblome et al. 2008). Building activities

resumed by the end of the fourth century AD with the grand-scale renovation of the Imperial Baths. A little later, a new town wall was erected and churches built, heralding a new phase in urban development and the production of material culture (Waelkens 2011a). Apparently, apart from some late Roman amphorae, Bereket mostly opted out of the new Sagalassos product lines. The lower availability of SRSW vessels, especially during the first half of the fourth century AD, might have prompted the inhabitants of the Bereket valley to turn to other table ware suppliers to supplement the SRSW vessels. However, when the production at Sagalassos increased again, this did not lead to a renewed dominance of SRSW in the Bereket valley. This cannot be explained by a deficient supply or a lack of demand: the early Byzantine artisanal output at Sagalassos once more reached considerable levels and the Bereket valley inhabitants continued to use red-slipped table ware sets. Unfortunately, their new sources of table ware remain unknown. Taken together, the archaeological record of the Bereket valley does seem to indicate rational changes in economic behaviour through time, resulting in a repositioning of the local community in exchange patterns and networks.

Conclusions

The combination of intensive archaeological survey and palynological research has revealed information about the agricultural activities and regional interaction of the people of the Bereket valley that could not have been attained otherwise. During the Hellenistic and early/middle Roman imperial periods the Bereket valley followed the trend, visible throughout the territory of Sagalassos, of growing population pressure and intensification of agricultural activity (i.e. cereal cultivation and arboriculture). In this period, the city of Sagalassos assumed the role of regional political, administrative and economic centre, and its grip, even on peripheral areas, is attested by the presence of SRSW throughout its territory including the Bereket valley.

However, the growth of this type of agricultural production was halted, and somewhere in the first half of the fourth century AD a shift in agricultural activity, from crop cultivation to pastoralism, occurred, at a time when the climatic conditions for cultivation became even more favourable than in previous periods. Around the same time or slightly later, the production centre that provided the Bereket valley with red-slipped table wares shifted from Sagalassos as the principal supplier to one or more as yet unknown centres. Both shifts suggest an altered relation between the Bereket valley and the city of Sagalassos. At Sagalassos, a shift in the relationship with its territory is visible at this time, as reflected in the

decreased levels of pollution in animal bones, demonstrating that these animals were imported from areas beyond the polluted city.

The nature of this changing relationship between the peripheral Bereket valley and the centre of Sagalassos, the reasons for the abandonment of cultivation and the increase in pastoral activities in the Bereket valley, as well as the change in origin of the red-slipped table wares, cannot be determined by the study of survey material alone. Future excavations and study of material culture at Sagalassos might elucidate the changes that occurred around the late third/early fourth century AD. At the moment, it is important to note that the Bereket valley is one of the valleys within the territory of Sagalassos that diverges from the pattern of agricultural activity and settlement location typical of other parts of the territory. The decline in cultivation and the rise of pastoralism occur in other parts of the territory only during the mid seventh century AD (Bakker et al. 2012a; 2012b). However, this happened some three centuries earlier in the Bereket valley. Further study is needed to understand fully the reasons behind these changes and whether causality can be attested. However, our preliminary results indicate the importance of careful investigation of peripheral areas and the study of their relationship with centres like Sagalassos in elucidating intra-regional patterns of variation in agricultural and artisanal production and exchange.

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