

Bu kitap, Seleukeia Sidera ve yakın çevresinde 2017-2022 yılları arasında gerçekleştirilen arkeolojik yüzey arařtırmaları, kazılar ve interdisipliner arařtırmaların ilk sonuçlarını sunmaktadır. Kentin merkezini oluřturan Hisar Tepe, Demir Çađı'ndan itibaren yerleřim görmüřtür. Öncelikle Hisar Tepe üzerinde bařlayan ve Hellenistik Dönem'de devam eden yerleřim, Roma İmparatorluk Dönemi'nden itibaren tepenin etrafındaki düzlük alanlara yayılmıř ve Geç Roma İmparatorluk Dönemi'nde de devam etmiřtir.

Kentte gerekleřtirilen alıřmalar kapsamında yerleřim organizasyonu, üretim faaliyetleri ve ekonomi konularında oldukça kapsamlı verilere ulařılmıřtır. İnterdisipliner arařtırmalar sonucunda kent çevresinin antik dönem ekolojisi konusunda da önemli ön veriler sađlanmıřtır. Kitap kapsamında, alanında uzman arařtırmacılar tarafından yüzey arařtırmaları ve kazılarda aıđa ıkarılan mimari kalıntıların ve eřitli buluntuların tanıtıldıđı makalelerin yanı sıra, gerekleřtirilen jeofizik ölçümler, topođrafya alıřmaları ve arkeozoolojik incelemelerin metotları da sunulmuřtur. Ayrıca daha önce farklı yayınlarda kısmen ele alınan kent tarihi, arařtırma tarihesi ve epigrafik buluntular bir araya getirilerek Pisidia Arkeolojisi ve Seleukeia Sidera antik kenti ile ilgilenen arařtırmacıların bařvurabileceđi temel bir kaynak hazırlanması amalanmıřtır. Bu kitap, Süleyman Demirel Üniversitesi Bilimsel Arařtırma Koordinasyon Birimi'nin SBG-2022-8741 numaralı güdümlü projesi kapsamında desteklenmiřtir.



MYRINA YAYINLARI  
www.myrinayayinlari.com.tr  
info@myrinayayinlari.com.tr  
@myrinayayinlari



myrina



# SELEUKEIA SIDERA I

Overview of the Archaeological Excavations and  
Research at Seleukeia Sidera (2019-2022)

*Seleukeia Sidera Arkeolojik Kazı ve Arařtırmaları (2019-2022)*



## EDITORS/EDİTÖRLER

Bilge HÜRMÜZLÜ  
Peter TALLOEN  
Burak SÖNMEZ  
Semih TOGAN



myrina yayınları



# SELEUKEIA SIDERA I

**Overview of the Archaeological Excavations and  
Research at Seleukeia Sidera (2019-2022)**

*Seleukeia Sidera Arkeolojik Kazı ve Arařtırmaları (2019-2022)*

## EDITORS/EDİTÖRLER

Bilge HÜRMÜZLÜ  
Peter TALLOEN  
Burak SÖNMEZ  
Semih TOGAN



myrina yayınları

# SELEUKEIA SIDERA I

Bu Kitap Süleyman Demirel Üniversitesi Bilimsel Araştırma Koordinasyon Birimi'nin  
SBG-2022-8741 Numaralı Projesi Kapsamında Desteklenmiştir.

**SDÜ YAYIN NO:** 122

**ISBN:** 978-605-9454-67-4

**BİRİNCİ BASIM**

ANKARA-2023  
(200 adet basılmıştır)

## **EDITORS/EDİTÖRLER**

Bilge HÜR MÜZLÜ  
Peter TALLOEN  
Burak SÖNMEZ  
Semih TOGAN

## **KAPAK TASARIMI**

Semih TOGAN

## **KAPAK RESMİ**

Seleukeia Sidera Hisar Tepe  
(Seleukeia Sidera Kazı Arşivi)

## **BASIM VE DAĞITIM**

MYRİNA YAYINLARI  
**Sertifika No:** 52509

**Web:** [www.myrinayayinlari.com.tr](http://www.myrinayayinlari.com.tr)  
**E-posta:** [info@myrinayayinlari.com.tr](mailto:info@myrinayayinlari.com.tr)

## **SELEUKEIA SIDERA KAZISI**

**Web sayfası:** [seleukeiasiderakazilari.sdu.edu.tr](http://seleukeiasiderakazilari.sdu.edu.tr)  
**Email:** [seleukeiasidera@gmail.com](mailto:seleukeiasidera@gmail.com)  
**Instagram:** [seleukeia\\_sidera](https://www.instagram.com/seleukeia_sidera)

## İçindekiler/Contents

Önsöz/Foreword .....	v
Plate-1.....	1
Giriş/Introduction .....	3
Plate-2.....	13
The Research History of Seleukeia Sidera .....	15
<i>Bilge Hürmüzlü – Burak Sönmez</i>	
History of Seleukeia ‘Sidera’ .....	31
<i>Hüseyin Köker</i>	
Results of Geomagnetic Surveys and Evidence for Forging Activities in Seleukeia Sidera .....	51
<i>Thomas Schenk</i>	
Archaeogeophysical Investigations at Seleukeia Sidera .....	71
<i>Çağlayan Balkaya – Olcay Çakmak – Hatice Evrim Tütünsatar</i>	
Mapping the Ancient City of Seleukeia Sidera and Its Surrounding Landscape .....	89
<i>Arie Kai-Browne</i>	
The Ancient City of Seleukeia Sidera and Its Surrounding Area from A Palaeoecological Perspective .....	117
<i>Çetin Şenkul - Yasemin Ünlü - Ahmet Köse</i>	
Preliminary Report on the Theatre of Seleukeia Sidera .....	133
<i>Ahmet Mörel</i>	
Production and Economy in Seleukeia Sidera in the Roman Imperial Period: Blacksmithing Practices.....	155
<i>Bilge Hürmüzlü – Ünsal Yalçın – Semih Togan</i>	
Tracing Early Christianity with Ground Penetrating Radar: The Case of The Transept Basilica at Seleukeia Sidera.....	171
<i>Hatice Evrim Tütünsatar – Peter Talloen – Bilge Hürmüzlü</i>	
The Necropoleis and Burial Customs of Seleukeia Sidera.....	197
<i>Bilge Hürmüzlü – Lidewijde De Jong – Tamara M. Dijkstra</i>	

A Group of <i>Ostothekai</i> from Seleukeia Sidera and The Surrounding Area.....	205
<i>İbrahim Acuce</i>	
An Assessment of the Pottery Groups from Seleukeia Sidera.....	217
<i>Burak Sönmez – Bilge Hürmüzlü</i>	
Hellenistic Pottery from Seleukeia Sidera in Pisidia.....	251
<i>Mehmet Kaşka</i>	
A Preliminary Evaluation of the Oil Lamps Found at Seleukeia Sidera.....	261
<i>Murat Fırat</i>	
Terracotta Figurines of Seleukeia Sidera.....	281
<i>Peter Talloen – Özgür Perçin</i>	
The Inscriptions of Seleukeia Sidera .....	323
<i>Gülcan Kaşka</i>	
The Preliminary Archaeozoological Report of Seleukeia Sidera Ancient City .....	341
<i>Can Yümni Gündem – Sultan Sarı Ertaştan – Ebru Gündem</i>	

## ÖNSÖZ

Süleyman Demirel Üniversitesi, bölgemizde bütünleşik bir kültürel miras programı başlatan ilk üniversite olarak her zaman öncü bir rol oynamıştır. Üniversitemizin en eski bölümlerinden biri olan Arkeoloji Bölümümüz; kültürel miras yönetimi, somut olmayan kültürel miras ve etnoarkeoloji gibi konularda araştırmalara yön vererek bu bilimsel girişimin ön saflarında yer almıştır. Seleukeia Sidera Kazı ve Araştırma Projesi, antik Pisidia ya da bugünkü adıyla Göller Bölgesi'nin araştırılmasına yönelik başlıca projelerden biridir. Disiplinlerarası bir anlayışla şekillendirilen bu proje, Isparta İli Atabey İlçesi'nin sadece kültürel kalıntılarını değil, doğal çevresini ve sosyo-ekonomik yapısını da araştırmayı ve kayıt altına almayı misyon edinmiştir. Süleyman Demirel Üniversitesi'nde disiplinlerarası araştırma çok önemli bir yere sahiptir ve Seleukeia Sidera Projesi, bu yaklaşımın güçlü bir örneğini sunmaktadır. Bu nedenle hem Rektör olarak hem de arkeoloji ve kültürel mirasımıza ilgin nedeniyle Seleukeia Sidera Kazı ve Araştırma Projesinin destekçilerinden biri olmak benim için her zaman bir ayrıcalık olmuştur.

## FOREWORD

As the first university to start an integrated cultural heritage program in the region, Süleyman Demirel University has always played a leading role. Our Department of Archaeology - one of the oldest departments of the university - has been at the forefront of this scientific enterprise, guiding research in matters such as cultural heritage management, intangible cultural heritage and ethnoarchaeology. The Seleukeia Sidera Excavations and Research Project of the Archaeology Department is one of the principal archaeological projects devoted to the study of ancient Pisidia, or the Lake District (*Göller Bölgesi*) as it is known today. Through its interdisciplinary approach, this project has made it its mission to research and record not only the cultural remains, but also the natural environment, and the socio-economic structure of the Atabey District in Isparta. Interdisciplinary research is key at Süleyman Demirel University and the Seleukeia Sidera Project provides an outstanding example of this approach. It is therefore my privilege to be one of the supporters of this project, both as Rector and as a person interested in archaeology and cultural heritage.

**Prof. Dr. İlker Hüseyin ÇARIKÇI**

Rektör

Süleyman Demirel Üniversitesi

Haziran 2023, Isparta





Pl. 1



## Giriş

Antik Pisidia Bölgesi kentlerinden birisi olan Seleukeia Sidera, günümüz Isparta İli, Atabey İlçesi'ne bağlı, ilçenin 7 km güneyinde bulunan Bayat Köyü'nün (eski adı Selef) 800 m kuzeybatısındaki Hisar Tepe (deniz seviyesinden 1271 m) üzerinde konumlanır (Pl. 1). Hisar Tepe depresyonlarla ayrılmış dağlık alanlarla çevrili Kuleönü Ovası'nda, Eğirdir ve Burdur Gölleri'nin arasında yer alır (Hürmüzlü et al., 2022a, p. 210). Kentin kuzey kısmı Barla, Davras ve Karakuş Dağları ile çevrili olup güney yönünde Kuleönü Ovası'na bakar (Şenkul, 2022, p. 15), güneyinde Paleo-Kuleönü Gölü bulunur (Şenkul & Hürmüzlü, 2022). Phrygia-Pisidia sınırındaki Apollonia'nın güney ve Merkezi Pisidia'daki Sagalassos'un kuzey komşusu olan kentin, territoryumu batıda Konane ve doğuda Prostanna kentleriyle sınırlanır. Buna göre Seleukeia Sidera, Kuzey Pisidia'da merkezi bir konum üstlenir.

Araştırmalar, MÖ 8. yüzyıla tarihlendirilen ilk yerleşimin Hisar Tepe üzerinde konumlandığını gösterir. Bir Seleukos kolonisi olarak, Erken Hellenistik Dönem'de yaklaşık 8.5 ha genişliğindeki bir alanı çevreleyen dairesel bir surla tahkim edilmiştir<sup>1</sup>. Yerleşim, Geç Hellenistik Dönem'den itibaren surların dışındaki alanda da genişlemeye devam etmiş ve 47 ha genişliğe ulaşmıştır. Erken dönemler için arkeolojik verilerimiz kısıtlı olmakla birlikte, Hisar Tepe üzerindeki bazı yapılar yerleşimin ilk evrelerine tarihlendirilebilir. Örneğin tepenin doğu yamacı üzerindeki Tiyatro (Pl 2: 6)<sup>2</sup> ve Doğu Kapısı'nın yanı sıra Hisar Tepe'nin güneydoğu kısmındaki sur duvarları da Hellenistik Dönem'e tarihlendirilirler. (Pl. 2: 1,2; Bingöl, 2012, p. 461).

Roma İmparatorluk Dönemi'nin başlarından itibaren kent *Pax Romana* ile refah ve huzur ortamında büyüyerek Hisar Tepe çevresindeki düzlük alanlara yayılmıştır (Pl. 2). Kent çevresinde yapılan jeofizik çalışmaları ve arkeolojik yüzey araştırmalarının sonuçları, gelişiminin zirvesinde yerleşim sınırının yaklaşık 180 ha olduğunu gösterir (Pl. 2)<sup>3</sup>. Kent, Hisar Tepe üzerinde ve yakın çevresinde Geç Roma İmparatorluk Dönemi de dâhil olmak üzere yüzlerce yıllık bir süreçte kesintisiz ve yoğun bir yerleşime sahne olmuştur. Bu yapıların izleri hem yüzeyde izlenebilir hem de jeofizik ölçümlerin sonuçlarından takip edilebilir<sup>4</sup>. Bu çalışmalar, Roma İmparatorluk Dönemi kamu yapılarının Hisar Tepe'nin güneydoğusu ve güneyindeki yayılımını açıkça gösterir (Pl. 2: 6-8). Tiyatro yapısı Roma İmparatorluk Dönemi'nde yeniden şekillendirilmiş ve *sca-*

- 1 Erken Dönem yerleşmesi ve Hisar Tepe'deki sur duvarı için bkz. Hürmüzlü et al., 2022a.
- 2 Yapı ve kazılar hakkında detaylı bilgi için bu kitapta bkz. Mörel, Preliminary Report on the Theatre of Seleukeia Sidera.
- 3 Bu kitapta bkz. Schenk, Results of Geomagnetic Surveys and Evidence for Forging Activities in Seleukeia Sidera. R. Willet kentteki yerleşim alanının 30 ha ile sınırlı olduğunu öne sürmüştür (Willet, 2020, pp. 166-167), ancak Seleukeia Sidera'da son zamanlarda gerçekleştirilen arkeolojik ve jeofizik çalışmalar bu bilgiyi büyük oranda değiştirmiştir.
- 4 Bu kitapta bkz. Schenk, Results of Geomagnetic Surveys and Evidence for Forging Activities in Seleukeia Sidera.; Balkaya et al., Archaeo-geophysical Investigations at Seleukeia Sidera.

*enae frons*'un arka duvarına bir *nymphaeum* eklenmiştir<sup>5</sup>. Jeofizik ölçümler, Hisar Tepe'nin güneydoğusundaki ovada geniş bir alana açılan ve kentin agora'sı olarak tanımlanabilecek stoa yapısına ek olarak, bir *macellum* ya da market binasının varlığına işaret eder (Pl. 2: 8)<sup>6</sup>. Ayrıca jeofizik ölçümler, Hisar Tepe'nin güney-güneydoğu yamaçlarında ve bu kısmın önündeki düzlükte konut alanlarının geniş bir alana yayıldığı gösterir (Pl. 2: 9; Schenk, 2020, Fig. 2).

Hisar Tepe'nin kuzey ve doğu kısımlarında üç farklı Roma İmparatorluk Dönemi nekropolisi ve Hellenistik Dönem gömü grupları bulunur (Pl. 2: 13-16)<sup>7</sup>. Yoğun yüzey araştırmaları ve kazılar sonucunda, tepenin doğu yamacında saptanan yapı kompleksi kentin Geç Roma İmparatorluk Dönemi sanayi mahallesi olarak tanımlanabilir (Pl. 2: 21). Ayrıca aynı döneme ait üretim birimleri güneybatı yamaç üzerinde konumlanır (Pl. 2: 20)<sup>8</sup>. Bu dönemde kentin zengin bir imara sahne olan bölümündeki mimari çeşitlilik, üç adet transept planlı bazilikal Erken Hıristiyanlık Dönemi kilisesini içerir (Pl. 2: 10-12). Bu yapılardan ikisinin varlığı, jeofizik ölçümlerle ortaya konmuştur. Bunlardan ilki *macellum* yapısının yakınındadır (Pl. 2: 10)<sup>9</sup>, diğeri ise Hisar Tepe'nin güneybatı yamacına yaklaşık 500 m mesafede konumlanır (Pl. 2: 12). Üçüncü kilise ise, tiyatronun güneydoğusunda yer almaktadır (Pl. 2: 11).

Kentin Roma İmparatorluk Dönemi sınırları arasında en iyi bilineni güneyde, Sagalassos'un kuzey sınırı ile birleşen sınırdır, iki kent arasında başka büyük ölçekli bir kent yoktur<sup>10</sup>. Seleukeia Sidera territoryumunda Roma İmparatorluk ve Geç Roma İmparatorluk Dönemleri boyunca çok sayıda küçük ölçekli yerleşimin varlığı bilinir (Hürmüzlü et al., 2022a, pp. 222–227). Seleukeia Sidera Geç Antik Çağ'da çok sayıda konsilde temsil edilmiş olmakla birlikte, MS 10. yüzyıldan itibaren kentin adı Agrae ile birlikte anılır ve MS 11. yüzyılda *Notitia Episcopatum* listelerinden tamamen kaybolur<sup>11</sup>. Bu durum, Agrae'nin MS 11-12. yüzyıllarda piskoposluk makamını tek başına üstlendiğini, Seleukeia Sidera'nın yalnızca kent statüsünü değil, aynı zamanda bütün territoryumunu da kaybetmiş olduğunu gösteren bir işaret olarak yorumlanabilir. Böylece, Seleukeia Sidera'nın Demir Çağı'ndan Selçuklu Dönemi'ne kadar devam eden uzun yerleşim tarihi son bulmuş olmaktadır.

- 
- 5 Kamu yapıları ve konumları hakkındaki tartışma için bkz. Hürmüzlü et al., 2022a, p. 214.
  - 6 Schenk, 2020, Fig. 2–3; Hürmüzlü et al., 2022a, p. 214. Jeofizik ölçümlerin sonuçları hakkındaki tartışma için bu kitapta bkz. Schenk, Results of Geomagnetic Surveys and Evidence for Forging Activities in Seleukeia Sidera.
  - 7 Seleukeia Sidera *nekropolisleri* için, bkz. Hürmüzlü et al. 2019, pp. 386–388; Hürmüzlü et al., 2022b, pp. 343–345; Hürmüzlü et al., 2021, p. 343.
  - 8 Bu kitapta bkz. Hürmüzlü et al., Production and Economy in Seleukeia Sidera in the Roman Imperial Period Blacksmithing Practices.
  - 9 Tütünsatar, Tracing Early Christianity with Ground Penetrating Radar The Case of The Transept Basilica at Seleukeia Sidera
  - 10 Sagalassos'un territoryumları için bkz. Waelkens et al., 1997, pp. 97–102; Waelkens et al., 2000, pp. 112–14.
  - 11 *Notitia episcopatum VII*; Hürmüzlü et al., 2015; Kaşka, 2022, pp. 198–205.

Bu kitapta, kentte ve yakın çevresinde 2017-2022 yılları arasında gerçekleştirilen arkeolojik yüzey arařtırmaları, kazılar ve interdisipliner arařtırmaların ilk sonuçları sunulmuřtur. Kitap, yerleřimin tarihsel ve coęrafi çerçevesi ile bařlar: Bilge Hürmüzlü ve Burak Sönmez tarafından arařtırma tarihçesinin sunulmasının ardından, Seleukeia 'Sidera' Tarihi Hüseyin Köker tarafından tartıřılır ve bu bölümü Çetin řenkul, Yasemin Ünlü ve Ahmet Köse tarafından kent ve çevresine paleo-ekolojik yaklařımı ele alan bölüm izler<sup>12</sup>. İkincisi, kentteki jeofizik ölçümler ve topografik harita çalıřmalarının metodolojisi ve sonuçları Thomas Schenk, Çaęlayan Balkaya, Olcay Çakmak, Hatice Evrim Tütünsatar ve Arie Kai-Browne'un katkılarıyla tartıřılır.

Seleukeia Sidera'nın farklı dönemlere ait kazılmıř ve incelenmiř yapıları, takip eden bir grup yazının konusunu oluřturur. Tiyatro ve *nymphaion* yapısı Ahmet Mörel; kent merkezindeki Transept Bazilika'nın jeofizik ölçümleri ve arkeolojik yüzey arařtırmaları Hatice Evrim Tütünsatar, Peter Talloen ve Bilge Hürmüzlü; kentteki önemli Geç Antik Dönem metal üretimi ise Bilge Hürmüzlü, Ünsal Yalçın ve Semih Togan tarafından ele alınmıřtır. Bilge Hürmüzlü, Lidewijde De Jong ve Tamara M. Dijkstra nekropolisler ve buralardaki farklı gömü gelenekleri üzerine genel bir deęerlendirme sunar ve İbrahim Acuce, Seleukeia'nın gömüyle iliřkili önemli bir buluntu grubu olan ostotheklere odaklanır.

Çeřitli materyal kültür kategorileri, bir sonraki makale grubunun konularını oluřturur. Burak Sönmez ve Bilge Hürmüzlü, kentte belgelenen farklı seramik grupları üzerine genel bir deęerlendirme sunar; Mehmet Kařka ise kentte açığa çıkarılan Hellenistik Dönem seramiklerine odaklanır. Seleukeia Sidera'da terrakotta figürin üretim teknikleri, kronolojisi ve kullanımı Peter Talloen ve Özgür Perçin tarafından tartıřılır; kentteki kazılarda açığa çıkarılan farklı kandil tipleri ise Murat Fırat tarafından bölgesel formlarla karşılařtırılır. Son olarak, Gülcan Kařka ve Can Y. Gündem tarafından sunulan yazılar epigrafi ve arkeozooloji disiplinlerinin Seleukeia Sidera'da antik dönemdeki sosyo-ekonomik hayata dair bilgilerimize nasıl katkılar saęlayabileceęini vurgular.

Seleukeia Sidera Kazı ve Arařtırma Projesi, gerekli izinler ve bu bilimsel giriřimi gerçekleřtirmedeki sürekli desteęi için Kültür ve Turizm Bakanlığı, Kültür Varlıkları ve Müzeler Genel Müdürlüęü'ne teřekkürü borç bilir. Kazı ve arařtırmalarımız, farklı kurum ve kuruluşların destekleri ile mümkün olmuřtur: Süleyman Demirel Üniversitesi, Groningen Üniversitesi, Türk Tarih Kurumu (TTK), Koç Üniversitesi Suna & İnan Kıraç Akdeniz Medeniyetleri Arařtırma Merkezi (AKMED), Gerda Henkel Stiftung ve Türkiye Bilimsel ve Teknolojik Arařtırma Kurumu (TÜBİTAK)'a önemli mali destekleri için minnetlerimizi sunuyoruz. Ayrıca bu kitabın basımı ve demirci iřlięinin deęerlendirilmesi Süleyman Demirel Üniversitesi Bilimsel Arařtırma Projeleri Koordinasyon

---

12 Bu kitapta bkz. řenkul et al., The Ancient City of Seleukeia Sidera and Its Surrounding Area from A Palaeoecological Perspective.

Birimi (BAP) projesi (Proje no. SBG-2022-8741) katkısı ile mümkün olmuştur. Projemize desteklerini esirgemeyen Rektör Yardımcısı Prof. Dr. Mehmet Saltan ve Araştırma ve Yenilikçilik Direktörü Prof. Dr. Serdal Terzi'ye teşekkürü borç biliriz. Isparta Müzesi ve çalışanlarına, özellikle Müze Müdürü Mustafa Akaslan, müze uzmanları Özgür Perçin, Seher Hoşgör ve Yıldız Ölper'e, sürekli yardımları ve tavsiyeleri için teşekkürü borç biliriz. 15 yıllık süreçte Seleukeia Sidera'da çalışmış olan yüzey araştırması ve kazı ekipleri, birçok çalışmaya destek vermiştir: Başlangıçtan itibaren bizimle olan Prof. Dr. Kay Kohlmeyer Seleukeia Sidera Kazı ve Araştırma Projesi'nde birçok açıdan önemli rol oynamıştır, kendisine ve ekibine çok şey borçluyuz. Önceki yıllarda ya da mevcut ekipte görev alan araştırma ekibi üyeleri: Salih Okan Akgönül, Paulina Gezina Kalkman, Nynke Rixt Bosma, Uygur Hecebil, Meltem Ayaşan, İlkay Atav, Çağatay Çelik, Fatma Nur Güner, Mevlüt Gümüştekin, Hilal Uslu, Gurbet Kılınç, Gamze Şahin, Bekir Ergin, Ayşe Nur Kırdök, Zeynep Akalın, Berke Çilbir, Mustafa Sarışahin, Ufuk Buz, İlknur Ünsel ve Felek Özkan; başta Doç. Dr. Seda Şimşek Tolacı olmak üzere Süleyman Demirel Üniversitesi Mimarlık Fakültesi öğrencileri projenin başarılı şekilde sürdürülmesine önemli katkılarda bulundular. Hepinize çabalarınız ve desteğiniz için teşekkür ederiz.

Isparta, Haziran 2023

Editörler Kurulu

## Introduction

The ancient Pisidian city of Seleukeia Sidera is located on Hisar Tepe, a hill (1271 m a.s.l.) ca. 800 m northwest of the village of Bayat (previously Selef) in the District of Atabey, 7 km south of Isparta (Pl. 1). Hisar Tepe is located in the Kuleönü Plain between the Lakes of Eğirdir and Burdur, surrounded by mountain ranges which are separated by depressions (Hürmüzlü et al., 2022a, p. 210). The northern part of the city is surrounded by the ranges of the Barla, Davras and Karakuş Mountains and it faces the Kuleönü plain to the south (Şenkul, 2022, p. 15); a lake – the Paleo-Kuleönü Lake – was originally present to its east (Şenkul & Hürmüzlü, 2022).

As the southern neighbour of Apollonia on the Phrygian-Pisidian border and the northern neighbour of Sagalassos in the central part of Pisidia, its territory is also delimited by the cities of Konane to the west and Prostanna to the east; Seleukeia Sidera thus occupies a central location in northern Pisidia.

Research indicates that the original settlement, dating back to the 8<sup>th</sup> century BC, was located on top of Hisar Tepe. As a Seleukid colony, it was fortified with a circuit wall during the early Hellenistic period, enclosing an area of ca. 8.5 hectare<sup>13</sup>. The settlement continued to develop outside of the fortification wall from the Late Hellenistic period onwards, reaching a maximum extent of ca. 47 hectares. Although the archaeological evidence for the early periods is still limited, some structures on Hisar Tepe can be dated to original phases of the settlement. The theatre on the east slope of the hill, for example, goes back to the Hellenistic period (Pl. 2: 6)<sup>14</sup>, and the fortification walls on the southeast side of Hisar Tepe, as well as the East Gate can be attributed to this phase (Pl. 2: 1 and 2; Bingöl, 2012, p. 461).

From the beginning of the Roman Imperial period and the ensuing *Pax Romana*, the city grew in an environment of prosperity and peace, spreading into the surrounding plains (Pl. 2). The results of geophysical and archaeological surveys show a ca. 180-hectare vast settlement at the peak of its development (Pl. 2)<sup>15</sup>. The city witnessed an uninterrupted and dense settlement on Hisar Tepe and its immediate surroundings over many centuries, including the Late Roman Imperial period. Traces of these buildings are either visible on the surface or can be reconstructed from the result of geophysical measurements. These results show clearly how the public buildings of the Roman period were located to the southeast and south of Hisar Tepe (Pl. 2: 6-8). The theatre was remodelled during

---

13 For the early settlement and the fortification wall on Hisar Tepe, see Hürmüzlü et al., 2022a.

14 For details see, in this volume, Mörel, Preliminary Report on the Theatre of Seleukeia Sidera.

15 See, in this volume, Schenk, Results of Geomagnetic Surveys and Evidence for Forging Activities in Seleukeia Sidera. While R. Willet claims that the city was restricted to the 30 hectares of Hisar Tepe (Willet, 2020, pp. 166–167), both archaeological and geophysical surveys as well as excavations recently undertaken at Seleukeia Sidera have significantly modified this picture.

the Roman Imperial period and a nymphaeum was added to the back wall of the *scaenae frons*<sup>16</sup>. Geophysical survey results also indicate the presence of a *macellum* or market structure on the plain to the southeast of Hisar Tepe, as well as a stoa positioned along a large open space that can probably be identified as the city's agora (Pl. 2: 8)<sup>17</sup>. Furthermore, the geophysical measurements revealed the location of the domestic areas on the south-southeast slopes of the hill and in the plain in front of it (Pl. 2: 9; Schenk, 2020, Fig. 2).

Three different cemeteries of the Roman Imperial period and burial groups of Hellenistic period were situated on the north and east side of the Hisar Tepe (Pl. 2: 13-16)<sup>18</sup>. Intensive archaeological surveys and excavations could locate the industrial quarter of the Late Roman period on the east slope of the same hill (Pl. 2: 21), whereas contemporary small handcraft production units were present on the southwest slope (Pl. 2: 20)<sup>19</sup>. In this period, the architectural diversity of the city's built-up area is exemplified by early Christian churches, including transept basilicas (Pl. 2: 10-12). Geophysical research revealed three of latter structures: the first is located near the *macellum* (Pl 2: 10)<sup>20</sup>, while the other is built approximately 500 m to the southwest of Hisar Tepe (Pl 2: 10). The last one is located at the southeast of the theatre (Pl. 2: 11).

The borders of the Roman Imperial period are best known to the south where they join the northern border of Sagalassos, as suggested by the absence of another major city between the two<sup>21</sup>. During the Roman Imperial and Late Antique periods many smaller-sized settlements were present within the territory of Seleukeia Sidera (Hürmüzlü et al., 2022a, pp. 222-227). Although the city was represented at several ecclesiastical councils during Late Antiquity, from the 10<sup>th</sup> century onwards the name of the city was mentioned together with Agrae and disappears completely from *Notitia Episcopatum* lists in the 11<sup>th</sup> century AD<sup>22</sup>. This may indicate that Agrae solely assumed the episcopal see in the 11<sup>th</sup> – 12<sup>th</sup> centuries AD, with Seleukeia Sidera not only losing its city status, but possibly also its vast territory. In this manner, the long continuum of the settlement at Seleukeia Sidera, from the Iron Age to the Seljuk period, came to an end.

---

16 For the public buildings and the discussion on their locations also see Hürmüzlü et al., 2022a, p. 214.

17 Schenk, 2020, Fig. 2-3; Hürmüzlü et al., 2022a, p. 214. For the discussion about the results of the geophysical surveys, see, in this volume, Schenk, Results of Geomagnetic Surveys and Evidence for Forging Activities in Seleukeia Sidera.

18 For the *necropoleis* of Seleukeia Sidera, see: Hürmüzlü et al., 2019, pp. 386-388; Hürmüzlü et al., 2022b, pp. 343-345; Hürmüzlü et al., 2021, p. 343.

19 See, in this volume, Hürmüzlü et al., Production and Economy in Seleukeia Sidera in the Roman Imperial Period Blacksmithing Practices.

20 See, in this volume, Tütünsatar, Tracing Early Christianity with Ground Penetrating Radar The Case of The Transept Basilica at Seleukeia Sidera

21 For territories of Sagalassos, see: Waelkens et al., 1997, pp. 97-102; Waelkens et al., 2000, pp. 112-14.

22 *Notitia episcopatum VII*; Hürmüzlü et al., 2015; Kaşka, 2022, pp. 198-205.

The present volume contains the first results of the archaeological surveys, excavations and interdisciplinary research carried out at the site and in its immediate surroundings between 2017-2022. The book starts with the historical and geographical framework of the settlement: after a presentation of the research history by Bilge Hürmüzlü and Burak Sönmez, History of Seleukeia 'Sidera' is discussed by Hüseyin Köker, followed by a palaeo-ecological approach to the site and its environment by Çetin Şenkul, Yasemin Ünlü and Ahmet Köse<sup>23</sup>. Secondly, the methodology and results of the geophysical surveys and topographical mapping of the city are discussed in the contributions by Thomas Schenk, Çağlayan Balkaya, Olcay Çakmak, Hatice Evrim Tütünsatar and Arie Kai-Browne<sup>24</sup>.

Various excavated and investigated structures and buildings of Seleukeia Sidera from different periods make up the following group of papers: the theatre and its *scaenae frons* feature in the contribution by Ahmet Mörel; the results of the geophysical and archaeological surveys of the transept basilica in the urban centre are presented by Hatice Evrim Tütünsatar, Peter Talloen and Bilge Hürmüzlü; the important Late Antique metal production in the city is the topic of the paper by Bilge Hürmüzlü, Ünsal Yalçın and Semih Togan; Bilge Hürmüzlü, Lidewijde De Jong and Tamara M. Dijkstra provide a general overview of the *necropoleis* and the different burial customs documented there; and İbrahim Acuce concentrates on a special group of burial containers from Seleukeia, the *ostothekai*.

Several categories of material culture form the next group of contributions: Burak Sönmez and Bilge Hürmüzlü presents an overview of the different pottery groups documented at the city, while Mehmet Kaşka focusses on the Hellenistic pottery retrieved from the site. The production techniques, chronology and use of terracotta figurines found at Seleukeia Sidera are discussed by Peter Talloen and Özgür Perçin, the different types of oil lamps excavated at the site are set against regional forms by Murat Fırat. Finally, papers by Gülcan Kaşka and by Can Y. Gündem et al. highlight the ways in which the disciplines of epigraphy and archaeozoology respectively can contribute to the knowledge of socio-economic life at ancient Seleukeia Sidera.

The Seleukeia Sidera Excavation and Research Project would like to thank the General Directorate of Cultural Assets and Museums of the Ministry of Culture and Tourism for the necessary permits and its continuous support in realizing this scientific enterprise. Our excavations and research activities have been made possible by different institutions: the Süleyman Demirel University,

---

23 See, in this volume, Şenkul et al., The Ancient City of Seleukeia Sidera and Its Surrounding Area from A Palaeoecological Perspective.

24 See, in this volume, Schenk, Results of Geomagnetic Surveys and Evidence for Forging Activities in Seleukeia Sidera; Balkaya et al., Archaeo-geophysical Investigations at Seleukeia Sidera; Browne, Mapping the Ancient City of Seleukeia Sidera and its Surrounding Landscape.

Groningen University, Turkish Historical Society (TTK), Koç University Suna & İnan Kıraç Research Center for Mediterranean Civilizations (AKMED), Gerda Henkel Stiftung, and Scientific and Technological Research Council of Türkiye (TÜBİTAK) are gratefully recognized for their crucial financial support. The research of the iron workshop and publishing this book was made possible by the support of the Süleyman Demirel University Scientific Research Projects Coordination Unit (BAP) project (Project no. SBG-2022-8741). We are thankful to our Vice Rector Prof. Dr. Mehmet Saltan and Research and Innovation Director Prof. Dr. Serdal Terzi who always supported our project. We are also grateful to the Isparta Museum and its staff, especially to Director Mustafa Akaslan, specialists Özgür Perçin, Seher Hoşgör, and Yıldız Ölper for their constant help and advice. Over almost 15 years, the survey and excavation teams active at Seleukeia Sidera have witnessed different compositions: Prof. Dr. Kay Kohlmeyer, who was there from the beginning, played an important role in many aspects of Seleukeia Sidera Excavation and Research Project; we are greatly indebted to him and his team. The following former and current team members equally contributed to the success of the Project: Salih Okan Akgönül, Paulina Gezina Kalkman, Nynke Rixt Bosma, Uygur Hecebil, Meltem Ayaşan, İlkay Atav, Çağatay Çelik, Fatma Nur Güner, Mevlüt Gümüştekin, Hilal Uslu, Gurbet Kılınç, Gamze Şahin, Bekir Ergin, Ayşe Nur Kırdök, Zeynep Akalın, Berke Çilbir, Mustafa Sarışahin, Ufuk Buz, İlknur Ünsel and Felek Özkan; Assoc. Prof. Seda Şimşek Tolacı and her students from Süleyman Demirel University Faculty of Architecture students; thank you all for your efforts and support.

Isparta, June 2023

The Editorial Board

## Bibliography

Bingöl, O. (2012). Seleukeia Sidera. In O. Bingöl, A. Öztan & H. Taşkıran (Eds.), *Dil ve Tarih-Coğrafya Fakültesi 75. Yıl Armağanı Arkeoloji Bölümü Tarihçesi ve Kazıları (1936-2011) Anadolu-Anatolia* (pp. 457–470). Ankara Üniversitesi Dil Tarih ve Coğrafya Fakültesi.

Hürmüzlü, B., Kaşka, G. & Fırat, M. (2015). Geç Antik Dönem’de Konana (ó Κονάνης, Ιουστινιανούπολις). *SDÜ Fen Edebiyat Fakültesi Sosyal Bilimler Dergisi*, 36, 25–46.

Hürmüzlü, B., Köker, H., Akaslan, M., De Jong, L., Köker-Atav, İ., Mörel, A., Sönmez, B., Ayaşan, M. & Browne, A. K. (2019). Seleukeia Sidera Antik Kenti Temizlik – Düzenleme ve Ölçüm Çalışmaları. *Kazı Sonuçları Toplantısı*, 40(1), 385–396.

Hürmüzlü, B., Sönmez, B., Mörel, A. & Kaşka, G. (2021). Seleukeia Sidera’da Geç Antik Dönem Hakkında Ön Sonuçlar. *SDÜ Fen-Edebiyat Fakültesi Sosyal Bilimler Dergisi*, 54, 339–361.

Hürmüzlü, B., Sönmez, B., Mörel, A., Kılınç, G. & Uslu, H. (2022a). Paleo-Kuleönü Gölü Çevresi Antik Dönem Yerleşimleri. In Ç. Şenkul & B. Hürmüzlü (Eds.), *Doğal ve Kültürel Mirasın Paleo-Kuleönü Gölü’ndeki İzleri: 50 Bin Yıllın Öyküsü* (pp. 207–247). Süleyman Demirel Üniversitesi Yayınları.

Hürmüzlü, B., Mörel, A., Sönmez, B., Schenk, T., Browne, A. K. & De Jong, L. (2022b). Seleukeia Sidera Antik Kenti 2019-2020 Yılları Kazı, Temizlik ve Jeofizik Çalışmaları. *Kazı Sonuçları Toplantısı, 2019-2020 Yılı Kazı Çalışmaları 1*, 343–354.

Kaşka, G. (2022). Paleo-Kuleönü Gölü ve Çevresi: Tarihsel Süreç. In Ç. Şenkul & B. Hürmüzlü (Eds.), *Doğal ve Kültürel Mirasın Paleo-Kuleönü Gölü’ndeki İzleri: 50 Bin Yıllın Öyküsü* (pp. 197–205). Süleyman Demirel Üniversitesi Yayınları.

Schenk, T. (2020). Archaeologische Prospektionen in Seleukeia Sidera und der Versuch, Produktionszentren zu bestimmen. In A. Mörel, G. Kaska, H. Köker, M. Kaska, M. Fırat & S. O. Akgönül (Eds.), *Uluslararası Sempozyum Bildirileri, Pisidia Araştırmaları II, Pisidia ve Yakın Çevresinde Üretim, Ticaret ve Ekonomi* (pp. 154–165). Süleyman Demirel Üniversitesi Yayınları.

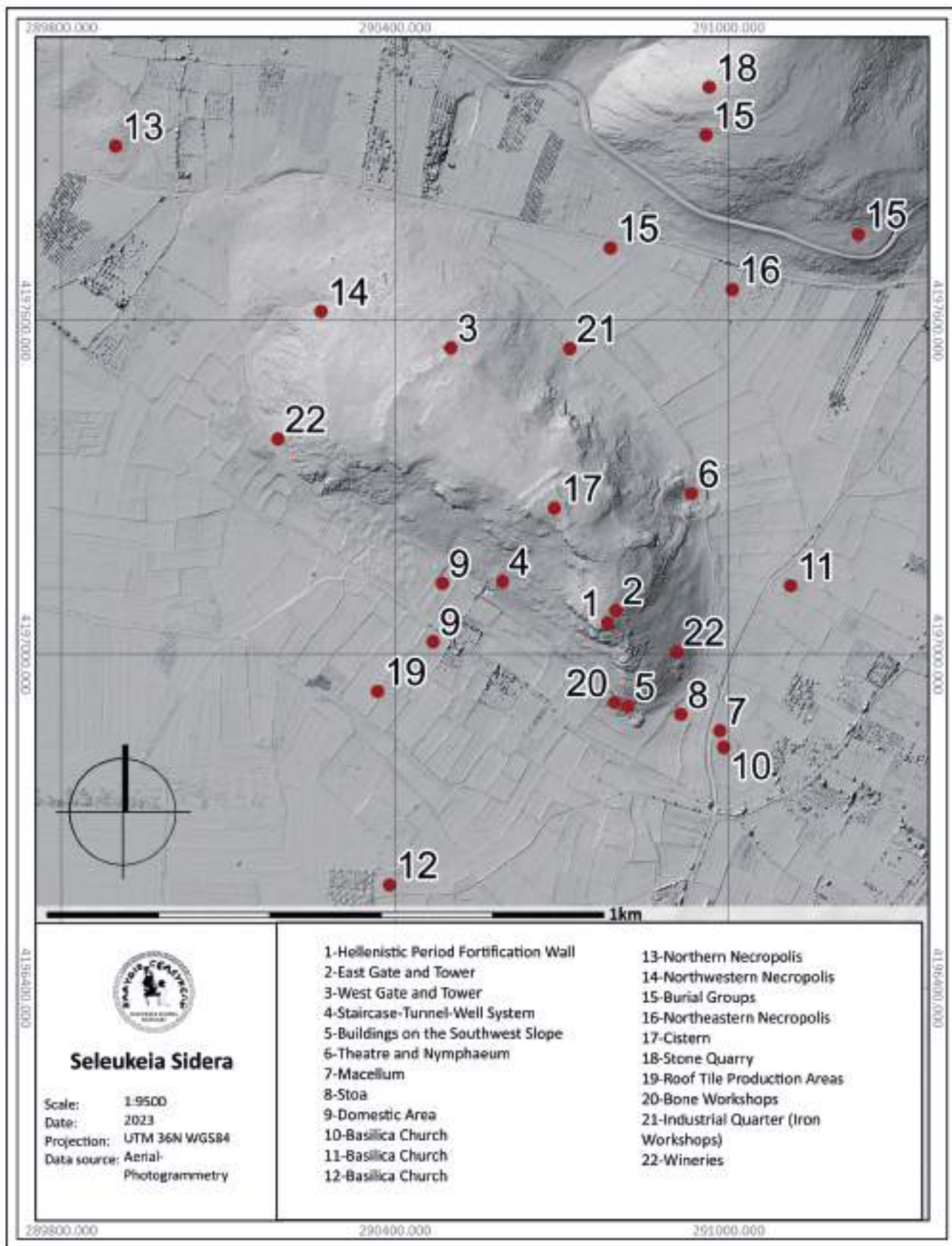
Şenkul, Ç. (2022). Zengin Topoğrafik Yapı. In Ç. Şenkul & B. Hürmüzlü (Eds.), *Doğal ve Kültürel Mirasın Paleo-Kuleönü Gölü’ndeki İzleri: 50 Bin Yıllın Öyküsü* (pp. 13–27). Süleyman Demirel Üniversitesi Yayınları.

Şenkul & Hürmüzlü, (Eds.), (2022). *Doğal ve Kültürel Mirasın Paleo-Kuleönü Gölü’ndeki İzleri 50 Bin Yıllın Öyküsü*. Süleyman Demirel Üniversitesi.

Waelkens, M., Paulissen, E., Vanhaverbeke, H., Öztürk, I., De Cupere, B., Ekinci, H. A., Vermeersch, P. M., Poblome, J. & R. Degeest (1997). The 1994 and 1995 Surveys in the Territory of Sagalassos. In M. Waelkens and J. Poblome (Eds.), *Sagalassos IV: Report on the Survey and Excavation Campaigns of 1994 and 1995* (pp. 11–102). Leuven University Press.

Waelkens, M., Paulissen, E., Vanhaverbeke, H., Reyniers, J., Poblome, J., Degeest, R., Viaene, W., Deckers, J., De Cupere, B., Van Neer, W., Ekinci, H. A. & Erbay, M. O. (2000). The 1996 and 1997 Survey Seasons at Sagalassos. In M. Waelkens and L. Loots (Eds.), *Acta Archaeologica Lovaniensia Monographiae 11/A Sagalassos V: Report on the Survey and Excavation Campaigns of 1996 and 1997, Part 1* (pp. 17–216). Leuven University Press.

Willet, R. (2020). *The Geography of Urbanism in Roman Asia Minor*. Equinox Publishing.



Pl. 2



## The Research History of Seleukeia Sidera

*Seleukeia Sidera'nın Araştırma Tarihçesi*

Bilge Hürmüzlü\* – Burak Sönmez\*\*

Seleukeia Sidera, G. Hirschfeld tarafından 1874 yılında lokalize edilmiş (Hirschfeld, 1874, pp. 312-315) ve sonrasında Kiepert tarafından 1892 ve 1902 tarafından hazırlanan haritaya eklenmiştir (Kiepert, 1908-1915). Prof. Dr. M. Özsait tarafından yerleşimin çevresinde ve ardından Isparta Arkeolojik Surveyi (IAS) ekibince kentte gerçekleştirilen arkeolojik yüzey araştırmaları, alandaki ilk arkeolojik çalışmalardır. Bu çalışmalar, Kalkolitik Dönem'den Erken Tunç Çağı'na kadarki süreçte yerleşim gören höyükler hakkında önemli bilgiler sağlamıştır (Özsait, 1986; Hürmüzlü & Gümüştakin, 2022).

Bunun dışında 2008, 2014 ve 2016-2019 yıllarında yürütülen IAS kapsamındaki çalışmalarda Seleukeia Sidera'nın çevresinde ve kent içinde genel ve yoğun yüzey araştırmaları yürütülmüştür<sup>3</sup>. Kentte gerçekleştirilen yüzey araştırmalarında Hisar Tepe'de tespit edilen MÖ 8. yüzyıla tarihlendirilen Demir Çağı seramikleri, yerleşim sürecinin en erken dönemine işaret eder (Hürmüzlü et al., 2022a, p. 212). Seleukeia Sidera'nın *territoriumu* içerisinde yer alan bazı höyüklerde yerleşimin Demir Çağ sonrasında da devam ettiği Isparta Arkeolojik Surveyi araştırmalarında tespit edilmiştir (Hürmüzlü et al., 2022a, pp. 219-227). Bu höyüklerde Hellenistik Dönem seramikleri ile nadiren veya Demirci Höyük ve Karayuğ Höyük yerleşimlerinde olduğu gibi hiç karşılaşılmamış olduğu bu araştırmalarda öne çıkan sonuçlardandır (Hürmüzlü et al., 2022a, pp. 221). Hellenistik Dönem buluntularının yokluğu, Seleukoslar Dönemi'nde bölgede uygulanan, nüfusun yeni kurulmuş olan koloniye taşındığı *synoikismos* politikasının bir etkisi olarak açıklanabilir (Hürmüzlü et al., 2020, p. 317). Yüzey araştırmalarında kentin çevresinde bulunan Demirci Höyük, Yuğ Höyük, Gündürle I Höyük, Karayuğ Höyük ve Kızıl Höyük'te Roma İmparatorluk ve Geç Roma İmparatorluk Dönemi seramikleri ele geçmesi höyüklerde yoğun yerleşmelerin tekrar başladığını gösterir<sup>4</sup>.

Yüzey araştırmaları, yerleşim şablonlarına ek olarak kentin su kaynaklarına ilişkin önemli veriler ortaya koymuştur. Kente su ulaşımının tespit edilmesine yönelik gerçekleştirilen çalışmalarda, kentin yaklaşık 3.5 km güneydoğusun-

\* Süleyman Demirel University, Faculty of Arts & Sciences, Department of Archaeology, 32260 Isparta/TR, bilgehurmuzlu@gmail.com, ORCID: 0000-0002-3676-7436.

\*\* Süleyman Demirel University, Faculty of Arts & Sciences, Department of Archaeology, 32260 Isparta/TR, burak.sonmez.988@gmail.com, ORCID: 0000-0002-2062-3913.

3 Seleukeia Sidera'da yürütülen yüzey araştırmalarının ön sonuçları için bkz. Hürmüzlü, 2008, pp. 12-13; Köker 2016; Hürmüzlü et al., 2018; Hürmüzlü et al., 2017a; 2019a; 2020.

4 Hürmüzlü et al., 2019a, pp. 345-346; 2020, p. 317; 2022a, pp. 225-226.

da, Taşkemer Mevkii Büyükkemer Ovası'nda iki *aqueduct* ayağı tespit edilmiştir (Hürmüzlü et al., 2019a, p. 344).

Arkeolojik yüzey araştırmaları ve jeofizik ölçüm çalışmaları yerleşmenin planlamasına ilişkin önemli veriler sunmuştur (Hürmüzlü et al., 2022a, p. 214)<sup>5</sup>. Bu araştırmalar, yerleşim alanlarının tepeden düzlük alanlara doğru genişlediğine işaret eder (Hürmüzlü et al., 2021, pp. 341 and 355; 2022a, p. 214). Kentin yayıldığı alanlar, çok sayıda kamu yapısı ve mekânını içerir. Kentin güney kısmında tespit edilen *macellum* (Pl. 2: 7), dükkân ve atölyeler bu alanın kamusal toplanma alanı veya agora (Pl. 2: 8) olarak kullanıldığını gösterir<sup>6</sup>. Jeofizik ölçümler, aşağı kentte plan özelliklerine dayanarak büyük olasılıkla Geç Antik Dönem'e ait iki adet bazilikal planlı kilise yapısının (Pl. 10 ve 11) varlığını ortaya koymuştur<sup>7</sup>.

Kent içerisinde yürütülen yüzey araştırmalarında jeofizik ölçümlerle desteklenen araştırmalar, Aşağı Kent'de önemli bir demircilik faaliyetinin varlığını ortaya koymuştur<sup>8</sup>. Gerçekleştirilen yoğun survey çalışmaları ayrıca üretim artıklarının varlığıyla anlaşılan seramik ve cam üretimine dair veriler sunmuştur (Hürmüzlü et al., 2017b, pp. 236-238, Fig. 6; Hürmüzlü et al., 2018, p. 247). Seramik üretimi, arkeometrik analizlerle desteklenen araştırmaların odağını oluşturur<sup>9</sup>. Roma İmparatorluk ve Geç Roma İmparatorluk Dönemleri'ndeki seramik üretimini anlamak amacıyla tipolojik ve kronolojik incelemelere ek olarak petrografik ince kesit, XRF ve XRD analizleri gerçekleştirilmiştir (Hürmüzlü et al., 2022b, pp. 346-347)<sup>10</sup>. Analiz çalışmaları kentte ele geçen Geç Roma İmparatorluk Dönemi kırmızı astarlı seramikler arasında bir grubun Seleukeia Sidera veya çevresinde bulunan başka bir merkezde üretildiğini göstermiştir<sup>11</sup>. Çalışmalarda ele geçen hatalı üretim örnekleri ve analiz sonuçları, *unguentarium*<sup>12</sup> ve çatı kiremidi (Hürmüzlü et al., 2020, pp. 142-143; Hürmüzlü et al., 2022a, p. 215) üretimine yönelik veriler sunar. Son dönem çalışmalarında seramik buluntular üzerine yapılan araştırmaların öncesinde, 1993 yılı kazısı seramik buluntuları, E. Lafli tarafından çalışılmıştır<sup>13</sup>.

5 Bu kitapta bkz. Schenk, Results of Geomagnetic Surveys and Evidence for Forging Activities in Seleukeia Sidera; Balkaya et al., Archaeo-geophysical Investigations at Seleukeia Sidera.

6 Schenk et al., 2019, p. 107; Schenk, 2020, p. 157; Hürmüzlü et al., 2022a, p. 214.

7 Schenk et al., 2019, Fig. 3; Schenk, 2020, p. 156, Fig. 3; Hürmüzlü et al., 2021, p. 341, Harita 1 ve 2; 2022a, 216; Bu kitapta bkz. Tütünsatar et al., Tracing Early Christianity with Ground Penetrating Radar: The Case of The Transept Basilica at Seleukeia Sidera.

8 Bu kitapta bkz. Hürmüzlü et al., Production and Economy in Seleukeia Sidera in the Roman Imperial Period: Blacksmithing Practices.

9 Seramik üretimine ilişkin araştırmalar Burak Sönmez tarafından doktora tezi kapsamında detaylı olarak yürütülmüştür, bkz. Hürmüzlü & Sönmez, 2021; Sönmez, 2022; Sönmez, 2023.

10 Bu kitapta bkz. Sönmez & Hürmüzlü, An Assessment of the Pottery Groups from Seleukeia Sidera.

11 Hürmüzlü & Sönmez 2021; Sönmez, 2022; Sönmez, 2023.

12 Hürmüzlü et al., 2021, p. 344; 2022a, p. 215; Sönmez, 2022, p. 248.

13 Bkz. Lafli, 1996; Lafli, 1999a; Lafli, 1999b; Lafli, 2000; Lafli, 2004.

Kentin sikkeleri bir katalog halinde Aulock tarafından derlenmiş ve önemli bir corpus oluşturulmuştur (Aulock, 1979). Bu çalışmanın ardından 2016 yılından itibaren kentin sikkelerine ilişkin çalışmalar Hüseyin Köker ve ekibi tarafından yürütülmeye başlanmıştır (Köker, 2016; Tütüncü & Köker, 2022). Bu son dönem çalışmalarında kentin tarihi, ekonomisi ve kültürleri bakımından sikkeler detaylı olarak ele alınmaktadır.

Prof. Dr. Thomas Schenk ve ekibi tarafından (HTW Berlin) 2017 ve 2018 yıllarında gerçekleştirilen jeofizik ölçümler, kent planını ve demircilik faaliyetlerini anlamaya yönelik olarak sürdürülmüştür<sup>14</sup>. Kentte geniş ve uzun caddeler ve bu caddeler ile kesişen kısa ve dar yollar tespit edilmiştir<sup>15</sup>. Bunun dışında yollar etrafında yoğunluk gösteren farklı kronolojik evrelere tarihlendirilebilecek yapı alanları tespit edilmiştir (Hürmüzlü et al., 2017b, p. 238, Fig. 5; Schenk et al., 2019, pp. 107-108). Jeofizik ölçümler bu alanlarda gerçekleştirilen yoğun yüzey araştırmalarında saptanan metalurjik buluntular ile bir arada değerlendirildiğinde, kentteki demir üretimi hakkında oldukça değerli veriler sunmuştur<sup>16</sup>. Bu çalışmaların sonucunda, Arie Kai-Browne (HTW Berlin) 2016-2019 yılları arasında kentin topografik planını tamamlamıştır (Hürmüzlü et al., 2019b, p. 386).

Kent içinde yürütülen yüzey araştırmalarında 2008 yılında Kuzeydoğu Nekropolisi tespit edilmiştir. Kentin bilinen diğer iki nekropolisinden farklı olarak bu nekropolis kayalık bir alanda değil düzlüktedir ve yüzey araştırmalarında lahit ve osthok parçaları ele geçmiştir.

Kentte ilk arkeolojik kazılar 1985-1987 yılları arasında Isparta Müzesi başkanlığında tiyatro yapısında gerçekleştirilmiştir (Kaya, 1999a, p. 164; Kaya, 1999b). Bu yıllardaki çalışmalarda ve 2021-2022 yıllarında tiyatrodaki gerçekleştirilen kazı çalışmalarında *scaenae frons*'a entegre olarak yapılmış *nymphaeum* yapısı (Pl. 2: 6) açığa çıkarılmıştır (Hürmüzlü et al., 2022a, p. 213)<sup>17</sup>. D. Kaya tarafından yürütülen kazılarda *scaenae frons*'ta tespit edilen yangınla ilişkili tabaka, tiyatrodaki Hellenistik Dönem'e ait ahşap bir strüktürün varlığını gösterir (Kaya, 1999a, p. 169, Abb. 4; Alp, 2006, pp. 114-115). Bugün korunan taş yapının mimari bezeme ve plan özellikleri ise MS 2. yüzyıl sonu-3. yüzyıl başları arasında inşa edildiğine işaret etmektedir (Kaya, 1999a, p. 169; Hürmüzlü et al., 2022a, p. 214). Tiyatronun mimari parçalarını doktora tezi kapsamında çalışan O. Alp tarafından mimari elemanlar stilistik ve kronolojik olarak değerlendirilmiştir (Alp, 2006).

---

14 Hürmüzlü et al., 2017b, pp. 238-240; Hürmüzlü et al., 2019b; Schenk et al., 2018, p. 67; Schenk et al., 2019; Hürmüzlü et al., 2019b; Tütüncü et al., 2020; Schenk, 2020; Hürmüzlü et al., 2020, pp. 143-144. Bu kitapta bkz. Schenk, Results of Geomagnetic Surveys and Evidence for Forging Activities in Seleukeia Sidera.

15 Tütüncü et al., 2020, p. 297; Tütüncü et al., 2022, p. 50.

16 Hürmüzlü et al., 2017b, p. 240, Fig. 7; Schenk et al., 2018, pp. 67-69; Hürmüzlü et al., 2020, pp. 143-144; Hürmüzlü et al. 2022a, p. 215.

17 Bu kitapta bkz. Mörel, Preliminary Report on the Theatre of Seleukeia Sidera.

1993 yılında yine Isparta Müzesi başkanlığında, Prof. Dr. Orhan Bingöl'ün bilimsel danışmanlığında kentin farklı alanlarında geniş çaplı kazılar yapılmıştır (Bingöl, 1994; Bingöl, 2012). Kentin Güneybatı Yamacı yapıları (Pl. 2: 5), Tiyatro (Pl. 2: 6) ve Kuzeybatı Nekropolis alanı (Pl. 2: 14) bu dönem kazılarında büyük oranda açığa çıkarılmıştır. Güneybatı Yamacı yapıları 1993 yılı çalışmalarında "Hatıllı Güney Terası" olarak adlandırılmıştır. Hatıllı Güney Teras'ın doğusunda anakaya üzerine birbirine paralel on yuvanın yer aldığı kirişli yapı, batısında ise anakayanın işlenmesi ile oluşturulmuş farklı boyutlarda dokuz mekânda çalışmalar gerçekleştirilmiştir. Hatıllı Güney Teras ele geçen seramikler doğrultusunda MS 2-7. yüzyıl aralığına tarihlendirilmiştir (Bingöl, 1994, p. 50). Açığa çıkarılan mekân 1, 2 ve 8'de işlenmiş kemikler ile ilişkilendirilebilecek büyük boyutlu hayvan kemikleri ele geçmiştir. Kemik buluntular işlenmemiş, kısmen işlenmiş ve kesilmiş kemiklerden oluşmaktadır (Hürmüzlü, 2020; Hürmüzlü et al., 2022a, p. 214). Kazı notları ve müzede korunan buluntulardan hareketle değerlendirilen atölyenin (Pl. 2: 20) MS 5-6. yüzyıllarda kemik obje üreten bir atölye olduğu anlaşılmıştır (Hürmüzlü, 2020, p. 272).

1993 yılı çalışmalarında ayrıca Hatıllı Güney Teras'ın batısındaki mekânların güneyinde ve daha alt seviyede bulunan bir oval yapıda (Pl. 2: 5) çalışmalar gerçekleştirilmiştir. Yapıda ele geçen buluntular doğrultusunda MS 4-6. yüzyıllar arasına tarihlendirilmiştir (Bingöl, 1994, p. 52), ancak kronoloji ve işlevini anlayabilmek için çalışmalara devam edilmesi gereklidir. Bu alanların yanı sıra Hisar Tepe Doğu Kapısı (Pl. 2: 2), Doğu Yamacı Yapısı, Merdiven-Tünel-Kuyu Sistemi (Pl. 2: 4) ve Podyumlu Yapı'da çalışmalar gerçekleştirilmiştir (Bingöl, 1994, pp. 52-55; Bingöl, 2012, pp. 461-467).

Süleyman Demirel Üniversitesi adına, Isparta Müzesi başkanlığında ve Prof. Dr. Bilge Hürmüzlü akademik danışmanlığında 2017 ve 2018 yıllarında yürütülen çalışmalarda kentin ölü gömme geleneklerinin anlaşılmasına dönük çalışmalar gerçekleştirilmiştir. Kentte nekropolis alanlarına yönelik gerçekleştirilen çalışmalarda nekropolis alanları (Pl. 2: 13 ve 14, 16) haritalandırılmış ve topografik plana işlenmiştir<sup>18</sup>. Kuzeybatı Nekropolis'te (Pl. 2: 14) Dr. Lidewijde De Jong ve ekibi (Groningen Üniversitesi, Arkeoloji Bölümü) ile birlikte geniş çaplı temizlik çalışmaları yürütülmüş ve mezarların plan çizimlerinin tamamlanmıştır (Hürmüzlü et al., 2019b, p. 388).

2018 yılında yürütülen çalışmaların bir ayağını kentin tarımsal üretim ve donanımlarının anlaşılmasına dönük araştırmalar oluşturur. Hisar Tepe'nin nekropolis alanı olarak kullanılan kuzeybatı yamacı haricindeki yamaçlarında çok sayıda şarap presi tespit edilmiştir (Pl. 2: 22)<sup>19</sup>. Daha sonraki yıllarda kazı çalışmaları gerçekleştirilen Pres 1 ve Pres 7'de açığa çıkarılan MS 4-6. yüzyıllar

---

18 Hürmüzlü et al., 2019b, p. 387; Hürmüzlü et al., 2021, p. 343, Harita 1; Hürmüzlü et al., 2022a, p. 217.

19 Mörel, 2020, p. 51; Hürmüzlü et al., 2021, p. 343; Hürmüzlü et al., 2022a, p. 215; Hürmüzlü et al., 2022b, p. 345.

arası buluntuları, bu düzenlemelerin Geç Antik Çağ'a ait olduğuna işaret eder (Hürmüzlü et al., 2021, p. 343).

2019 yılından itibaren Prof. Dr. Bilge Hürmüzlü ve ekibi tarafından başlatılan sistematik kazılar disiplinler arası ve uluslararası bir ekiple yürütülmektedir<sup>20</sup>. Çalışmaların amacı Seleukeia Sidera ve konumlandığı Kuleönü Ovası'nun tarihsel süreçte insan ve çevre ilişkisi anlaşılabilir, yerleşimin Demir Çağ'da günümüze dek yerleşim hiyerarşisi, sosyo-ekonomik yapısı, gömü gelenekleri, ekonomisi ve üretimi hakkında tam bir resim elde etmektir.

2020 yılında Prof. Dr. Çağlayan Balkaya başkanlığında başlayan jeofizik çalışmalarında elde edilen önemli bir veri, Hisar Tepe'nin güney yamacının konut alanlarına ayrılmış olduğunun anlaşılmasıdır (Tütünsatar et al., 2022, p. 50; Hürmüzlü et al., 2022b, p. 346). Ayrıca, eski dönem kazılarında tespit edilen Tiyatro'nun *scaenae frons*'una entegre *nymphaeum* yapısının ön bölümünde gerçekleştirilen çalışmalarda havuza ait olabilecek duvar kalıntıları ile karşılaşılmıştır (Hürmüzlü et al., 2022b, p. 346). *Scaenae frons*'ta jeofizik çalışmalarının yanı sıra fotogrametri ve 3D taramaları gerçekleştirilmiş ve kent planına işlenmiştir (Hürmüzlü et al., 2019b, p. 387, Resim 2).

Kentte kazı çalışmalarının yanı sıra 2020 yılında kültürel miras alanlarının korunmasına yönelik olarak kültürel peyzajın topluma sunumunun önemi dikkate alınarak alan yönetimi ve konservasyon planlamaları başlatılmıştır. Arkeolojik alanların yönetiminin sürdürülebilir olması amacı ile koruma kararlarının kazı ve araştırma kararlarını biçimlendiren bir ölçüt olarak çalışmalara yön vermesi ve koruma uzmanlarının planlama süreçlerinde yer almasına önem verilmiştir. Bu ilkedan hareketle Seleukeia Sidera antik kenti belgeleme, analiz ve koruma çalışmaları, kalıntıların sistemli ve sürdürülebilir biçimde korunarak topluma sunulması amacıyla planlanmış ve uygulanmaya başlamıştır. Antalya Kültür Varlıklarını Koruma Bölge Kurulu'na sunulan ve onaylanan "*Seleukeia Sidera Kazısı Mimari Koruma İlkelerinin Belirlenmesi ve Mimari Kalıntıların Konservasyonu Hakkında Rapor*" çerçevesinde koruma ilkeleri ve yöntemleriyle birlikte yapılardaki bozulma biçimleri ve süreçleri değerlendirilerek öncelikli alanlar belirlenmiştir<sup>21</sup>. Bu doğrultuda 2021 yılından itibaren mimari konservasyon ve basit onarım çalışmaları yürütülmektedir. Konservasyon uygulamalarına 1993 yılında açığa çıkarılan ve uzun süre açıkta kalan Tiyatro'nun *scaenae frons*'u ve halihazırda kazıları devam eden demirci işliğinde başlanmıştır. Bu çalışmalar kültürel mirasın korunması amacıyla, uluslararası ilkeler doğrultusunda ve bilimsel verilere dayanarak yürütülmüştür. Bu bağlamda ilk olarak arkeometri tabanlı kültürel miras koruma araştırmalarına başlanmış, yapı malzemelerinin, malzeme bozulmalarının ve bozulmaya yol açan etmenlerin belirlenmesi amaç-

---

20 URL 1

21 Bu rapor Türk Tarih Kurumu Başkanlığı'nın sağladığı destek ile Y. Mimar Restorasyon Uzmanı Göze ÜNER ve uzman arkeologlar tarafından hazırlanmıştır.

lanmıştır<sup>22</sup>. Yapı malzemelerinin fiziksel ve kimyasal özelliklerinin belirlenmesi; yapılarda mikro-iklim verilerinin tespit edilmesi ve analizlerinin yapılması hedeflenmiştir. Ayrıca yapıda kullanılan harçların, dayanıklılık ve tuz testlerinin yapılarak, analiz sonuçlarına göre uygun koruma malzemesi ve yöntemi önerisi üzerinde çalışılmıştır.

Seleukeia Sidera çevresinin Antik Dönem'deki ekolojisinin anlaşılması amacıyla, kentin, kıyısında yer aldığı Paleo-Kuleönü Gölü'nde araştırmalar yürütülmektedir. Paleoekolojik yapının kurgulanabilmesi için gölsel ortamlarda çalışılmaktadır. Bu çalışmalarla paleo-vegetasyon, paleo-arazi kullanımı ve paleo-iklim ile insan faktöründen kaynaklanan etkiler gibi uzun vadeli çevresel değişimlerin incelenmesi mümkün olmaktadır. Seleukeia Sidera antik kenti Paleoekoloji çalışmaları, Süleyman Demirel Üniversitesi Anadolu Kuvaterner Uygulama ve Araştırma Merkezi işbirliği ile yapılmaktadır. Bu amaç doğrultusunda Doç. Dr. Çetin Şenkul başkanlığında 2022 yılında tamamlanan ve bir kitapla bilim dünyasına tanıtılan Paleo-Kuleönü Gölü'nün tespiti kentin çevresi ile birlikte birçok açıdan anlaşılmasını sağlaması bakımından önemli bir sonuç olmuştur. Kentin ve çevresinin zengin jeomorfolojik yapısı ve çeşitli coğrafi unsurları ile ele alındığı bu kitap ve proje, Seleukeia Sidera'da insan ve çevre ilişkisini kapsamlı olarak değerlendiren ilk çalışma olmuştur (Şenkul et al., 2022).

Seleukeia Sidera Kazı ve Araştırmaları, kazı çalışmalarının yanında yüzey araştırma yöntemleri, jeofizik, arkeometalurji, seramik arkeometrisi, arkeozooloji gibi disiplinlerarası çalışmaların yanı sıra antik kentin bulunduğu bölgede Somut Olmayan Kültürel Miras araştırmaları ve sözlü tarih çalışmaları da yürütmektedir. Kültürel mirasın bütüncül bir yaklaşımla kapsayıcı olarak ele alınması projemizin en önemli hedefidir. Bu nedenle çalışmalarımızın bir bölümü olarak, özellikle Atabey İlçesi başta olmak üzere Gönen İlçesi gibi komşu İlçelerde Somut Olmayan Kültürel Miras unsurları derlenmekte ve kayıt altına alınmaktadır. Somut ve somut olmayan miras öğeleri ve kullanım biçimleriyle kültürel peyzajlar, kendilerini biçimlendiren toplumların değerlerine ışık tutarak kültürel miras hazinelerimizin tamamını oluşturur. Bu çalışmalarla aynı zamanda kültürel antropolojik açıdan antik dönem yaşam unsurlarına da önemli katkılar sağlayan verilerin derlenmesi mümkün olmaktadır<sup>23</sup>.

---

22 Analizler Ticemlabs İstanbul Malzeme ve Koruma Laboratuvarı tarafından Doç. Dr. Işıl Polat Pekmezci danışmanlığında gerçekleştirilmiştir. Kendilerine teşekkürlerimizi sunarız.

23 Bu kapsamda yapılan çalışmalar için bkz. Şimşek Tolacı & Hürmüzlü 2020; URL 2.

The ancient city of Seleukeia Sidera was first localized by G. Hirschfeld in 1874 (Hirschfeld, 1874, pp. 312-315) and later added to the map by Kiepert in 1892 and 1902 (Kiepert, 1908-1915). Archaeological surveys conducted around the settlement by Prof. Dr. M. Özsait, which were later continued by the Isparta Archaeological Survey (IAS) team, are the first archaeological investigations in the study area of the site; they yielded important information about the mound settlements or *höyüks* which were occupied from the Chalcolithic to Iron Age period (Özsait, 1986; Hürmüzlü & Gümüştekin, 2022).

Furthermore, both extensive and intensive surveys were carried out around Seleukeia Sidera and inside the city by the Isparta Archaeological Survey (IAS) team in 2008, 2014 and 2016-2019<sup>24</sup>. Iron Age pottery of the 8<sup>th</sup> century BC, found during these surveys on the hill of Hisar Tepe at the core of the ancient city, indicate the earliest period of settlement in the city itself (Hürmüzlü et al., 2022a, p. 212). The continuity of the settlement after Iron Age in some mounds in the territory of Seleukeia Sidera have been confirmed as the result of the Isparta Archaeological Survey Project (Hürmüzlü et al., 2022a, pp. 219-227). It should be stressed that pottery of the Hellenistic period was rarely encountered on these mounds located in the territory of the city and was even completely absent in some of these settlements such as Demirci Höyük and Karayuğ Höyük (Hürmüzlü et al., 2022a, pp. 221). This lack of Hellenistic finds may be the result of a synoikismos policy applied in the region during the Seleukid period, which would have drawn all population groups to the newly founded colony (Hürmüzlü et al., 2020, p. 317). The discovery of Roman Imperial and Late Roman period pottery on the mounds in the territory (f.i. Demirci Höyük, Yuğ Höyük, Gündürle I Höyük, Karayuğ Höyük and Kızıl Höyük) indicate the resumption of settlement on the *höyüks* during these periods<sup>25</sup>.

In addition to this settlement pattern, the archaeological surveys also provided data on the city's water resources. During the study of the water supply of Seleukeia Sidera, two *aqueduct* pillars were identified in the Büyükkemer Plain of Taşkemer, approximately 3.5 km southeast of the city (Hürmüzlü et al., 2019a, p. 344).

The archaeological surveys and geophysical prospections also yielded data on the planning of the settlement (Hürmüzlü et al., 2022a, p. 214)<sup>26</sup>. They indicate that the settlement area of the city expanded from the hill at its core towards the flat areas surrounding it (Hürmüzlü et al., 2021, pp. 341 and 355; 2022a, p. 214). These extensions also included numerous public buildings and

---

24 See, in this volume, Mörel, For preliminary results of the surveys carried out at Seleukeia Sidera, see: Hürmüzlü, 2008, pp. 12-13; Köker 2016; Hürmüzlü et al., 2018; Hürmüzlü et al., 2017a; 2019a; 2020.

25 Hürmüzlü et al., 2019a, pp. 345-346; 2020, p. 317; 2022a, pp. 225-226.

26 See, in this volume, Schenk, Results of Geomagnetic Surveys and Evidence for Forging Activities in Seleukeia Sidera; Balkaya et al., Archaeo-geophysical Investigations at Seleukeia Sidera.

spaces: the *macellum* (Pl. 2: 7), shops and workshops identified in the southern part of the city indicate that this area was organised as a public gathering space or agora (Pl. 2: 8)<sup>27</sup>. The geophysical prospections also revealed two basilica-type churches in the lower city, which can most probably be dated to the Late Antique period on the basis of their plan<sup>28</sup>.

Another major discovery of the archaeological surveys, supported by geophysical measurements, was the presence of an important blacksmithing activity in the lower city<sup>29</sup>. The intensive survey of the area also revealed traces of pottery and glass production in the form of production waste (Hürmüzlü et al., 2017b, pp. 236-238, Fig. 6; Hürmüzlü et al., 2018, p. 247). Pottery production in particular became a focus of research<sup>30</sup>, supported by archaeometrical analyses: petrographic analyses of thin sections, as well as XRF and XRD analyses were executed in addition to the typo-chronological studies to characterize the pottery production during the Roman Imperial and Late Roman periods (Hürmüzlü et al., 2022b, pp. 346-347)<sup>31</sup>. They revealed that a group of red slipped pottery from the Late Roman period found in the city were produced either in Seleukeia Sidera or another centre located in its immediate vicinity<sup>32</sup>. Misfired fragments which found during the studies and the results of archaeometrical analyzes provide information about *unguentaria*<sup>33</sup> and roof tile production (Hürmüzlü et al., 2020, pp. 142-143; Hürmüzlü et al., 2022a, p. 215). Prior to the research carried out by our team on the pottery in last years, the ceramic finds from the 1993 excavation were studied by E. Lafli<sup>34</sup>.

The coins of the city were collected in a catalogue by Aulock and an important corpus was formed (Aulock, 1979). After this study, reserach on the coins of the city started to be carried out by Hüseyin Köker and his team since 2016 (Köker, 2016; Tütüncü & Köker, 2022). In these recent studies, coins are discussed in detail in terms of the city's history, economy and cult.

The geophysical prospections of 2017 and 2018 conducted by Prof. Dr. Thomas Schenk and his team (HTW Berlin) were aimed at understanding the

---

27 Schenk et al., 2019, p. 107; Schenk, 2020, p. 157; Hürmüzlü et al., 2022a, p. 214.

28 Schenk et al., 2019, Fig. 3; Schenk, 2020, p. 156, Fig. 3; Hürmüzlü et al., 2021, p. 341, Map 1 and 2; 2022a, p. 216; See, in this volume, Tütüncü et al., Tracing Early Christianity with Ground Penetrating Radar: The Case of The Transept Basilica at Seleukeia Sidera.

29 See, in this volume, Hürmüzlü et al., Production and Economy in Seleukeia Sidera in the Roman Imperial Period: Blacksmithing Practices.

30 Research on pottery production was carried out in detail by Burak Sönmez within the scope of his doctoral thesis, see: Hürmüzlü & Sönmez, 2021; Sönmez, 2022; Sönmez, 2023.

31 See, in this volume, Sönmez & Hürmüzlü, An Assessment of the Pottery Groups from Seleukeia Sidera.

32 Hürmüzlü & Sönmez, 2021; Sönmez, 2022; Sönmez, 2023.

33 Hürmüzlü et al., 2021, p. 344; 2022a, p. 215; Sönmez, 2022, p. 248.

34 Lafli, 1996; Lafli, 1999a; Lafli, 1999b; Lafli, 2000; Lafli, 2004.

city plan and detecting blacksmithing activities<sup>35</sup>. Wide and long avenues, as well as short and narrow streets intersecting with these avenues have been identified<sup>36</sup>. Apart from this, dense built-up areas along these streets, belonging to different chronological phases could be determined (Hürmüzlü et al., 2017b, p. 238, Fig. 5; Schenk et al., 2019, pp. 107-108). In combination with the metallurgical finds made during the intensive archaeological surveys in these areas, the geophysical surveys were also crucial for the characterization of the iron production in the city<sup>37</sup>. As a result of these studies, Arie Kai-Browne (HTW Berlin) could establish and complete the topographical plan of the city between 2016 and 2019 (Hürmüzlü et al., 2019b, p. 386).

The archaeological survey of 2008 identified the Northeast Necropolis of Seleukeia Sidera. Unlike the other two known *necropoleis* of the city, this burial area is not situated in a rocky area but in a flat area; fragments of *sarcophagi* and *ostothekai* were found.

The first archaeological excavations in the city were carried out between 1985 and 1987 at the local theatre, under the authority of the Isparta Museum (Kaya, 1999a, p. 164; Kaya, 1999b). The *scaenae frons* and the *nymphaeum* (Pl. 2: 6) or fountain building constructed against it, were already partly excavated at this time, excavations which continued in 2021-2022 (Hürmüzlü et al., 2022a, p. 213)<sup>38</sup>. A fire-related deposit detected in the area of the stage building during the excavations carried out by D. Kaya indicates the existence of a wooden structure as part of the theatre dating to the Hellenistic period (Kaya 1999a, 169, Fig. 4; Alp 2006, 114-115). The architectural decoration and plan features of the stone theatre structure built on top indicate that it was constructed during the late 2<sup>nd</sup>-early 3<sup>rd</sup> century AD (Kaya, 1999a, p. 169, Abb. 4; Alp, 2006, pp. 114-115). The architectural elements of the theatre were evaluated stylistically and chronologically by O. Alp within the scope of his doctoral thesis (Alp, 2006).

In 1993, again under the authority of the Isparta Museum and with the scientific guidance of Prof. Dr. Orhan Bingöl, excavations were carried out in different areas of Seleukeia Sidera (Bingöl, 1994; Bingöl, 2012). The so-called Southwest Slope Structures (Pl. 2: 5), the theatre (Pl. 2: 6) and the Northwest Necropolis (Pl. 2: 14) were mostly uncovered during these excavations. The terraced area of the Southwest Slope consisted of partly rock-cut spaces with several slots for roof and ceiling beams cut into rock face on the east side of the terrace and nine rooms of different sizes on the west side where pottery dated

---

35 Hürmüzlü et al., 2017b, pp. 238-240; Hürmüzlü et al., 2019b; Schenk et al., 2018, p. 67; Schenk et al., 2019; Hürmüzlü et al., 2019b; Tütünsatar et al., 2020; Schenk, 2020; Hürmüzlü et al., 2020, pp. 143-144. See, in this volume, Schenk, Results of Geomagnetic Surveys and Evidence for Forging Activities in Seleukeia Sidera.

36 Tütünsatar et al., 2020, p. 297; Tütünsatar et al., 2022, p. 50.

37 Hürmüzlü et al., 2017b, p. 240, Fig. 7; Schenk et al., 2018, pp. 67-69; Hürmüzlü et al., 2020, pp. 143-144; Hürmüzlü et al., 2022a, p. 215.

38 See, in this volume, Mörel, Preliminary Report on the Theatre of Seleukeia Sidera.

to the 2<sup>nd</sup>-7<sup>th</sup> centuries AD was found (Bingöl, 1994, p. 50). Bones of large sized animals, as well as unworked and worked fragments of bone tools were found in Rooms 1, 2 and 8 (Hürmüzlü, 2020; Hürmüzlü et al., 2022a, p. 214). Based on the field notes of this excavation and the finds preserved in the museum, it was understood that the workshop (Pl. 2: 20) produced bone objects during the 5<sup>th</sup>-6<sup>th</sup> centuries AD (Hürmüzlü, 2020, p. 272).

Excavations were also carried out in a large oval structure (Pl. 2: 5) located to the south of the spaces of the west terrace in 1993. This structure was dated to the 4<sup>th</sup>-6<sup>th</sup> centuries AD on the basis of the finds made in the building (Bingöl, 1994, p. 52), yet further research is needed to determine its chronology and function. In addition to these areas, studies were also carried out at the East Gate of Hisar Tepe (Pl. 2: 2), the East Slope Structure, the Staircase-Tunnel-Well System (Pl. 2: 4), and the Podium Structure (Bingöl, 1994, pp. 52-55; Bingöl, 2012, pp. 461-467).

During the campaigns of 2017 and 2018 under the authority of the Isparta Museum and the academic guidance of Prof. Dr. Bilge Hürmüzlü of the Süleyman Demirel University, studies took place to understand the burial traditions of the city. The necropolis areas of the city (Pl. 2: 13 and 14, 16) were mapped and included in the topographic plan<sup>39</sup>. In the Northwest Necropolis (Pl. 2: 14), in collaboration with Dr. Lidewijde De Jong and her team (Groningen University), extensive cleaning of the tombs was carried out and their plans were drawn (Hürmüzlü et al., 2019b, p. 388).

Another aspect of the studies carried out in 2018 concerned the agricultural production and its equipment in the city. Many wine presses were found on slopes of Hisar Tepe (Pl. 2: 22), except for the northwest slope which was used as a necropolis<sup>40</sup>. In Press 1 and Press 7, where excavations were carried out in the following years, finds dated to the 4<sup>th</sup>-6<sup>th</sup> centuries AD were found, suggesting a Late Antique date for these installations (Hürmüzlü et al., 2021, p. 343).

The systematic excavations carried out by an interdisciplinary and international team were initiated by Prof. Dr. Bilge Hürmüzlü in 2019<sup>41</sup>. The overarching aim of these excavations is to obtain a historical overview of the settlement hierarchy, socio-economic structure, burial traditions, economy and artisanal production of the city and its territory, from the Iron Age to the present-day, by focussing on the relationship between human and environment in Seleukeia Sidera and the Kuleönü Plain where it is located.

Since 2020 the geophysical prospections conducted by the team of Prof. Dr.

---

39 Hürmüzlü et al., 2019b, p. 387; Hürmüzlü et al., 2021, p. 343, Harita 1; Hürmüzlü et al., 2022a, p. 217.

40 Mörel, 2020, p. 51; Hürmüzlü et al., 2021, p. 343; Hürmüzlü et al., 2022a, p. 215; Hürmüzlü et al., 2022b, p. 345.

41 URL 1

Çağlayan Balkaya are focussing on the southern slope of Hisar Tepe where the ancient residential areas were located (Tütünsatar et al., 2022, p. 50; Hürmüzlü et al., 2022b, p. 346). Furthermore, wall remains that may belong to a water reservoir were encountered during the study of the front part of the *nymphaeum* structure integrated into the *scaenae frons* of the theatre, which partly excavated before (Hürmüzlü et al., 2022b, p. 346). Other than these geophysical prospections, photogrammetry and 3D scans were carried out at the stage building and the complex was added to the city plan (Hürmüzlü et al., 2019b, p. 387, Picture 2).

In addition to the excavations in the city, site management and conservation plans were also initiated in 2020, with the aim of protecting this cultural heritage site and presenting its cultural landscape to the public. In order to ensure the sustainability of the management of the archaeological site, conservation issues became a determining factor in shaping excavation and research plans, and conservation experts were involved in the planning processes. Based on this principle, the documentation, analysis and conservation studies of Seleukeia Sidera were planned and started to be applied in order to present the remains to the society by preserving them in a systematic and sustainable way. After the submission and approval by the Regional Antalya Cultural Heritage Preservation Board of the “*Report on the Determination of the Architectural Conservation Principles of the Seleukeia Sidera Excavation and the Conservation of Architectural Remains*”, priority areas were determined by evaluating the preservation principles and methods, as well as the deterioration forms and processes in the buildings<sup>42</sup>. In accordance with these principles, architectural conservation and restoration activities have been carried out since 2021. Conservation started at the *scaenae frons* of the theatre, the remains of which were already exposed in 1993 but left unattended until 2020, as well as in the newly excavated blacksmith’s workshop. These activities were carried out in line with international principles for the protection of cultural heritage and based on scientific data. In this context, archaeometry-based conservation research was started to determine the physical and chemical properties of building materials as well as the micro-climate, in order to evaluate material deterioration and the factors causing this deterioration<sup>43</sup>. Furthermore, the durability and salt tests of the mortars used in the building were carried out and a suitable protection material was studied according to the results of these analysis.

To understand the ecology of Seleukeia Sidera in antiquity, research has been carried out in the Paleo-Kuleönü Lake near the city. With the aim of reconstructing the paleo-ecological structure, lacustrine environments were studied. This allowed to examine long-term environmental changes such as

---

42 This report has been prepared with the support of the Turkish Historical Society, by Restoration Specialist Göze Üner and expert archaeologists.

43 The analyses were conducted by the Ticemlabs Istanbul Materials and Conservation Laboratory under the consultancy of Assoc. Prof. Dr. Işıl Polat Pekmezci. We would hereby like to express our thanks.

paleo-vegetation, paleo-land use and effects caused by paleoclimate and human factors. The paleoecology studies at the city are carried out in cooperation with the Anatolian Quaternary Application and Research Centre of the Süleyman Demirel University directed by Assoc. Prof. Dr. Çetin Şenkul. The discovery and study of the Paleo-Kuleönü Lake, which was completed in 2022, has been an important result in terms of understanding the city in correlation with its surroundings. The published results of this project (Şenkul et al., 2022) in which the city and its surroundings are discussed with its rich geomorphological structure and various geographical elements, was the first study in Seleukeia Sidera to comprehensively evaluate the relationship between human and environment.

The Seleukeia Sidera Project, besides the excavations, conducts interdisciplinary studies such as surface research methods, geophysics, archaeometallurgy, ceramic archaeometry, archaeozoology, as well as intangible cultural heritage studies and oral history studies in the region where the ancient city is located. The most important goal of our project is to treat cultural heritage as inclusive by means of a holistic approach. For this reason, as a part of our research, intangible cultural heritage elements in neighbouring districts, such as the Gönen District and especially Atabey District, are recorded and compiled. Cultural landscapes, with their tangible and intangible heritage elements and usage patterns, form our cultural heritage treasures by shedding light on the values of the societies that shaped them. With these studies, it is also possible to compile data that contribute significantly to the study of aspects of ancient life in terms of cultural anthropology<sup>44</sup>.

---

44 Şimşek Tolacı & Hürmüzlü, 2020; URL 2.

## Bibliography

- Alp, O. (2006). *Pisidia Bölgesi Roma Dönemi Bezemeli Mimari Elemanları* [Unpublished doctoral dissertation]. Ankara Üniversitesi.
- Aulock H. von (1979). *Münzen und städte Pisidiens II*. IstMitt Beiheft 22. Verlag Ernst Wasmuth.
- Bingöl, O. (1994). Seleukeia Sidera (Bayat) 1993 Yılı Arkeolojik Kazıları. *Göller Bölgesi Arkeolojik Kültürel-Turistik Araştırma ve Değerlendirme Projesi*, 43-76.
- Bingöl, O. (2012). Seleukeia Sidera. In O. Bingöl, A. Öztan & H. Taşkiran (Eds.), *Anatolia (Anadolu) DTCF 75. Yıl Armağanı* (pp. 457-470). Ankara Üniversitesi Dil Tarih ve Coğrafya Fakültesi.
- Hirschfeld, G. (1874). *Reise nach dem südlichen Kleinasie, Zeitschrift für geistes Eigentum*, 14.
- Hürmüzlü, B. (2008). Seleukeia Sidera Antik Kenti. *Türk Eskiçağ Bilimleri Enstitüsü Haberler*, 26, 12–13.
- Hürmüzlü, B. (2020). Preliminary Report on a Bone Workshop in Seleukeia Sidera. In G. Yalçın & O. Stegemeier (Eds.), *Metallurgica Anatolia Ünsal Yalçın 65. Yaşgünü Armağan Kitabı* (pp. 271-274). Ege Yayınları.
- Hürmüzlü, B. & Gümüştekin, M. N. (2022). Neolitik Çağdan Demir Çağı'na Göller Bölgesi", In Ç. Şenkul & B. Hürmüzlü (Eds.), *Doğal ve Kültürel Mirasın Paleo-Kuleönü Gölü'ndeki İzleri 50 Bin Yıllın Öyküsü* (pp. 177-195). Süleyman Demirel Üniversitesi Yayınları.
- Hürmüzlü, B., Sönmez, B. (2021). A New Member of the Late Roman Koiné? A New Red-Slipped Pottery Group Found at Seleukeia Sidera. *Olba*. XXIX, 349-362.
- Hürmüzlü, B., Sönmez, B. & Ayaşan, M. (2018). Seleukeia Sidera Antik Kenti 2016 Yılı Yüzey Araştırması Sonuçları. *Araştırma Sonuçları Toplantısı*, 35(1), 247-254.
- Hürmüzlü, B., Hecebil, U., Ayaşan, M. & Çelik, Ç. (2017a). Isparta Arkeolojik Surveyi 2015 Çalışmaları. *Araştırma Sonuçları Toplantısı*, 34(1), 667-680.
- Hürmüzlü, B., Ayaşan, M., Hecebil, U., Sönmez, B., Köker, H., Schenk, T. & Köker-Atav., İ. (2017b). Seleukeia Sidera Antik Kenti Yüzey Araştırması Sonuçları. *ANMED* 15, 233-241.
- Hürmüzlü, B., Kohlmeyer, K., Kai-Browne, A., Köker, H., Ergin, B. & Sönmez, B. (2019a). Isparta İli ve İlçeleri Yüzey Araştırması 2017 Yılı Çalışmaları. *Araştırma Sonuçları Toplantısı*, 36(1), 343-352.

- Hürmüzlü, B., Köker, H., Akaslan, M., De Jong, L., Köker-Atav, İ., Mörel, A., Sönmez, B., Ayaşan, M. & Kai-Browne, A. (2019b). Seleukeia Sidera Antik Kenti Temizlik – Düzenleme ve Ölçüm Çalışmaları. *Kazı Sonuçları Toplantısı*, 40(1), 385-396.
- Hürmüzlü, B., Sönmez, B., Ergin, B. & Browne, A. K. (2020a). Isparta İli ve İlçeleri Yüzey Araştırması 2018 Yılı Çalışmaları”, *Araştırma Sonuçları Toplantısı*, 37(1), 315-320.
- Hürmüzlü, B., Sönmez, B. & Köker-Atav, İ. (2020b). Seleukeia Sidera Antik Kenti Üretim Faaliyetleri Hakkında Ön Değerlendirmeler. In A. Mörel, G. Kaşka, H. Köker, M. Kaşka, M. Fırat & S. O. Akgönül (Eds.), *Production, Trade and Economy in Pisidia and its Surrounding Areas. International Symposium Proceeding Pisidian Studies II, 31 October – 03 November 2018 Isparta, Turkey* (pp. 140-153). Süleyman Demirel University Press.
- Hürmüzlü, B., Sönmez, B., Mörel, A. & Kaşka, G. (2021). Seleukeia Sidera’da Geç Antik Dönem Hakkında Ön Sonuçlar. *Süleyman Demirel Üniversitesi Fen-Edebiyat Fakültesi Sosyal Bilimler Dergisi*, 54, 317-340.
- Hürmüzlü, B., Sönmez, B., Mörel, A., Kılınc, G. & Uslu, H. (2022a). Paleo-Kuleönü Gölü Çevresi Antik Dönem Yerleşimleri. In Ç. Şenkul, B. Hürmüzlü-Kortholt (Eds.), *Doğal ve Kültürel Mirasın Paleo-Kuleönü Gölündeki İzleri. 50 Bin Yılın İzleri* (pp. 207-247). Süleyman Demirel Üniversitesi Yayınları.
- Hürmüzlü, B., Mörel, A., Sönmez, B., Schenk, T., Browne, A. K. & De Jong, L. (2022b). Seleukeia Sidera Antik Kenti 2019-2020 Yılları Kazı, Temizlik ve Jeofizik Çalışmaları. *2019-2020 Yılı Kazı Çalışmaları*, 1, 343-354.
- Kaya, D. (1999a). Die theaterausgrabung von Seleukeia Sidera (Klaudioseleukeia). *Asia Minor Studien* 34, 163-174.
- Kaya, D. (1999b). Seleukeia Sidera. In *I. Uluslararası Pisidia Antiocheia Sempozyumu Bildiriler Kitabı, 2-4 Temmuz 1977* (pp. 35-46). Kocaeli Ofset Matbaacılık.
- Kiepert, R. (1908-1915). *Karte von Kleinasien*. D. Reimer.
- Köker, H. (2016). Klaudia Seleukeia (Sidera) Kazı ve Yüzey Araştırmaları Sikke Buluntuları Ön Değerlendirme. In A. V. Çelgin, N. E. Şahin Akyürek, F. Onur (Eds.), *AKRON 13 Eskiçağ Yazıları* 10 (pp. 253-258). Arkeoloji ve Sanat Yayınları.
- Lafli, E. (1996). *Seleukeia Sidera 1993 Kazısında Bulunmuş Olan Pişmiş Toprak Eserler* [Unpublished master thesis]. Ankara Üniversitesi.
- Lafli, E. (1999a). Sagalassos Red Slip Ware aus Seleukeia Sidera, Ein Beispiel der Verbreitung der sagalassischen Keramik im römischen Pisidien. *Forum Archaeologiae. Zeitschrift für klassische Archäologie*, Ausgabe 10/III/1999.

- Laflı, E. (1999b). Sagalassos Roman Relief Wares from Seleuceia Sidera in Pisidia (Turkey). In R. F. Docter & E. M. Moorman (Eds.), *Proceedings of the XVth International Congress of Classical Archaeology, Amsterdam, July 12-17, 1998* (pp. 43-47). Allard Pierson Museum.
- Laflı, E. (2000). Sagalassos Table and Common Wares from Seleukeia Sidera in Pisidia (Southwestern Turkey) – A Preliminary Report. *ReiCretActa*, 36, 43-47.
- Laflı, E. (2004). Dionysiac Scenes on Sagalassian oinophoroi from Seleuceia Sidera in Pisidia (southwestern Turkey). In S. Bell & G. Davies (Eds.), *Games and Festivals in Classical Antiquity: Proceedings of the Conference held in Edinburgh 10–12 July 2000* (pp. 125-136). BAR Publishing. <https://doi.org/10.30861/9781841715803>
- Mörel, A. (2020). Seleukeia Sidera'da Tarımsal Üretimin Arkeolojik Kanıtları. In A. Mörel, G. Kaşka, H. Köker, M. Kaşka, M. Fırat & S. O. Akgönül (Eds.), *Production, Trade and Economy in Pisidia and its Surrounding Areas. International Symposium Proceeding Pisidian Studies II, 31 October – 03 November 2018 Isparta, Turkey* (pp. 50-69). Süleyman Demirel University Press.
- Özsait, M. (1986). 1984 ve 1985 Yılı Isparta Çevresi Tarih Öncesi Araştırmaları. *Araştırma Sonuçları Toplantısı*, 4, 323-333.
- Schenk, T., Köker-Atav, İ., Sönmez, B., Hürmüzlü, B., Tütünsatar, E. & Akaslan, M. (2018). Seleukeia Sidera Antik Kenti Yüzey Araştırmaları- 2018 Demircilik Faaliyetlerine İlişkin Veriler. *Türk Eskiçağ Bilimleri Enstitüsü Haberler*, 44, 66–72.
- Schenk, T., Tütünsatar, H. E., Schlegel, J., Akaslan, M., Hürmüzlü, B. & Atav-Köker, İ. (2019). Seleukeia Sidera Antik Kenti 2016-2017 Jeofizik Çalışmalarının Sonuçları. *Arkeometri Sonuçları Toplantısı*, 34, 103-112.
- Schenk, T. (2020). Archäologische Prospektionen in Seleukeia Sidera und der Versuch, Produktionszentren zu bestimmen. In A. Mörel, G. Kaşka, H. Köker, M. Kaşka, M. Fırat & S. O. Akgönül (Eds.), *Production, Trade and Economy in Pisidia and its Surrounding Areas. International Symposium Proceeding Pisidian Studies II, 31 October – 03 November 2018 Isparta, Turkey* (pp. 154-165). Süleyman Demirel University Press.
- Sönmez, B. (2022). *Seleukeia Sidera Antik Kenti'nde Roma İmparatorluk Dönemi Seramik Üretimi ve Ticari İlişkiler* [Unpublished doctoral dissertation]. Süleyman Demirel Üniversitesi
- Sönmez, B. (2023). Oinophoroi of Seleukeia Sidera. *ReiCretActa* 47, 141-149.
- Şenkul, Ç. & Hürmüzlü, B. (Eds.) (2022). *Doğal ve Kültürel Mirasın Paleo-Kuleönü Gölü'ndeki İzleri 50 Bin Yılın Öyküsü*. Süleyman Demirel Üniversitesi.
- Şimşek Tolacı, S. & Hürmüzlü, B. (2020). *Isparta'da Kerpiç ve Yaşam*. Süleyman Demirel Üniversitesi.

Tütüncü, E. & Köker, H. (2022). Sikkeler Işığında Klaudio Seleukeia 'Sidera'. In Ç. Şenkuş & B. Hüzmüzlü (Eds.), *Doğal ve Kültürel Mirasın Paleo-Kuleöni Gölü'ndeki İzleri 50 Bin Yıllın Öyküsü* (pp. 250-262). Süleyman Demirel Üniversitesi Yayınları.

Tütünsatar, H. E., Schenk, T., Hüzmüzlü, B. & Akaslan, M. (2020). Seleukeia Sidera Antik Kenti 2018 Jeofizik Çalışmalarının Sonuçları. *Arkeometri Sonuçları Toplantısı*, 35, 293-301.

Tütünsatar, H. E., Schenk, T., Çakmak, O. & Balkaya, Ç. (2022). Seleukeia Sidera Antik Kenti 2019 ve 2020 Yılları Manyetik ve Radar Çalışmaları. *2019-2020 Yılı Arkeometri Çalışmaları*, 47-54.

### **Webpage On A Website References**

**URL 1:** <https://seleukeiasiderakazilari.sdu.edu.tr/> (08 June 2023)

**URL 2:** <https://ispartakulturelmiras.sdu.edu.tr/> (08 June 2023)

## History of Seleukeia 'Sidera'

### *Seleukeia 'Sidera' Tarihi*

Hüseyin Köker\*

Seleukeia (Sidera) kenti Pisidia Bölgesi'nin kuzeyinde, Isparta ili Atabey ilçesi Bayat köyünün 2 km kuzey doğusunda, Selef olarak adlandırılan tepe üzerine konumlanmaktadır. Kentin adı ilk olarak Σελεύκεια Πισιδίας (Seleukeia Pisidias = Pisidia Seleukeiası) kez MS 2. yüzyılda yaşamış Ptolemaios'un *Geographika Hypegesis* adlı eserinde geçmektedir. İmparator Claudius Dönemi'nde ise (MS 41-54) kentin adı Klaudioseleukeia olarak anılmaya başlanmıştır. Kentin adını veren diğer bir kaynak ise Hierokles'in *Synekdemos* adlı eseridir ki burada kent *sidera* (demirden) epitheti ile birlikte Σελεύκεια ή σιδερά (Seleukeia Sidera) biçiminde verilmektedir.

Seleukeia territoryumunda tespit edilen höyük ve kale yerleşimlerinin tarihi Erken tunç Çağı'na kadar geriye gitmektedir. Hellenistik Dönem'e kadar kentin tarihsel gelişimine ilişkin bilgilerimiz oldukça sınırlı olmakla birlikte, kentin içinde bulunduğu bölgenin MÖ 8-4. yüzyıllar boyunca sırasıyla Phryg, Lydia ve Pers egemenlikleri altında olduğu, ancak bu devletlerin egemenliklerinin daha çok kültürel etkilerinin bölgeye sirayet ettiği hem antik kaynakların verdiği bilgiler hem de araştırmalarda ele geçen bulgularla anlaşılmaktadır. Anadolu'nun diğer bölgelerinde olduğu gibi Pisidia'daki Pers egemenliği de MÖ 334 yılında Makedonia Kralı III. Aleksandros'un Pers İmparatorluğu'na karşı düzenlediği sefer ile son bulmuştur. Kral komutanlarından Nearkhos'u Lykia ve Tauros dağlarını ele geçirmesi için görevlendirmiştir. Ancak Nearkhos'un faaliyetlerine ilişkin herhangi bir bilgiye sahip değiliz. MÖ 329 yılındaysa bölge bu kez Antigonos Monophtalmos'un yönetimine geçmiştir. III. Aleksandros'un MÖ 23 Haziran 323 yılındaki ölümünden sonra komutanları (Diodokhoi) arasındaki meydana gelen mücadeleler sırasında bölge sırasıyla MÖ 319 yılında Perdikkas, MÖ 301 yılında Lysimakhos ve MÖ 281 yılında da Seleukos egemenliğine girmiştir, ki bu süreç kesintilerle de olsa MÖ 188 yılına kadar devam etmiştir. Bu dönem bölge yerleşimleri için önemli değişikliklerin meydana geldiği bir zaman dilimine işaret etmektedir ki Seleukeia ve yakın çevresindeki diğer dört kent (Apameia, Antiokheia, Apollonia ve Neapolis) olasılıkla I. Antiokhos veya II. Antiokhos döneminde birer Seleukos kolonisi mahiyetinde birer polis olarak kurulmuşlardır. Roma ordusu ve bağlaşıkları Pergamon Krallığı ile Rhodos Devleti kuvvetleri ile Kral III. Antiokhos'un liderliğindeki Seleukos ordusunun karşı karşıya geldiği MÖ 190 yılında yapılan Magnesia Savaşı sonrasında MÖ 188 yılında taraflar tarafından imzalanan Apameia Barı-

\* Süleyman Demirel University, Faculty of Arts & Sciences, Department of Archaeology, 32260 Isparta/TR, huseyinkoker@gmail.com, ORCID: 0000-0003-0784-505X.

şı sonrası bölge Pergamon Krallığı'nın egemenliğine girmiştir. Pergamon Kralı III. Attalos'un MÖ 133 yılında krallığının topraklarını Roma'ya vasiyet yoluyla bırakmasıyla da bölge, MÖ 129-126 yıllarında tesis edilen Roma'nın Asia Eyaleti (Provincia Asia) sınırlarına dahil olarak Roma egemenliğine girmiştir. MÖ 101 yılında Marcus Antonius tarafından Kilikya Eyaleti'nin (Provincia Cilicia) kurulmasının ardından güney Pisidia ve Milyas Bölgeleri bu yeni eyalete dahil edilmiştir. Roma egemenliğine karşı Asia Eyaleti'ndeki Hellen kentlerinin özgürlüğünü sağlamak için savaşa girişen Pontos Kralı VI. Mithradates kuvvetleri başlarında Eumakhos olduğu halde Pamphylia Bölgesi'ne kadar ilerlemiştir ancak bölgedeki faaliyetleri hakkında bilgi sahibi değiliz. Öyle ki, Eumakhos'un bölgedeki egemenliği, Galat Prensi Deiotaros liderliğindeki Galatların Roma tarafına geçmesiyle sona ermiştir. MÖ 1. yüzyılda Kilikia ve Lykia sahillerinde etkili olan korsanlık faaliyetleri nedeniyle MÖ 78-74 Isauria ve Lykaonia Bölgelerine bir sefer düzenleyen Kikilia Eyaleti valisi Servilius Vatia, eyaletin sınırlarını Pamphylia, Pisidia ve Lykaonia'ya kadar genişletmiştir. Bu durum MÖ 49 yılında Iulius Caesar'ın Pamphylia, Milyas'ın dağlık kısımları ve Pisidia bölgelerini Asia Eyaleti topraklarına dahil etmesine kadar devam etmiştir. Pisidia, Marcus Antonius'un düzenlemeleriyle Galatia Kralı Amyntas'ın (MÖ 39-25) egemenliğine verilmiştir.

Galatia Kralı Amyntas'ın MÖ 6 yılında Homonadlar Savaşı'nda ölümünün ardından krallığın topraklarında, Roma İmparatoru Augustus tarafından Galatia Eyaleti (Provincia Galatia) tesis edilmiştir. MS 74 yılındaysa Seleukeia ve Konana kentleriyle güneyindeki topraklar yeni kurulan Lykia-Pamphylis Eyaleti (Provincia Lycia et Pamphylia) topraklarına dâhil edilmiştir. İmparator Gallienus Döneminde (MS 305-311) Pisidia Eyaleti (Provincia Pisidia) tesis edilerek Galatia Eyaleti'nin güney kısmı bu eyalete dâhil edilmiştir, ki eyaletin başkenti de Antiokheia kenti olmuştur (MS 308).

Seleukeia kentinin Roma Dönemi'nde gelişimine devam ettiği anlaşılmaktadır, ki Claudius Dönemi'nde (MS 41-54) kent Klaudio Seleukeia ismini almıştır. Ele geçen yazıt ve sikkelerde görülen bu değişikliğin sebebi olasılıkla imparatorun kente olan ihsanlarıyla alakalı olmalıdır. MS 4. yüzyıla tarihlenen bir yazıt kentin Antiokheia ile bir homonoia anlaşması yaptığını da ortaya koymaktadır. Ayrıca, kentte yapılan araştırmalar, Hellenistik Dönem'de tepe üzerinde yoğunlaşan yerleşimin Roma İmparatorluk Döneminde ovaya yayılarak genişlediğini ve de önemli bayındırlık faaliyetlerinin olduğunu ortaya koymaktadır.

MS 3. yüzyılda Roma dünyasını derinden etkileyen "3. yüzyıl krizi" Seleukeia kentini de etkilemiş ve kent yüzyılın ortalarında sikke darbını bırakmak zorunda kalmıştır. Ancak, bu yüzyıl, arkeolojik kanıtlarında gösterdiği gibi Pisidia Bölgesi kentlerinin bazılarının zenginleştiğini de göstermektedir. Seleukeia'nın Caracalla, III. Gordianus, I. Philippus ve II. Claudius Gothicus sikkeleri üzerinde görülen Hephaistos, Athena ve Demeter betimleri, kentin söz konusu

dönemlerde doğuya yapılan askeri seferler için gerekli olan *annona militaris* seviyatında bir parça yer aldığına kanıtı olarak okunabilir. Ayrıca, kent sikkeleri üzerinde görülen Hephaistos betiminin, sidera epitheti ile de yakından ilişkili olarak kentteki demircilik faaliyetlerine işaret ettiğine hiç şüphe yoktur. Öyle ki araştırma ve kazılar da kentteki demircilik faaliyetlerinin MS 3-6. yüzyıllarda en üst seviyeye ulaştığını kanıtlamaktadır.

İmparator I. Leo (MS 457-474), eşkıyalık faaliyetleri nedeniyle Pamphylia, Pisidia ve Lykaonia Bölgelerini içine alan bir askeri bir yönetim bölgesi oluşturmuştur. Devam eden sorunlar nedeniyle İmparator Iustinianus (MS 527-565) MS 6. yüzyıl ortasında Lykaonia ve Pisidia Bölgelerini bir *dux* yönetimi altından birleştirmiş ancak bu 6 yıl sürmüştür. MS 7-8. yüzyıllarda meydana gelen Arap akınlarının bölgeyi ne derece etkilediği konusunda bilgiye sahip olmasak da Antiokheia kentinin Muaviye liderliğindeki Araplar tarafından MS 645-646 yıllarında yağmalandığı ve al-Abbas tarafından da MS 712-713 yıllarında ele geçirildiği bilinmektedir.

Arap akınlarının ardından Anadolu MS 1071 yılında yapılan Malazgirt Savaşı ile Türkler'in gelişine sahne olurken, Pisidia Bölgesi ve çevresi MS 1176 yılında yapılan Miryakefalon Savaşı ile birlikte Anadolu Selçuklu Devleti egemenliğine girmiştir. Bölge MS 1297 yılında Hamidoğulları Beyliği, MS 1389 yılında kısa süre de olsa Karamanoğulları Beyliği ve son olarak da MÖ 1397 Yıldırım Beyazıt Dönemi'nde Osmanlı İmparatorluğu egemenliğine girmiştir. Araştırmalar Seleukeia'da MS 14-19. yüzyıllar arasındaki dönemi yansıtır mahiyetteyken bu tarihten sonra ketteki yerleşim Bayat köyüne doğru kaymış ve kent terk edilmiştir.

Seleukeia (Sidera) is located in the north of Pisidia Region, on the hill called Selef, approximately 2 km north-east of Bayat Village, 7 km south of Atabey town in Isparta province (Ruge, 1921, p. 1204) <sup>2</sup>. The name Seleukeia is first encountered as Σελεύκεια Πισιδίας (Seleukeia Pisidias = Pisidian Seleukeia) in *Geographika Hyphegesis* which is the work of the geographer Ptolemaios who lived in the 2<sup>nd</sup> century AD, and the location of the city is shown at points 62, 38, 30 in Phrygian Pisidia (Ptol. Geog. V.4.3). Strabon of Amaseia, another geographer who lived in the same century, does not mention the name of the city in the passage in his *Geographika*, where he gives the names of some Pisidian cities by referring to Artemidoros of Ephesos (Strb. Geog. XII.7.2). It must have been Sidera of Seleucia, which Plinius referred to as the Seleukids (Seleucenses) in Galatia (Plin. NH V.147). The city was renamed as Klaudioseleukeia after the name of the emperor Claudius (41-54 AD), as an inscription shows (Ramsay 1924: 197 no. 26; Drew-Bear – Labarre 2002: 73). Another source mentioning the name of the city is Hierocles' *Synekdemos* (Hie. Syn. 673, 8). Here, the city is referred to as Σελεύκεια ἡ σιδεῖα (Seleukeia Sidera) with the epithet *Sidera* (of

2 For the localization of the Seleukeia see: Hirschfeld, 1879, pp. 312-315. See also: Belke & Mersich, 1990, p. 378; Bingöl, 2012, p. 458; Hürmüzlü, 2015, p. 177.

iron) originating from iron production, indicating a significant economic return. Although it is not certain when the city received this epithet, it is understood that the name of the city was mentioned in this way at least in the 6th century AD, since it is mentioned in the work of Hierocles (Belke & Mersich, 1990, p. 378; Hürmüzlü, 2015, p. 176). The name of the city also appears as Seleukeia Sidera in *Notitiae Episcopatum Ecclesiae Constantinopolitanae*<sup>3</sup>. Besides all these, according to epigraphical and numismatical evidences, in the reign of emperor Claudius II the name of the city altered to Klaudioseleukeia after the name of the emperor (Ramsay, 1924, p. 197, no. 26; Cohen, 1995, p. 349; Hürmüzlü, 2015, p. 176).

### From the Bronze Ages to the Hellenistic Period

The investigations and artifacts found at mounds in and around the city illustrate that the settlement dates back to the Early Bronze Age (Özsait, 1986, p. 326; Hürmüzlü et al., 2019b, pp. 315-320; Hürmüzlü et al., 2020a, p. 317). In addition to the mounds, small-scale settlements and castle settlements spread over the mountainous areas, plateaus and valleys, where important artifacts from the Iron Age were found, also reveal the settlement character of the region in that period (Hürmüzlü, 2009, pp. 493-500; Hürmüzlü et al., 2009, pp. 238-239). By the 8th century BC, it is understood that the influence of the Phrygian State in Pisidia, which became an important power in mid-west Anatolia, reached at least as far as the west of the region (Köker, 2019, p. 10). In the 7th century BC, when the Phrygian State disappeared, a new power, the Lydian Kingdom, took its place. From this date, it is seen that the Pisidia and its people began to be mentioned in ancient literary sources. Herodotos reports that all the peoples west of Halys (Kızılırmak) were under Lydian rule (Hdt. *Hist.* I.28), which suggests that the Pisidians were also among these peoples. Strabon also mentions that the cities to the north of Pisidia lived in peace with Phrygians, Lydians and Karians (Strb. *Geog.* XII.7.2). These statements suggest that both Phrygians and Lydians could not establish a full political dominance in the region, but rather influenced the region culturally (Özsait, 1980, p. 57; Çelgin, 1997, p. 84; Köker, 2019, p. 10). In 567/46 BC, with the Persian King Kyros, who abolished the Lydian Kingdom, Anatolia came under Persian rule. In the passage where Herodotos refers to the Persian satrapal regions, he does not mention Pisidia, but the Milyasians, who form the southwestern part of the region (Hdt. *Hist.* III.90). In the same passage, he states that the Milyasians, together with the Ionians, Magnesians, Aeolians, Karians, Lykians and Pamphylians, were affiliated to the first satrapy center established in the I. Dareios period (521-486 BC), but does not give any information about the rest of Pisidia. However, it can be thought that the northern and eastern parts of the region may have been counted as one with Phrygia, which is included in the third satrapy. It is understood from

---

3 For Seleukeia, see: *Notitiae* 6.36, 7.30 ve 9.31. For Seleukeia Sidera (τόν/ό Σελευκείας τῆς Σιδορίας), see: *Notitiae* 1.381, 2.447, 9.338, 10. 395.

the statements of Ksenophon that the Persian dominance in the region was not felt as much as in western Anatolia and weakened from time to time (Jones, 1971, p. 125)<sup>4</sup>. Ksenophon, in Hellenika, states that the satrap of Daskylaion, Pharnabazos, organized a campaign against the Mysians and Pisidians (Ksen. *Hell.* III.1.3.13). In Anabasis, he reports that Kyros the Younger rebelled against his elder brother Artakserkses II in 401 BC and instead of marching directly to the Persian lands with the army he gathered, he hid the main reason for the campaign and marched on the Pisidians (Ksen. *Anab.* I.11, II.1). The reason for both campaign is that the Pisidians damaged the neighboring regions (in both works, the regions is referred to as the lands of the king) by organizing plundering expeditions. On the other hand, while Herodotos states that the Milyasians participated in the Greek expedition of the Persian king Kserkses in 480 BC (Hdt. *Hist.* VII.77), Diodoros also states that the Pisidians, along with the Ionians, Lykians, Pamphylians and Kilikians, participated in the rebellion of the Anatolian satraps against the Persian king Artakserkses II, in 362/1 BC, known as the Satrap Revolt (Diod. Sic. *Bibl.* XV.90.3). Plutarkhos mentions that Epiksyes, the governor of Phrygia, hired Pisidian assassins to murder the Athenian statesman Themistokles (524-459 BC) who was the ruler of the Magnesia region and took refuge in the Persian king Artakserkses II (Plut. *Them.* XXX.1.2).

### Hellenistic Period

The Hellenistic period is the time when many settlements in the Pisidia region underwent radical changes and gradually became a polis/city-state. Although the characteristics of the Hellenistic period settlement of Seleukeia, which was established as a Seleukid colony in this period and there is no doubt that it made an important development, are revealed by the studies carried out in the city and its territory, our information about this period is still at a limited<sup>5</sup>. However, ongoing studies will undoubtedly provide new information about this period of the city. On the other hand, it is worth remembering that the situation of the city in this period in terms of political history was not different from the rest of Pisidia. As can be seen below, due to the scarcity of available data, the history of the city will be tried to be formed by considering it together with the history of the region.

When the Macedonian king Aleksandros III entered Anatolia in 334 BC and ended the Persian domination, Anatolia came under the sovereignty of the Macedonian Kingdom. In the winter of the same year, he entered Milyas via the Yenice Strait, where the city of Termessos was located, and burned down the region (Arr. *Anab.* I.24.5; Strb. *Geog.* XIV.3.9) and captured Sagalassos even though it met with resistance (Arr. *Anab.* I.28.2-8). In order to consolidate his

---

4 See also: Sekunda, 1991, p. 108; Köker, 2019, p. 10; Köker, 2022, p. 12.

5 For evaluations on the Hellenistic period of the city after the 1993 and 1995 excavations and researches, see: Lafli, 2001, pp. 71-83. For the later researches, see also: Hürmüzlü, 2015, p. 176; Hürmüzlü, 2015, p. 176; Hürmüzlü et al., 2022, pp. 212-213.

dominance in the region, he appoints one of his commanders, Nearkhos, as satrap of the lands adjacent to the Lykia and Tauros Mountains, and assigns him to capture the unoccupied areas in the region (Arr. *Anab.* III. 6. 6.). However, there is no information about the activities of Nearkhos in the region. In 329 BC, upon the recall of Nearkhos, the lands under his rule were attached to Great Phrygia under the rule of Antigonos Monophtalmos (Diod. Sic. *Bibl.* XVIII.1-3).

Upon the sudden death of Aleksandros III on June 23, 323 BC, without leaving an heir, a series of struggles took place between the king's commanders, called Diodokhoi, for the sovereignty of the conquered lands. In this period, Pisidia came under the rule of Perdikkas, after his death, Alketas and Antigonos Monophtalmos from 319 BC until the Ipsos War in 301 BC, and this time by Lysimakhos from this date until the Kourupedion War in 281 BC. After the Kourupedion War, it remained under the rule of the Seleukid Kingdom until 188 BC<sup>6</sup>. The Hellenistic period is an era of important political developments for the Pisidia region, and the establishment of the city of Seleukeia, which is the subject of this article, coincides with the beginning of this period. With the Seleukid domination, colonies were established in the region, unlike the powers that previously dominated the region. Strategic importance and having a sheltered position that can control commercial centers are among the most distinctive features of Seleukid colonies<sup>7</sup>. In this context, although the colonies in the region also indicate these characteristics, it may be thought that understanding that the region's mountainous geography and the free spirits of its people, as mentioned above, have a character that is difficult to be dominated politically, has an important effect on the choice of these cities. The colony cities in question are Apameia (Dinar), Antiokheia (Yalvaç), Apollonia (Uluborlu), Neapolis (Karaağaç) and Seleukeia (Selef)<sup>8</sup>. It is thought that the foundation of these colonies took place during the reign of Antiokhos I or Antiokhos II, due to the murder of Seleukos I Nikator, shortly after he took the region under his rule (280 BC), and therefore it is thought that the founder of the Seleukeia was Antiokhos I (Cohen, 1995, pp. 349- 350; Hürmüzlü, 2015, p. 175)<sup>9</sup>. Seleukid control in the region is interrupted by a series of events that occurred in this period: (1) Antiokhos Hieraks, brother of Seleukos II, rebelled in 241 BC and declared himself king, (2) Attalos I of Pergamon in 228 BC, he defeated Antiokhos Hieraks and captured the lands under his rule and (3) in 223 BC, Akhaios, the ruler of Asia Minor of the Seleukids, took lands from Attalos I and in 220 BC he became the king himself (Polyb. *Hist.* IV.48, V.57)<sup>10</sup>. While Akhaios

---

6 For a comprehensive summary of the events following the death of Aleksandros III and its reflections in the Pisidia region, see: Köker, 2019, pp. 11-12; Köker, 2022, n. 13, pp. 88-94.

7 For the common features of Seleukid colonies, see: Kaşka, 2019, pp. 136-137.

8 For more information of those cities, see: Cohen, 1978; Cohen, 1995, pp. 278-290.

9 For discussions, see: Lafli, 2001, p. 73. Kosmetatou claims that the city was founded by Seleukos II (Kosmetatou, 1997, p. 21).

10 See also: Hansen, 1971, p. 38; Bracke, 1993, p. 17.

commissioned his commander Garsyeris to capture the lands of Pamphylia and Pisidia, he plundered Pisidia and captured Milyas in 218 BC. However, his rule ended in 216 BC (Polyb. *Hist.* V.57, 72-77). Thus, the region came under Seleukid rule again until 188 BC. Meanwhile, the plundering expeditions of the Galatian tribes that entered Anatolia from Northern Europe probably also affected Pisidia, and this effect seems to have reached the south of the region (Mitchell 1993: 55)<sup>11</sup>.

In 190 BC, the armies of Rome and its allies, Pergamon and Rhodes, defeated the armies of Antiochos III, the Seleukid king. Two years after the war, according to the Apameia Peace made in 188 BC, the sovereignty of Pisidia passed to the second king of Pergamon, Eumenes II, who played an important role in winning the war by showing great help to Rome in the war (Polyb. *Hist.* XXI.24.6-9, XXI.45.9-2; Liv. *AbUrbe.* XXXVII.54.11, XXXVII.56.2, XXXVIII.39.16; App. *Syr.* VII.44; Diod. *Sic. Bibl.* XXIX.11). Strabon states that the territory of the Kibyra, which declared its freedom under the leadership of Tyran Pankates in 168/7 BC and formed a tetrapolis together with Boubon (İbecik), Oinoanda (İncealiler) and Balbura (Dirmil/Altınyayla), extended between Pisidia and the adjoining Milyas, to Lykia and the Peraea of the Rhodians (Strb. *Geog.* XIII.4.17). However, it is understood that this situation resulted from the lack of authority that emerged until the Pergamon Kingdom established its sovereignty in the region after the Apameia Peace and it did not last long (Sherwin-White, 1984, p. 51, n. 117; Hall, 1985, pp. 187-190). The sovereignty of Pergamon ended when Attalos III bequeathed the lands of the kingdom to Rome in 133 BC by will, and these lands were turned into the Provincia Asia in 129-126 BC (Strb. *Geog.* XIV.1.38). Following the establishment of the Provincia Cilicia by Marcus Antonius in 101 BC, southern Pisidia and Milyas were included in this new province (Magie, 1950, p. 285, 1165 n. 15; Kaya, 2005, p. 18), and this remained so until Iulius Caesar reincorporated the region into the Provincia Asia in 49 BC (Magie, 1950, p. 418; Özsait, 1985, p. 79, 81). Appianos mentions that the King of Pontos, Mithradates VI Eupatoros (120-63 BC), faced resistance in Pisidia during his struggle against Roman domination in Anatolia (App. *Mith.* III.20-21, IV.24, IV.27). However, although the activities of the Pontos army in the south of Anatolia and the extent of its influence are unclear, it is accepted that the Pontos army under the command of Eumakhos entered Pamphylia through the Yenice strait under the control of Termessos after capturing Kibyra (Magie, 1950, p. 265, 285; Özsait, 1985, p. 73)<sup>12</sup>. However, Eumakhos domination in the region came to an end when the Galatians, led by the Galatian Prince Deiotaros, who did not forget that the Pontos king killed the notable Galatian family elders during a banquet in Pergamon, went to the Roman side (MÖ 74/73) (App. *Mith.*

---

11 See also: Kosmetatou, 1997, p. 22, n. 58; Vanhaverbeke & Waelkens, 2005, p. 49.

12 See also: Çelgin, 1997, p. 111; Vanhaverbeke & Waelkens, 2005, 51; Arslan, 2007, p. 184. On the other hand, the bronze coins of the Mithradates VI period in the collections of the Burdur and Isparta Museums can be considered at least as proof of how far the Pontic army has reached.

XI.75; Liv. *AbUrbe*. XCIV)<sup>13</sup>.

In the first half of the 1<sup>st</sup> century BC, there was an intense piracy activity on the southern coast of Anatolia, which Rome would solve this problem after a struggle that lasted for about twenty years. Cicero stated that Gn. Cornelius Dolabella and his *laetus pro-quaestor* Verres, who were sent to the region to fight this problem in 80/79 BC, abused their duties and plundered the cities of Milyas, Lykia, Pamphylia, Pisidia and Phrygia. However, the fact that Cicero does not give any details that leaves in the dark the issue of which cities were affected by this situation and to what extent (Cic. *Verr.* II.I.95-96). Servilius Vatia (Isauricus), who was the governor of the Provincia Cilicia between 78-74 BC, organized a campaign against the piracy and banditry activities that expanded to the Isauria and Lykaonia regions. With the arrangements he made after the campaign, he expanded the borders of the Provincia Cilicia to include some parts of Rough Kilicia and Pamphylia, and Pisidia and Lykaonia (Magie, 1950, p. 288)<sup>14</sup>. This situation remains unchanged during the arrangements of Pompey (Kaya, 1998, p. 164). As a result of the arrangements made by Iulius Caesar in 49 BC, the three *dioceses* in Phrygia, which was included in the Provincia Cilicia, the Pamphylia and the mountainous parts of Milyas and Pisidia were included to the Provincia Asia (Magie, 1950, p. 418; Özsait, 1985, p. 79, 81)<sup>15</sup>. With the arrangements of Marcus Antonius, the control of Pisidia is given to Amyntas (39-25 BC), which Amyntas takes the throne after the death of Castor, the son of Galatian King Deiotaros, in 36 BC (App. *B Civ.* V.8.75; Dio Cass. *Hist.* XLIX.32.3, LIII.26.3; Strb. *Geog.* XII.6.4-5; Plut. *Ant.* LXI.2).

### Roman Imperial Period

After the death of king Amyntas of Galatia in 25 BC, the lands under his rule were turned into the Provincia Galatia by Augustus (Strb. *Geog.* XII.5.1, 6.5, 7.3; Dio Cass. *Hist.* LIII.26.3; Ebur. VII.10)<sup>16</sup>. In AD 74, after the establishment of the Provincia Lycia et Pamphylia (Suet. *Vesp.* 8), Seleukeia and Konana and the lands to the south were included in the borders of this province (Ptol. *Geog.* V.5.4-9)<sup>17</sup>. During the reign of Galerius (305-311 AD), the new province called Provincia Pisidia, which included the southern part of the Provincia Galatia and whose capital was Antiochia ad Pisidiam, was established (AD 308) (Christiol & Drew-Bear, 1999, pp. 41-44).

---

13 See also: Magie, 1950, p. 329; Özsait, 1985, p. 75; Arslan, 2007, pp. 216-219 and 331.

14 See also: Sherwin-White, 1984, p. 155 et al.; Sherwin-White, 1994, p. 233, n. 2. For the campaign of Servilius Vatia, see: Öztürk, 2006, pp. 55-64.

15 See also: Sarte, 1995, p. 134; Waelkens, 2002, p. 134 (here it is stated that this change occurred in 48-47 BC). Jones 1971: 132 (here it is stated that Pisidia remained within the borders of the Provincia Cilicia until 36 BC).

16 For the foundation date and border of the Province of Galatia, see: Magie, 1950, pp. 453-467; Sherk, 1951, pp. 12-18; Kaya, 2000, pp. 103-107.

17 See also: Belke & Mersich, 1990, p. 76; Levick, 1967, p. 164.

As it is understood, the city, which did not lose its importance during the Roman Imperial period, was renamed as Klaudio Seleukeia after the name of the emperor during the reign of Claudius (41-54 AD), as an inscription shows. Although the reason for this change is not clear, it should be read as the people of the city honoring the emperor because of the help the emperor made to the city<sup>18</sup>. This change in the name of the city is also seen in its coins<sup>19</sup> minted during this period and in the inscription dated to the 4<sup>th</sup> century AD, which points to a *homonoia* between the Antiochia ad Pisidiam and Seleukeia (Drew-Bear & Labarre, 2002, p. 73). During this period, it is observed that there were important building activities in the city and it is seen that the settlement on the hill expanded by spreading to the plain during the Hellenistic period (Hürmüzlü et al., 2019b, p. 344).

An inscription from Apollonia dating to AD 161 (Foss, 1977, p. 39) and another inscription from Termessos dating to the late 2<sup>nd</sup> century AD (Heberdey, 1941, n. 4, 62) testify to a great drought in the region at some point in the 2<sup>nd</sup> century AD. From the place where the inscriptions were found, it is clear that this drought affected the whole region from north to south, but unfortunately, we do not have any information about how the cities in the region were affected by this state.

The Roman Empire faced a crisis that caused profound problems in political, economic and social life in almost every corner of the empire in the 3<sup>rd</sup> century AD. With this period of depression, which is called in general the "3<sup>rd</sup> century crisis", the Roman world enters a period of decline. This process undoubtedly affects many cities throughout the empire. One of the most important consequences of this effect is that by the last quarter of the 3<sup>rd</sup> century AD, cities stopped minting their own coins. In this period of depression, Pisidia and Pamphylia have a strategic importance in terms of logistics due to their location; such that the *annona militaris* to be collected from Asia Minor and sent to Syria was transported to the port of Side through these two regions (Elton, 2005, p. 292-294)<sup>20</sup>. Therefore, in this period, it is seen that some of the cities in the region got richer<sup>21</sup>, and some of them were able to keep their economies alive by helping Rome in the context of rich grain, equipment and manpower. This situation is reflected in the types used on the reverse of the coins minted by some cities in the region during the period (Talloen, 2015, p. 169). In this context, the depictions of Hephaistos<sup>22</sup>, who made weapons, and the goddess

---

18 According to the inscription in question, the emperor appears in the city as 'benevolent' and 'manifestation of god', see: Ramsay, 1924, p. 197, no. 26; Drew-Bear & Labarre, 2002, p. 73; Cohen, 1995, p. 349; Kaya, 1999a, p. 165; Lafli, 2002, p. 315; Hürmüzlü, 2015, p. 176.

19 For the coins, see: Aulock, 1979, ns. 1874-2105.

20 See also: Waelkens, 2002, p. 357; Mitchell, 1999, pp. 426-427; Mitchell, 1993, pp. 250-253.

21 For example, regarding the increase in welfare in the cities of Ariassos and Selge, see: Waelkens, 2002, pp. 356-58.

22 For the coins of Seleukeia with depiction of Hephaistos, see: Aulock, 1979, p. 158, no. 1119-

Athena<sup>23</sup>, seen on the reverse of a series that Seleukeia minted in the name of Caracalla, Gordianus III, and Philippus I, are considered as signs that the city provided equipment to the Roman army (Nollé, 1995, pp. 61-63; Talloen et al., 2015, pp. 228-32). On the other hand, the depiction of Hephaestus, which has no doubt that it is directly related to the blacksmithing activities in the city<sup>24</sup>, suggests that the *sidera* epithet taken by the city and reflected in the sources of Late Antiquity (Hie. *Syn.* 673.8) may have taken place as early as the 3<sup>rd</sup> century AD. Moreover, the fact that the settlement in the city goes back to the Iron Ages suggests that the blacksmithing activities may be that old as well, which ongoing research will illustrate. In addition, it is thought that the depiction of Demeter<sup>25</sup>, seen on the reverse of a series minted by the city in the name of Claudius II Gothicus, is related to the grain support that the city provided to the Roman army (Talloen, 2015, pp. 184-185). As it can be seen, the cities of Pisidia and Pamphylia stopped minting their coins at a later date than other cities within the framework of these activities as mentioned above. In addition, research and excavations in Seleukeia and its territory reveal that pottery and bone tool production, blacksmithing and agricultural production in the city reached an important point in the 3<sup>rd</sup> and 6<sup>th</sup> centuries AD, as well as wine production and blacksmithing activities, especially in Late Antiquity (Hürmüzlü et al., 2020b, pp. 143-144)<sup>26</sup>.

In AD 386 the Grunthungi and Ostrogoths, who raided Pisidia from Phrygia, were stopped by an army of farmers led by Valentinianus of Selge (AD 399) (Zos. V.14)<sup>27</sup>. Although it is unclear to what extent the cities in the region were affected by this invasion, it is unlikely that the settlements on the way of the forces reaching Selge were not affected by these raids. Against the banditry that created problems in Pisidia and its surroundings in the following years, Emperor Leo I (457-474 AD) established a military administration covering the regions of Pamphylia, Pisidia and Lykaonia (Levick, 1967, p. 176).

### Byzantine Period

As the unrest in the region continued, Pisidia and Lykaonia were united under a dux rule within the framework of a law published by Emperor Iustinianus (527-565 AD) in the middle of the 6th century AD, but this oppressive rule lasted

---

1122 and 164, no. 2013; RPC VII: no. 20838; Tütüncü & Köker, 2022, p. 255, n. 14.

23 For the coins of Seleukeia with depiction of Athena, see: RPC VII.2, no. 20831; Tütüncü & Köker, 2022, p. 255, n. 15.

24 See, in this volume, Hürmüzlü et al., Production and Economy in Seleukeia Sidera in the Roman Imperial Period: Blacksmithing Practices.

25 For the coins of Seleukeia with depiction of Demeter, see: Aulock, 1979, p. 167 no. 2052-2056; Tütüncü & Köker 2022, p. 256, n. 16.

26 See, in this volume, Hürmüzlü et al., Production and Economy in Seleukeia Sidera in the Roman Imperial Period: Blacksmithing Practices.

27 See also: Levick, 1967, pp. 175-176.

only for five years. The emperor also orders the governor of the *dioces* of Asia to put an end to the revolts in Pisidia, which revolted against taxation (Iust. Nov. 195. 15-18)<sup>28</sup>. However, unfortunately, we do not have any information about the extent to which these uprisings affected the cities of the region.

In the 7<sup>th</sup> and 8<sup>th</sup> centuries AD, it was the scene of Arab raids from the south coast of Anatolia to Constantinopolis. The extent of the impact of these raids on the cities of the Pisidia region still remains unclear due to the inadequacy of the available data. However, although it is thought that Antiochia was affected by the Arab raids led by Muaviye in 645-646 AD (Brooks, 1898, p. 183, n. 3; Levick, 1967, p. 176), it is known that the city was captured by al-Abbas in 712-713 AD (Levick, 1967, p. 177). There is no doubt that the wealth of Antiochia, the metropolis of the region, attracted Arabs, and it cannot be thought that other important cities in the region were not affected by these raids. After this period, it is understood that Byzantine life in Seleukeia gradually weakened but still existed.

### **Turkish Period**

After the Arab raids, Anatolia witnessed the arrival of the Turks as a result of the Battle of Manzikert in AD 1071. The Battle of Myriokephalon, which took place around AD 1176, and Pisidia and its surroundings came under the rule of the Anatolian Seljuks at the beginning of the 13<sup>th</sup> century AD (Sümer, 2009, pp. 365-371). A Seljuk coin hoard found in the city and single coin finds from this period constitute evidence of the Seljuk presence in the city (Köker, 2016). After the Mongol raids in the 13<sup>th</sup> century AD, the weakening of the Seljuk domination leaves its place to the principalities. The region was first conquered by the Hamidoğulları Principality (AD 1297) (Kofuoğlu, 1997, pp. 471-476), then, albeit for a short time, by the Karamanoğulları Principality (AD 1389) (Sümer, 2001, pp. 460-462) and finally by Yıldırım Bayezid (1389-1403 AD). With the end of the Karamanoğulları Principality in AD 1397, the lands of the principality came under the rule of the Ottoman Empire (İnalçık, 1992, pp. 231-234). The coins of the Ottoman Empire, which were also found in the city and dated between the 14<sup>th</sup> and 19<sup>th</sup> centuries AD, are some of the few evidences witnessing this period. On the other hand, the settlement moved to today's Bayat village late Ottoman period and still continues its existence there.

### **Ethnicity and Religious Structures**

Finally, it would be appropriate to mention the ethnic and religious structure (in other words, Jewish and Christian existence) in Seleukeia in terms of city history<sup>29</sup>. It is known that during the Hellenistic period, 2000 Jewish

---

28 While Levick states that the law in question was published in 548 AD (Levick, 1967, p. 176), in Mitchell stated that it was published in 535 AD and covers the Pontos State and the regions of Cappadocia, Pisidia, Lykaonia, Thrakia and Isauria (Mitchell, 2016, p. 501).

29 For some important cults in the city, see: Tütüncü & Köker, 2022, p. 254.

families from Babylonia were settled in Lydia and Phrygia by the Seleukid king Antiochos III, probably between the end of the 3<sup>rd</sup> century BC (Mitchell, 1993, pp. 32-35). Persian and Jewish names mentioned in the inscriptions found in Seleukeia and dated to the 3<sup>rd</sup>-6<sup>th</sup> centuries AD constitute the evidence for other ethnic groups in the city (Kaşka, 2019, p. 144). Therefore, it is highly probable that some of the Jewish families mentioned were settled in the city of Seleukeia (Talloen, 2015, p. 203; Kaşka, 2019, p. 144). On the other hand, it is understood from these inscriptions that the city had an ethnically diverse population. The fact that the personal names seen in the inscriptions are mostly Hellenic and local (Pisidian) names, the population is predominantly composed of these ethnic groups, and in addition to these, the representation of Persian, Jewish and Roman names, albeit in a minority, is important in terms of pointing to other ethnic groups in the city.

Christianity, which started to spread in Pisidia from the 1<sup>st</sup> century AD, brings a long and gradual process with major social and political consequences<sup>30</sup>. From its emergence until it was allowed as the official religion besides paganism and Judaism of the Roman Empire by the Emperor Constantinus the Great (305-337 AD), the new religion was accepted by some people despite the obstacles of Rome and spread over a wide geography. The spread of this religion in Seleukeia also begins in the 1<sup>st</sup> century AD, and St. Paulos, who played a very important role in the spread of this new religion with his travels and visited the city of Antioch ad Pisidiam, commissioned a disciple named Artemon to spread Christianity in the city. This person is probably the first known bishop of the city (Belke & Mersich, 1990, p. 378). Christianity, which has continued to spread since this date, reaches an essential and effective position from the time of Constantinus the Great on (Belke & Mersich, 1990, p. 378). The inscriptions dated between 4<sup>th</sup> and 8<sup>th</sup> centuries AD found in the city verified this circumstance. In the first of these inscriptions, the Society of St. Georgios and its members are mentioned, in the second, a church built in the name of St. Georgios is mentioned<sup>31</sup>, while in the third, the name of Bishop Metrodoros is mentioned<sup>32</sup>. From other inscriptions, we learn the names of the bishops who were sent on behalf of Seleukeia to various councils held between the 4<sup>th</sup> and 8<sup>th</sup> centuries AD. Accordingly, the bishops representing the city; Eutykhios to the Council of Nikaia in AD 325, Aleksandros to the Council of Chalcedon in AD 451, Petros to the Council of Trullo held in Constantinople in 692, and another Petros to the second Council of Nicaea in AD 787 (Belke & Mersich, 1990, 378; Kaşka & Ekici, 2019, p. 339).

On the other hand, while the name of the city is listed together with the epithet of 'sidera' in Hierocles' *Synekdemos* (Hierok. Syn. 673.8.), who lived in the time

---

30 For the spread of Christianity in Pisidia, see: Kaşka & Ekici, 2019.

31 For the first inscription, see: Sterrett, 1888a, p. 333, no. 465; Sterrett, 1888b, p. 118 no. 89. For the second inscription, see: Robert, 1955, pp. 239-245; Iversen, 2015, p. 44, no. 38.

32 For the inscription, see: Sterrett, 1888a, p. 334, no. 467.

of Iustinianus, with some other regional cities, it is listed under Antiochia, the archbishopric center in the region, in the *Notitia Episcopatum* lists. In addition, the name of the city begins to be mentioned with its neighbor city of Agrae starting from *Notitia Episcopatum VII*. In the Council of Constantinople held in AD 869-70, Leon represents Seleukeia together with Agrae, which probably replaced Seleucia as the episcopacy center in the eleventh century AD (Belke & Mersich, 1990, p. 378). In this context, the remains of two churches dated to the second half of the 5<sup>th</sup> century-6<sup>th</sup> century AD, which were found by geophysical surveys in the city (Schenk, 2020, pp. 156-157) and, the Latin Cross pendant mold (Hürmüzlü et al., 2021, p. 341) constitute other evidence of the strong Christian presence in the city.

## Bibliography

### Ancient Sources

App. *B Civ.*

Appianos. *Roman History Vol. III. The Civil Wars. Book 1-3.26.* (H. White, Trans.). London, 1928.

App. *Syr.*

Appianos. *Roman History Vol. XI. The Syrian Wars.* (H. White, Trans.). London, 1912.

App. *Mith.*

Appianos. *Roman History Vol. XII. The Mithridatic Wars.* (H. White, Trans.). London, 1955.

Arr. *Anab.*

Arrianos. *İskender'in Anabasisi/Aleksandrou Anabasis.* (H. Örs, Trans.). İstanbul, 1945.

Cic. *Verr.*

Cicero. *The Verrine Orations, Volume II: Against Verres, Part 2, Books 3-5.* (L. H. G. Greenwood, Trans.). London, 1935.

Dio Cass. *Hist.*

Dio Cassius. *Roman History Volume V: Books 46-50.* (E. Cary & H. B. Foster, Trans.). London, 1917.

*Roman History Volume VI: Books 51-55.* (E. Cary & H. B. Foster, Trans.). Cambridge, 1917.

Diod. Sic. *Bib.Hist.*

Diodoros. *Library of History, Volume VII: Books 15.20-16.65*. (C. L. Sherman, Trans.). London, 1952.

*Library of History, Volume IX: Books 18-19.65*. (R. M. Geer, Trans.). London, 1947.

*Library of History, Volume X: Books 19.66-20*. (R. M. Geer, Trans.). London, 1954.

Etur.

Eutropius. *Breviarium Historiae Romanae. Kısa Roma Tarihi*. (Ç. Menzilcioğlu, Trans.). İstanbul, 2016.

Hdt. *Hist*.

Herodotos. *Historiae*. (M. Ökmen, Trans.). İstanbul, 1991.

Hie. *Syn*.

Hierocles. *Synekdemos*. A. Burckhardt (Ed.), 1893.

Iust. *Nov*.

*Novellae Iustinianii, Corpus Iuris Civilis III*. R. Scholl & W. Kroll (Eds.), Berlin, 1895.

Ksen. *Anab*.

Ksenophon. *Anabasis*. (O. Yarlığaş, Trans.). İstanbul, 2020.

Ksen. *Hell*.

Ksenophon. *Hellenika*. (O. Demir, Trans.). İstanbul, 2021.

Liv. *AbUrbe*.

Titus Livius. *Ab Urbe Condita X. Books XXXV-XXXVII*. (E. T. Sage, Trans.). London, 1949.

*Ab Urbe Condita XI. Books XXXVIII-XXXIX*. (E. T. Sage, Trans.). London, 1936.

*The History of the Rome by Titus Livius. Books Thirty-seven to the End. With the Epitomes and Fragments of the Lost Books*. (M. A. MacDevitte, Trans.). 1900.

Plin. *NH*

Plinius Secundus. *Naturalis Historiae II. Libri III-VII*. (H. R. Rackham, Trans.). London, 1947.

*Naturalis Historiae IX. Libri XXXIII-XXXV*. (H. R. Rackham, Trans.). London, 1952.

Plut. *Ant*.

Plutarch. *Plutarch's Lives, IX, Demetrius and Antony. Pyrrhus and Gaius Marius*, (B. Perrin, Trans.). Cambridge, 1920.

Plutarkhos. *Marcus Antonius*. (M. Özaktürk, Trans.). Ankara, 2020.

Plut. *Them*.

Plutarkhos. *Plutarch's Lives, II: Themistocles and Camillus. Aristides and Cata Major. Cimon and Lucullus*. (B. Perrin, Trans.). London, 1914.

Polyb. *Hist*.

Polibios. *The Histories*. (R. Waterfield, Trans.). Oxford, 2010.

Ptol. *Geog*.

Claudius Ptolemaios. *Geographika Hypothesis*. C. F. A. Nobbe (Ed.), Claudii Ptolemaei Geographia lib. 4-8, Leipzig, 1843-1845.

Strb. *Geog*.

Strabon. *Geographika: XII-XIII-XIV, Antik Anadolu Coğrafyası*. (A. Pekman, Trans.). İstanbul, 1993.

Suet. *Vesp*.

Suetonius. *Lives of the Caesars, Volume II: Claudius. Nero. Galba, otho, and Vitellius. Vespasian. Titus, Domitian. Lives of illustrious Men: Grammarians and Rhetoricians. Poets (Terence. Virgil. Horaca. Tibullus. Persius. Lucan). Lives of Pliny the Elder and Passienus Crispus*. (J. C. Rolfe, Trans.). London, 1914.

Zos.

Zosimos. *New History*. (R. T. Ridley, Trans.). Sydney, 1982.

### Modern Sources

Arslan, M. (2007). *Roma'nın Büyük Düşmanı Mithridates VI Eupator*. Odin Yayıncılık.

Aulock H. von. (1979). *Münzen und städte Pisidiens II*, IstMitt Beiheft 22. Wasmuth.

Belke, K. & Mersich, N. (1990). *Tabula Imperii Byzantini. Phrygien und Pisidien, Band 7*. Verlag der Österreichischen Akademie der Wissenschaften.

Bingöl, O. (2012). Seleukeia Sidera. *Dil Tarih Coğrafya Fakültesi Arkeoloji Bölümü Dergisi*, EK III (2), 457 – 471.

Bracke, H. (1993). Pisidia in Hellenistic Times (334-25 BC). In M. Waelkens (Ed.), *Sagalassos 1. First General Report on Survey (1986-1989) and Excavations (1990-1991)* (pp. 15–35). Leuven University Press.

Brooks, E. W. (1898). The Arabs in Asia Minor (641-750), from Arabic Sources. *JHS XXI*, 182–208. <https://doi.org/10.2307/623724>

- Christiol, M. & Drew-Bear, T. (1999). L'oeuvre de Valerius Diogenes à Antioch de Pisidie. *Antiquité Tardive*, 7, 39–71. <https://doi.org/10.1484/J.AT.2.300805>
- Cohen, M. G. (1978). *The Seleukid Colonies: Studies in Founding, Administration and Organization*, Historia Heft 30. Steiner.
- Cohen, M. G. (1995). *Hellenistic settlements in Europe, The Islands and Asia Minor*. University of California Press.
- Çelgin, A. V. (1997). *Termessos Tarihi*. (Manuskript).
- Darrouzès, J. (1981). *Notitiae episcopatum Ecclesiae Constantinopolitanae. Texte critique, introduction et notes* (Géographie Ecclésiastique de l'Empire Byzantin. Tome 1). Peeters.
- Derw-Bear, T. & Labarre, G. (2002). Les trois statues de la Concorde à Antioche de Pisidia. *EpigAnat*, 34, 71–92.
- Elton, H. (2005). Military Supply and the South Coast of Anatolia in the Third Century AD. In S. Mitchell & K. Katsari (Eds.), *Patterns in the Economy of Roman Asia Minor*. Classical Press of Wales. <https://doi.org/10.2307/j.ctv1n357z4>
- Foss, C. (1977). Two Inscriptions Attributed to the Seventh Century AD. *ZPE* 25, 282–288.
- Hall, A. S. (1985). An Epigraphical Survey in the Kibyrtis 1984. *Araştırma Sonuçları Toplantısı*, 3, 187–190.
- Hansen, E. V. (1971). *The Attalids of Pergamon*. Cornell University Press.
- Heberdey, R. (1941). *Tituli Pisidiae Linguis Graeca et Latina Conscripti*, 1. *Tituli Termessi et agri Termessensis, Tituli Asia Minoris Collecti et Editi Auspiciis Academiae Litterarum Vindobonensis*, III. Hölder.
- Hirschfeld, G. (1879). *Vorläufiger Bericht über eine Reise im südwestlichen Kleinasien III. Monatsberichte der Königlich Preussische Akademie des Wissenschaften zu Berlin*, 299–237
- Hürmüzlü, B. (2008). Seleukeia Sidera Antik Kenti. *Türk Eskiçağ Bilimleri Enstitüsü Haberler*, 26, 12–13.
- Hürmüzlü, B. (2009). Remarks on Cultural Interactions in the Earlier Periods of Northwest Pisidia. In H. Löhr, G. Mehnert, A. Slawisch, A. Mehnert, R. Einicke & St. Lehmann (Eds.), *Zurück zum Gegenstand. Festschrift für Andreas E. Furtwängler* (pp. 493–500). Beier & Beran.
- Hürmüzlü, B. (2015). Pisidia Bölgesi'nde Seleukoslar Dönemi Yerleşim Politikaları. *Colloquium Anatolicum*, 14, 167–185.
- Hürmüzlü, B., de Giorgi, A. & Iversen, P. A. (2009). New Research in Northwestern Pisidia: Ancient Konane (Conana) and its Territory. *Colloquium*

*Anatolicum* 8, 235-256.

Hürmüzlü, B., Sönmez, B. & Ayaşan, M. (2017a). Seleukeia Sidera Antik Kenti 2016 yılı Yüzey Araştırması Sonuçları. *Araştırma Sonuçları Toplantısı*, 35(1), 247-254.

Hürmüzlü, B., Ayaşan, M., Hecebil, U., Sönmez, B., Köker, H., Schenk, T. & Köker-Atav., İ. (2017b). Seleukeia Sidera Antik Kenti Yüzey Araştırması Sonuçları. *ANMED* 15, 233-241.

Hürmüzlü, B., Köker, H., Akaslan, M., De Jong, L., Köker-Atav, İ., Mörel, A., Sönmez, B., Ayaşan, M. & Browne, A. K. (2019a). Seleukeia Sidera Antik Kenti Temizlik – Düzenleme ve Ölçüm Çalışmaları. *Kazı Sonuçları Toplantısı*, 40(1), 385-396.

Hürmüzlü, B., Kohlmeyer, K., Kai-Browne, A., Köker, H., Ergin, B. & Sönmez, B. (2019b). Isparta İli ve İlçeleri Yüzey Araştırması 2017 Yılı Çalışmaları. *Araştırma Sonuçları Toplantısı*, 36(1), 343-352.

Hürmüzlü, B., Sönmez, B., Ergin, B. & Kai-Browne, A., (2020a). Isparta İli ve İlçeleri Yüzey Araştırması 2018 Yılı Çalışmaları”, *Araştırma Sonuçları Toplantısı*, 37(1), 315-320.

Hürmüzlü, B., Sönmez, B. & Köker-Atav, İ. (2020b). Seleukeia Sidera Antik Kenti Üretim Faaliyetleri Hakkında Ön Değerlendirmeler. In A. Mörel, G. Kaşka, H. Köker, M. Kaşka, M. Fırat & S. O. Akgönül (Eds.), *Production, Trade and Economy in Pisidia and its Surrounding Areas. International Symposium Proceeding Pisidian Studies II, 31 October – 03 November 2018 Isparta, Turkey* (pp. 140-153). Süleyman Demirel University Press.

Hürmüzlü, B., Sönmez, B., Mörel, A. & Kaşka, G. (2021). Seleukeia Sidera’da Geç Antik Dönem Hakkında Ön Sonuçlar. *Süleyman Demirel Üniversitesi Fen-Edebiyat Fakültesi Sosyal Bilimler Dergisi*, 54, 317-340.

Hürmüzlü, B., Sönmez, B., Mörel, A., Kılınç, G. & Uslu, H. (2022). Paleo-Kuleönü Gölü Çevresi Antik Dönem Yerleşimleri. In Ç. Şenkul, B. Hürmüzlü-Kortholt (Eds.), *Doğal ve Kültürel Mirasın Paleo-Kuleönü Gölündeki İzleri. 50 Bin Yılın İzleri* (pp. 207-247). Süleyman Demirel Üniversitesi Yayınları.

İnalçık, H. (1992). *Bayediz I. In Türkiye Diyanet Vakfı İslam Ansiklopedisi* 5 (pp. 231-234). TDV İslâm Araştırmaları Merkezi.

Iversen, P. (2015). Inscriptions from Northwest Pisidia. *EpigAnat*, 48, 1-85.

Jones, A. H. M. (1971). *The Cities of the Eastern Roman Provinces*. Wipf and Stock.

Kaşka, G. (2019). Pisidia’da bir Seleukos Yerleşimi: Seleukeia Sidera. *Eskiçağ Yazıları* 13, 135-151.

- Kaşka, G. & Ekici, K. (2019). MS I. ve VIII. Yüzyıllar Arasında Kuzeybatı Pisidia'da Hristiyanlık. *Phaselis V*, 333-346. <https://doi.org/10.18367/Pha.19021>
- Kaya, D. (1999a). Die theaterausgrabung von Seleukeia Sidera (Klaudio-seleukeia). *Asia Minor Studien 34*, 163-174.
- Kaya, D. (1999b). Seleukeia Sidera. In *I. Uluslararası Pisidia Antiocheia Sempozyumu Bildiriler Kitabı, 2-4 Temmuz 1977* (pp. 35-46). Kocaeli Ofset Matbaacılık.
- Kaya, M. A. (1998). Anadolu'da Roma Egemenliği ve Pompeius'un Siyasal Düzenlemeleri. *Tarih İnceleme Dergisi*, XIII, 163-167.
- Kaya, M. A. (2000). *Anadolu'daki Galatlar ve Galatia Tarihi*. Bilge Kültür Sanat.
- Kaya, M. A. (2005). Anadolu'da Roma Eyaletleri; Sınırlar ve Roma Yönetimi. *Tarih Araştırma Dergisi*, 24(38), 11-30. [https://doi.org/10.1501/Tarar\\_0000000229](https://doi.org/10.1501/Tarar_0000000229)
- Kofuoğlu, S. (1997). *Hamidoğulları*. In *Türkiye Diyanet Vakfı İslam Ansiklopedisi 15* (pp. 471-476). TDV İslâm Araştırmaları Merkezi.
- Kosmetatou, E. (1997). Pisidia and the Hellenistic Kings from 323 to 133 B. C. *Ancient Society 28*, 5-37.
- Köker, H. (2016). Klaudia Seleukeia (Sidera) Kazı ve Yüzey Araştırmaları Sikke Buluntuları Ön Değerlendirme. In A. V. Çelgin, N. E. Şahin Akyürek, F. Onur (Eds.), *AKRON 13 Eskiçağ Yazıları*, 10 (pp. 253-258). Arkeoloji ve Sanat Yayınları.
- Köker, H. (2019). Pisidia Bölgesi Tarihi. B. Hürmüzlü, H. Köker & A. Mörel (Eds.), *Antik Dönemden Günümüze Isparta'nın Kültürel Mirası*. Süleyman Demirel Üniversitesi Yayınları.
- Köker, H. (2022). *Komama Tarihi ve Sikkeleri*. Myrina Yayınları.
- Lafli, E. (2001). Seleuceia in Pisidia in the Hellenistic Period. *Orbis Terranum*, 7, 55-98.
- Lafli, E. (2002). Notes on the history of Seleuceia Sidera in Pisidia (South-western Turkey): second preliminary report on the inscriptions. In P. Freeman, J. Bennett, Z. T. Fiema, B. Hoffmann (Eds.), *Limes XVIII - Proceedings of the XVIIIth International Congress of Roman Frontier Studies held in Amman, Jordan (September 2000). A Conference held under the auspices of the Department of Antiquities of the Hashemite Kingdom of Jordan, The Council for British Research in the Levant and the Department of Archaeology at the University of Liverpool. Volume I, BAR International Series, 1084(1)* (pp. 313 – 236). BAR Publishing.
- Levick, B. (1967). *Roman Colonies in Southern Asia Minor*. Oxford at the Clarendon Press.
- Magie, D. (1950). *Roman Rule in Asia Minor*. Oxford University Press.

- Mitchell, S. (1993). *Anatolia. Land, Men, and Gods in Asia Minor. Volume II*. Clarendon Press.
- Mitchell, S. (1999). Greek Epigraphy and Social Change. A Study of the Romanization of South-West Asia Minor in the Third Century A.D. *Atti del XI Congresso Internazionale di Epigrafia Graeca e Latina, Roma 18-24 Settembre 1997 Roma* (pp. 419-433).
- Mitchell, S. (2016). *Geç Roma İmparatorluğu Tarihi M.S. 284-641* (K. Turhan, Trans.). Türk Tarih Kurumu.
- Mörel, A. (2020). Seleukeia Sidera'da tarımsal üretimin Arkeolojik İzleri. In A. Mörel, G. Kaşka, H. Köker, M. Kaşka, M. Fırat & S. O. Akgönül (Eds.), *Production, Trade and Economy in Pisidia and its Surrounding Areas. International Symposium Proceeding Pisidian Studies II, 31 October – 03 November 2018 Isparta, Turkey* (pp. 50 - 55). Süleyman Demirel University Press.
- Nollé, J. (1995). Athena in der Shimide des Hephaistos. Militär-, wirtschafts- und socialgeschichtliche Implikationen von Münzbilder. *JNG, 45*, 51-77.
- Özsait, M. (1980). *İlkçağ Tarihinde Pisidya*. İstanbul University Press.
- Özsait, M. (1985). *Hellenistik ve Roma Devrinde Pisidia Tarihi*. İstanbul University Press.
- Özsait, M. (1986). 1984-1985 Yılı Isparta Çevresi Tarih Öncesi Araştırmaları. *Araştırma Sonuçları Toplantısı 4*, 323-333.
- Öztürk, H. S. (2006). *MÖ II-MS IV. Yüzyıllarda Lykia-Pamphylia Bölgesinde Kırsal Alan Güvenliği* [Unpublished doctoral dissertation]. Marmara University.
- Ramsay, W. M. (1924). Studies in the Roman Province Galatia. VI. Some Inscriptions of Colonia Caesarea Antiochea. *JRS, 14*, 172-205. <https://doi.org/10.2307/296332>
- Ruge, W. (1921). Seleukeia, *RE II A.1*, 1204-1205.
- Sarte, M. (2004). *L'Anatolie Hellenistique. De l'Égée Caucase*. Armand Colin.
- Schenk, T. (2020). Archäologische Prospektionen in Seleukeia Sidera und der Versuch, Produktionszentren zu bestimmen. In A. Mörel, G. Kaşka, H. Köker, M. Kaşka, M. Fırat & S. O. Akgönül (Eds.), *Production, Trade and Economy in Pisidia and its Surrounding Areas. International Symposium Proceeding Pisidian Studies II, 31 October – 03 November 2018 Isparta, Turkey* (pp. 154-165). Süleyman Demirel University Press.
- Sekunda, N. V. (1991). Achaemenid Settlement in Karia, Lycia and Greater Phrygia. In H. Sancisi-Weerdenberg & A. Kurth (Eds.), *Achaemenid History VI: Asia Minor and Egypt. Old Cultures in a New Empire* (pp. 83-43). Nederlands Instituut voor het Nabije Oosten.

- Sherk, R. K. (1951). *The Legates of Galatia from Augustus to Diocletian*. The John Hopkins Press.
- Sherwin-White, A. N. (1984). *Roman Foreign Policy in the East 168 B. C. to A. D. 1*. University of Oklahoma Press.
- Sherwin-White, A. N. (1994). Lucullus, Pompey and the East, *CAH* 9, 229-295.
- Lucullus, Pompey and the East. In J. Crook, A. Lintott, & E. Rawson (Eds.), *CAH* (pp. 229-273). Cambridge University Press. <https://doi.org/10.1017/CHOL9780521256032.009>
- Sümer, F. (2001). Karamanoğulları. In *Türkiye Diyanet Vakfı İslam Ansiklopedisi* 24 (pp. 460-462). TDV İslâm Araştırmaları Merkezi.
- Sümer, F. (2009). Selçuklular. In *Türkiye Diyanet Vakfı İslam Ansiklopedisi* 36 (pp. 365-371). TDV İslâm Araştırmaları Merkezi.
- Sterret, J. R. S. (1888a). *An Epigraphical Expedition to Asia Minor*, University of California Libraries.
- Sterret, J. R. S. (1888b). *An Epigraphical Expedition in Asia Minor*, University of California Libraries.
- Talloe, P. (2015). *Cult in Pisidia. Religious Practice in Southwestern Asia Minor from Alexander the great to the Rise of Christianity*. Brepols Publishers.
- Talloe, P., Stroobants, F. & Degryse, P. (2015). Hephaistos in Pisidia. *JNG*, 161, 325-342.
- Tütüncü, E. & Köker, H. (2022). Sikkeler Işığında Klaudio Seleukeia 'Sidera'. In Ç. Şenkul, B. Hürmüzlü (Eds.), *Doğal ve Kültürel Mirasın Paleo-Kuleönü Gölündeki İzleri. 50 Bin Yılın İzleri* (pp. 250-262). Süleyman Demirel Üniversitesi Yayınları.
- Vanhaverbeke, H. & Waelkens, M. (2005). If You can't Beat them, Join them? The Hellenization of Pisidia. *JMA*, 18, 49-65.
- Waelkens, M. (2002). Romanization in the East. A Case Study: Sagalassos and Pisidia. *IstMitt*, 52, 311-368.

## Results of Geomagnetic Surveys and Evidence for Forging Activities in Seleukeia Sidera

*Seleukeia Siderada Madencilik Faaliyetlerinin Manyetik Yöntemlerle Tespiti*

Thomas Schenk\*

Pisidia Bölgesi'nin önemli bir Hellenistik Dönem kenti olan Seleukeia Sidera antik kentinin merkezi özellikle Roma ve Geç Roma İmparatorluk Dönemlerinde zenginleşmiş ve bu dönemlerde Hisar Tepe üzerinde ve çevresine yayılacak şekilde büyümüştür. İlk arkeolojik araştırmalar kentin büyüklüğü hakkında bilgi sahibi olmadan çoğunlukla çok özel sorulara ve sınırlı alanlarda kazı çalışmalarına odaklanmıştır. Ancak, çok sayıda yüzey buluntusu ve yüzeyde gözlemlenen mimari öğelere dayanarak, toprak altındaki eski yapıların büyük ölçüde korunduğunu ortaya koymuştur. Bilge Hürmüzlü başkanlığında gerçekleştirilen ilk yüzey araştırmalarından sonra, antik kentin öncelikli olarak birkaç yıl boyunca sınırlarının araştırılmasına yönelik olarak araştırılması fikri ortaya çıkmıştır. Bu çalışmaların temel amacı jeofizik ölçümler yapılarak arkeolojik envanterin mümkün olduğunca eksiksiz bir şekilde tespit edilerek belgelenmesidir.

Jeofizik ölçüm projesi, Süleyman Demirel Üniversitesi ile Hochschule für Technik (Berlin) arasında bir iş birliği projesi olarak planlanarak 2016 yılında hayata geçirilmiş; 2018-2021 yılları arasında ise Gerda Henkel Vakfı tarafından desteklenmiştir.

Basit bir taşıyıcı sistem yardımı ile jeomanyetik yöntem kullanılarak yapılan ilk test ölçümleri 2016 yılında gerçekleştirilmiştir. Teknik donanım, sonraki çalışma yıllarında geliştirilmiştir. Bu aşamada bir GPS bağlantısı ile donatılmış ve bu da yıllar içinde verimlilikte önemli bir artış sağlamıştır. Maalesef Corona pandemisi nedeni ile 2019 yılından sonra bu yöntemin kullanılarak çalışmalara devam edilmesi mümkün olamamıştır. Bununla birlikte, yaklaşık olarak antik kentin 38 hektarlık alanının büyük bir bölümü jeomanyetik yöntem kullanılarak araştırılmış ve çalışmalar ağırlıklı olarak Hisar Tepe çevresindeki düzlüklerde gerçekleştirilmiştir.

Manyetogramlardan kentin yapılarının tespit edilmesi ve yeniden kurgulanması mümkün olmaktadır. Teraslı olarak karşımıza çıkan kentin tepesindeki erken evreye ait kalıntılar sadece çok silik olarak izlenebilirken; yapı kalıntılarının belirtileri özellikle yoğundur ve hem alçak eğimli teras hem de ovada yeniden kurgulanabilmektedir. Sokaklar ve ara yollar muhtemelen daha eski güzergâhları takip etmektedir. Ancak, bazıları da çok düzenlidir ve bu da planlı

---

\* Hochschule für Technik und Wirtschaft, Wilhelminenhofstraße 75A, 12459 Berlin/Germany, Thomas.Schenk@htw-berlin.de, ORCID: 0000-0002-7955-5919.

bir kentin genişlemesine işaret etmektedir. Roma ve Geç Roma İmparatorluk Dönemlerindeki siyasi ve sosyal merkez, Hisar Tepe'nin hemen güneyindeki ovada yer almaktaydı. *Agora*, *macellum* ve erken bir Hıristiyanlık Dönemi bazilikasına ait izlere rastlanmıştır.

Antik kentin adındaki "Sidera" takısı Geç Roma İmparatorluk Döneminde demir metalurjisinin önemini göstermektedir. Buradan hareketle iki kurum ortaklığında yürütülen proje, bu soruyu da araştırmayı ve üretim alanlarının kent planlamasındaki konumunun tespit edilmesini amaçlamıştır. Bunun sadece jeofizik ölçümler ile tespit edilmesinin mümkün olmayacağı çok geçmeden anlaşılmış olduğundan, bu ortak proje sürecinde birçok yöntem birlikte kullanılmıştır. Ancak, çeşitli kampanyalarda da gerçekleştirilen, diferansiyel GPS kullanılarak cüruf buluntularının haritalanması yalnızca olası dövme yerlerinin kabaca tespit edilmesine yardımcı olmuştur. Yüzey buluntuları kentin birçok noktasına alan boyunca dağılmış olmakla birlikte, özellikle Hisar Tepe'nin kuzeydoğusunda daha büyük yoğunluklarda karşımıza çıkmıştır. Bu alanda, toprak örnekleri düzenli bir karelej sistemi ile toplanmış ve içerdiği mikroskobik manyetit parçacıklarının miktarı için analiz edilmiştir. Sonuçlar, cüruf buluntularına ve jeomanyetiklere göre yüksek değerlere sahip numunelerin gösterdiği üzere en az beş atölye alanı olduğuna işaret etmektedir. 2020 yılında yürütülen kazı çalışmalarında Y23 alanında yapılan kazılarda, kabaca daha önce tahmin edildiği yerde gerçekten de bir demirci atölyesi ortaya çıkarılmıştır (Pl. 2: 21).

### **1. Geomagnetic Surveys in Seleukeia Sidera and Their Results**

The exploration of archaeological sites by means of geophysical methods has been an integral part of field research for decades. It is not necessarily about the concrete preparation of excavations, but rather about recording the extent of a site, exploring it with regard to its internal structure, being able to better assess the state of preservation, and defining necessary protective measures at the monument. Depending on the given local conditions and the concrete research questions, different methods are applied, which consider different parameters and properties of the soil and the archaeological structures embedded in it. The most important methods in archaeology today are geomagnetics, radar measurements and electrical resistivity mapping or tomography.



The early archaeological research in Seleukeia Sidera was focused on individual points, and so for a long time it was completely unclear what the extent of the city at the foot of Hisar Tepe would be and what building density could be expected. An important goal of the project campaigns in the last few years was therefore to use a prospecting method with which the largest possible areas could be investigated in a relatively short time<sup>2</sup>. Experience has shown that geomagnetics are best suited for this task. One advantage is that a wide range of archaeological structures show up as anomalies in the earth's magnetic field. These include walls, backfilled pits and ditches, and features with fire exposure, such as kilns and hearths.

In Seleukeia, it was to be expected that extensive masonry structures had been preserved in the subsoil. When the fields are plowed with tractors, limestone ashlar and other architectural elements are repeatedly brought to the surface in a wide variety of places. Therefore, it must be assumed that the wall remnants are only very shallow in the ground and their preservation is thus acutely endangered due to the ongoing agricultural land use.

In ancient times, the building material used at the site was almost exclusively the local limestone, which was extracted from quarries in the immediate vicinity. Limestone has an important property for prospecting. It is non-magnetic and therefore provides a strong contrast to the surrounding sediment, which is usually more magnetized. The good suitability of the magnetic prospecting method was already demonstrated in Seleukeia in the summer of 2016, when initial test measurements were undertaken by our team on the slope terrace on the northeast side of Hisar Tepe. In this first campaign, as well as in 2017, the measurements were made with a system worn on the shoulder (Fig. 1), on which five fluxgate sensors were mounted in parallel and the measurement data were recorded in a 25 x 5 cm grid. The sensors and the data logger are professional

---

2 This project was made possible by financial support from the Gerda Henkel Foundation in Germany. The project was a cooperation between the Süleyman Demirel University (Prof. Dr. Bilge Hürmüzlü) and the Hochschule für Technik und Wirtschaft Berlin, University of Applied Sciences (Prof. Dr. Thomas Schenk).

products of SENSYS® (Neu Golm, GERMANY), while the carrying frame was self-made using aluminum profiles. The 12V battery on the back also served as a counterweight to the sensors. During the measurements, only a hand switch has to be pressed to start and stop the measurement trace.

In preparation for the magnetic prospection, the measurement areas had to be set up with a differential GPS (Leica GPS900) and marked with wooden stakes. Since the agricultural areas are mostly small and irregular in their outlines, the effort for marking was not insignificant. In addition, there was the problem that the fields were cultivated differently. Understandably, the grain harvest had to be waited for first and then only a short time window could be used until the fields were plowed again. On freshly plowed land, prospecting proved impractical because the plow furrows in the field created a very distracting stripe pattern in the magnetograms. The first magnetic plan of Seleukeia looked like a patchwork quilt with many gaps, which we tried to close in the following campaigns, but did not succeed everywhere.

In the 2018 measurement campaign, prospecting became somewhat more efficient because a measurement cart with seven fluxgate probes could now be used (Fig. 2). Due to the larger width of the instrument, a higher area performance per working day could be achieved. A further improvement and perfection were achieved in 2019 with the coupling of a differential GPS (Trimble 5700) for georeferencing the magnetic measurement data (Fig. 3). Setting wooden stakes and laying out measuring tapes to mark the measurement areas and the tracks was now no longer necessary.

After four campaigns of geomagnetic prospecting, the total area surveyed is 37.86 hectares. Due to Covid-19 restrictions in 2020 and 2021, geomagnetic measurements could not continue. Looking back at the achieved work status, it was nevertheless basically possible to explore a considerable part of the ancient city area. In the following, an overview-like discussion of the prospection results will be given.



Fig. 2



Fig. 3

When interpreting magnetograms, it must be taken into account that the representations of the subsurface, mostly in the form of grayscale plots, actually contain only two-dimensional information, so that no exact information on the depth of walls and other features can be derived. In view of the fact that Seleukeia was settled over several centuries, different phases of expansion, enlargement, alteration and also destruction are to be expected. This inevitably leads to overlaps that are difficult to interpret in a two-dimensional digital image, or even impossible to recognize. For example, construction debris lying above walls, consisting of limestone rubble and brick fragments, leads to unsharp images. In this case, it is not possible to determine the thickness of a wall exactly or even its orientation in a graphic reconstruction.

For the reasons mentioned above, it is therefore desirable to combine different geophysical methods in order to obtain as precise a picture as possible of the subsurface and the structures embedded in it. The combination of geomagnetics and ground penetrating radar is ideal. Initial radar measurements were taken during the 2017 campaign and confirmed the interpretation of an important construction feature. Additional radar measurements, conducted by Süleyman Demirel University (SDÜ), were made in 2020 primarily on the southwestern side of Hisar Tepe on areas that had been geomagnetically prospected in previous years. These new data are promising and show the enormous potential of radar measurements.

### **1.1 A First Look at the Geomagnetic Map**

The geomagnetically prospected areas extend mainly at the feet of Hisar Tepe, partly on its lower slope, but predominantly in the plain northeast, southeast and southwest of the ancient city hill. Even if the magnetogram still shows numerous gaps, the core area of the Roman-Byzantine city seems to be covered in essential parts, so that statements about the density of the buildings and the characteristics of the street network are possible, as well as first interpretations of the functional structure of the urban space.

The streets, some of which can still be traced in the modern road network, follow both local topographical features and Seleukeia's connections to the surrounding countryside. Furthermore, rectangular patterns are also recognizable, indicating a partial systematic expansion of the city according to a planning scheme.

All building remains appear with negative magnetic contrast, visible as bright lines in the magnetogram, which is related to the specific properties of the limestone used. From the overall picture (Fig. 4), the course of a road can be interpreted, which concentrically encloses Hisar Tepe on the lower slope terrace and surrounds an almost area-wide development on the side facing the mountain. Particularly in the northeast, where the slope terrace offers a little more space, there are very dense masonry structures that are divided

into blocks of buildings at irregular intervals with alleys running across them. Further into the plain, the main streets have a more irregular orientation, but there are numerous cross-streets distributed radially around Hisar Tepe and running directly toward the hill (Fig. 5).



Fig. 4



Fig. 5

## 1.2 Structures on the Hisar Tepe

The early nucleus of Seleukeia Sidera can be located on the hilltop of Hisar Tepe. Pottery sherds indicate a first settlement in the Iron Age and also the Hellenistic city foundation used the good fortification conditions of the hill. The relief of the hilltop shows several terraces and architectural remains can be found. The 280 m long and 90 m wide middle plateau of the hill lent itself to magnetic measurements, which were started in 2017 and 2018, but not yet

completed. Interpretation of the measured data is somewhat difficult for this area. The problem is that the natural rock is very close below the surface and therefore there is little magnetic contrast between the rock and the preserved wall remains. Only dimly does a regular grid of walls show itself, following the northwest-southeast orientation of the plateau (Fig. 6). The buildings seem to be aligned along a main street on both sides. It is conceivable that the regular building grid on Hisar Tepe can be associated with the Hellenistic settlement. However, the areas of the hilltop, organized into several terraces, were also used in subsequent centuries, and modified by later superstructures. This leaves plenty of room for speculation.



Fig. 6

### **1.3 The Situation on the Northeast Side of Hisar Tepe**

One focus of archaeological activity in recent years has been immediately northeast of Hisar Tepe, both on the slope and in the plain between the two hilltops. In this area, large quantities of iron slag have been observed during surveys. Although iron slag occurs almost everywhere in the urban area, it is particularly abundant here. Early on, the idea arose to define iron processing in Seleukeia and its economic importance as a research topic and to locate possible workshops and also to consider technological aspects. As already mentioned, the magnetogram on the terrace of the northeastern slope shows very dense building structures, which, as a result of initial soundings and after

the evaluation of surface finds, are likely to date from the Late Antique to Early Byzantine period. The recognizable walls run parallel and at right angles to the main road leading along them (Fig. 7). Several transverse alleys are also present. Overall, the image of the recognizable building structures appears very uniform and regular. Sometimes it is possible to identify individual buildings together with the corresponding room layout and the street-side entrances (Fig. 8). In the plain below the terrace, numerous buildings also directly adjoin the streets, but the quarters in the rear are less densely developed. Even extensive open spaces stand out, framed only by boundary walls, and possibly used as garden land.

What is interesting now is the distribution of the slag finds, which shows several concentrations. A dense accumulation was found on the terrace on both sides of an alley. In some of the buildings recognizable there, as well as in large areas directly south of the street intersection, more strongly magnetized areas can be seen in the magnetogram (black areas). It can be assumed that waste from blacksmiths' activity accumulated there and thus indirectly the location of at least one workshop can be traced.



Fig. 7

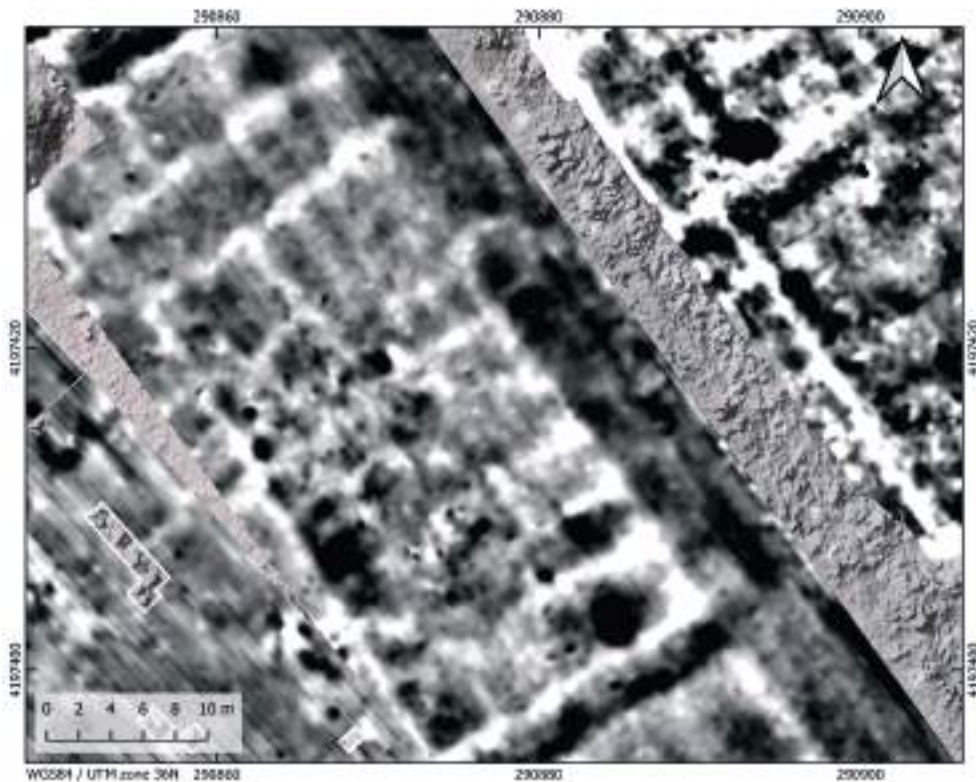


Fig. 8

Similar observations could also be made in the plain, where concentrations of slag finds, and more strongly magnetized areas overlap in at least two places. At the surface, the soil there is also darker in color and enriched with charcoal, which can even be traced in satellite images for the northwestern find concentration.

Although there are clues to the location of forge workshops with these observations, they cannot be identified with pinpoint accuracy based on the magnetic prospecting data alone. This lacks the thermoremanent anomalies that would be interpreted as furnaces or forges in the context of ironworking. Possibly, their state of preservation is a major problem.

#### **1.4 The Area in Front of the Theater**

While in the northeast especially the slopes show a dense settlement, also in the eastern plain the prominent area in front of the theater is characterized by dense development (Fig. 9). The streets, which have so far only been recorded in parts, have several branches. This is probably due to the expansion of existing pathways and also corresponded to the needs in late antique and early Byzantine times. The attractiveness of this part of the city can be explained by its location overlooking the theater and by the favorable conditions for exchange and trade. Characteristic for this area are two streets, which starting from the triangle of

paths run towards the theater and possibly connect immediately south and north of the theater to the main street at the foot of the hill. Unfortunately, some areas are still missing in the magnetogram, but they cannot be prospected due to the presence of ruins, cairns, and earth dumps of former excavations. In the future, it will be necessary to take a closer look here to see whether there are any wall features that could complete the picture via total station measurements.



Fig. 9

### 1.5 The Public Area South of Hisar Tepe

Judging from the results of the prospection, the public and economic center of Seleukeia must have been located in the plain at the southern end of Hisar Tepe. At the foot of the hill is the so-called Rock Temple, where in recent years the earth dumps of earlier excavations have been successfully searched for overlooked finds. To the east of it, large, elongated building structures are indicated. They are aligned with the course of the slope foot and can be interpreted most plausibly as the area of the agora (Fig. 10). In the magnetogram, the features cannot always be differentiated into individual complexes, either because the complex is multiphase, or because fallen stones overlay the architecture. Here, further radar measurements are needed to clarify the situation.

The multiphase nature of the building structures is indicated, for example, by the deviating orientation of a large rectangular building located 80 m south

of the presumed agora area. Its dimensions are 33 x 14 m, and an entrance can be identified on the eastern short side facing the street. The present fact situation does not allow any further interpretation.

On the other side of the street, opposite the presumed agora and the aforementioned rectangular building, two remarkable building complexes were identified in 2017, where interpretation is less problematic. Particularly noteworthy is the square structure, which catches the eye with strong magnetic anomalies and small-scale internal divisions. The outer sides are about 35 meters long, while the inner outline reaches about 16 x 16 meters. Exactly in the center there is a roundish anomaly with a diameter of 2.5 or 3 m. We can assume with high probability that this building is the macellum, with a centrally positioned rotunda. Directly to the south and with a parallel wall orientation is another large building. The division of the building and the presence of an apse on the east side allows it to be identified as an early Christian basilica. The ground plan has a length of 39 m and a width of 23 m. On site, several stone blocks from the southern outer wall can still be seen in their original position.

In 2018, the analysis of satellite images resulted in the identification of a second church in Seleukeia. It is a small cruciform basilica with semicircular apse, located in the plain about 500 m southwest of the Rock Temple, where it marks the outer city limits.



Fig. 10

## 1.6 About the Location of Production Sites

As already indicated, a major goal of the surveys and geophysical investigations of recent years has been to locate the ironworking ateliers. Thus, the data of the geomagnetic survey were reviewed in detail for thermoremanent anomalies, in order to identify the kilns and forges of such workshops. It was soon understood that this would not be an easy task and additional measures would be necessary, e.g. with the examination of soil samples.

At the beginning of the project, the focus of the prospections was on the areas northeast and southeast of Hisar Tepe. In 2018 and 2019, the measurements were also extended to the areas southwest of the hill (Schenk et al., 2018, pp. 67-69; Schenk et al., 2019, p. 107;). The continued magnetic measurements were initially intended to clarify the extent of the ancient city on this side of the hill and whether this part was as densely populated as the other areas. It is clear that Seleukeia Sidera had reached a considerable size in Late Antiquity and that the building remains were arranged in the plain approximately in a radius of 500 m around Hisar Tepe. It seems that the building blocks in the southwest zone were laid out somewhat more regularly, which is confirmed by the radar measurements carried out in 2020 by the SDÜ in the neighboring areas.

The construction features identified in the southwest will not be discussed further here. Rather, we will focus on a cluster of magnetic anomalies, which are regarded as technical installations and indicate a production center. According to current research, the findings are concentrated in at least two city quarters, not far from a road crossing (Fig. 11). Several anomalies are visible to the east of the road junction, suggesting intense fire exposure due to the high amplitudes of up to 150 nanotesla. The outlines of the features are not uniform and can only be roughly given as diameters of 2.5-3.5 m. Already during the geophysical investigations strongly sintered brick fragments and those with melted glassy surface were observed frequently. These finds are apparently related to these anomalies and are likely to be evidence of kilns for ceramic products. A roundish anomaly 3.5 m in diameter was also discovered south of the road junction, although the readings are not as high as the other sites, with a maximum of 45 nanotesla. However, even in this area, secondary fired bricks with a glassy structure are found on the surface of the field. At present, the purpose of these kilns is a matter of speculation, and it remains to be seen whether this question can be answered by intensive surveys or by exploratory excavations.



Fig. 11

## **2. Soil Investigations to Determine the Location of Forging Workshops**

From 2018 to 2021, the research at Seleukeia Sidera was financially supported by the Gerda Henkel Foundation from Germany. The project focused on questions concerning the technological development and spatial distribution of iron production in the ancient city. With reference to the place name, this must have had enormous economic importance, at least in the Late Antique and Early Byzantine periods. This is also indicated by the extensive finds of iron slag that occur throughout the city, especially numerous on the northeastern side of Hisar Tepe. Various efforts have been made in recent years to determine the exact location of the forge workshops. Geomagnetic prospection has been insufficiently successful in this regard.

Mapping the surface finds with archaeological surveys and GPS measurements helps to narrow down the relevant areas. However, the results are often too inaccurate for detailed excavation planning, since the slag concentrations usually occupy larger areas. Therefore, additional possibilities were sought to improve the dataset with further information layers.

While iron slag often spreads over a large area around a workshop location, hammer scale mapping offers a different and often better way to determine the location of the forge and specifically the position of the anvil in the location. A

layer of magnetite forms on the red-hot iron as a result of oxidation, and further hammering causes this layer to permanently spring away from the workpiece. This special form of iron slag is often microscopic, sometimes spherical or formed as small platelets; it accumulates in the immediate vicinity of the anvil. Concentrations of magnetite in the sediment can therefore be used as evidence of forge sites, even if hardly any evidence of the site itself has been preserved. Sometimes such particles are detected directly during excavations by the systematic collection of soil samples. As a rule, there are already indications of forging activities on the basis of the features, and the sample grid is chosen relatively narrowly. In contrast, when taking samples on the ground surface, a compromise has to be found between the arable area to be investigated and the width of the sample grid. Based on several tests on a medieval site in Germany, north of Berlin, we consider a grid of 10 x 10 m to be suitable to delimit the area of the forge site (Schenk, 2023). In our experience, the result is more precise than large-scale mapping of forge slags, although it is also considerably more laborious. Of course, this methodological approach only works if there is no complex stratigraphy with overlays or displacements.

In Seleukeia, the area selected for soil sampling was the area northeast of Hisar Tepe, where several concentrations of iron slag were observed during surveys and individual dark discolorations in satellite images indicate the production sites. In 2018 and 2019, a total of 217 soil samples were collected there on a 10 m grid. About half of them are distributed on the terrace of the lower slope, the other half in the northeast adjacent plain. The sampling points were previously determined on the computer and then the coordinates were located in the field using a differential GPS.

The sample preparation procedure is comparatively simple. In each case, 100 g of the sample are weighed out, then placed in a glass and poured with water. Using a strong magnet mounted in a thin tube, the magnetic particles are extracted from the sample in several passes and dried. Subsequently, impurities such as magnetic pebbles and coarse slag crumbs are sorted out by hand, and then the weight of the remaining magnetic particles for each sample is determined on a precision balance (Fig. 12).

In the mappings of the magnetic soil components, about five concentrations stand out quite clearly in the investigated area (Fig. 13 and 14). In the five colored weight classes, the sample extracts with a weight between 2.0 and 6.6 g are relevant, which are colored orange and red in the map. Concentrations in plan squares AA23/AB23 and Z22 had already been identified in 2018. The 2019 samples add three more concentrations in Y23, Z24, and AA26 that provide clear evidence of forging activity. In Z22, two small excavation areas were opened in 2019, and at least one of them documented a waste layer with slag and magnetite particles. Accordingly, a workshop would have to be located in the immediate vicinity.

In 2020, excavations in the area of plan square Y23 discovered a forge workshop including a preserved fireplace<sup>3</sup>. The excavation planning was based primarily on the evaluation of the soil samples, which yielded a significantly increased number of plate-shaped hammer-blow particles for this site (Schenk, 2020, p. 165, fig. 5c). This shows that further conclusions can be drawn with an even more intensive analysis of the magnetic sample extract. Admittedly, the amount of work is already considerable and therefore, due to time constraints, only the first sample series of 2018 could be examined so intensively. Nevertheless, the determination of the weight of the magnetic extract alone provides important clues for further field research, especially in the targeted search for the locations of the forge workshops.



Fig. 12

---

3 For the iron workshop see, in this volume, Hürmüzlü et al., Production and Economy in Seleukeia Sidera in the Roman Imperial Period: Blacksmithing Practices.

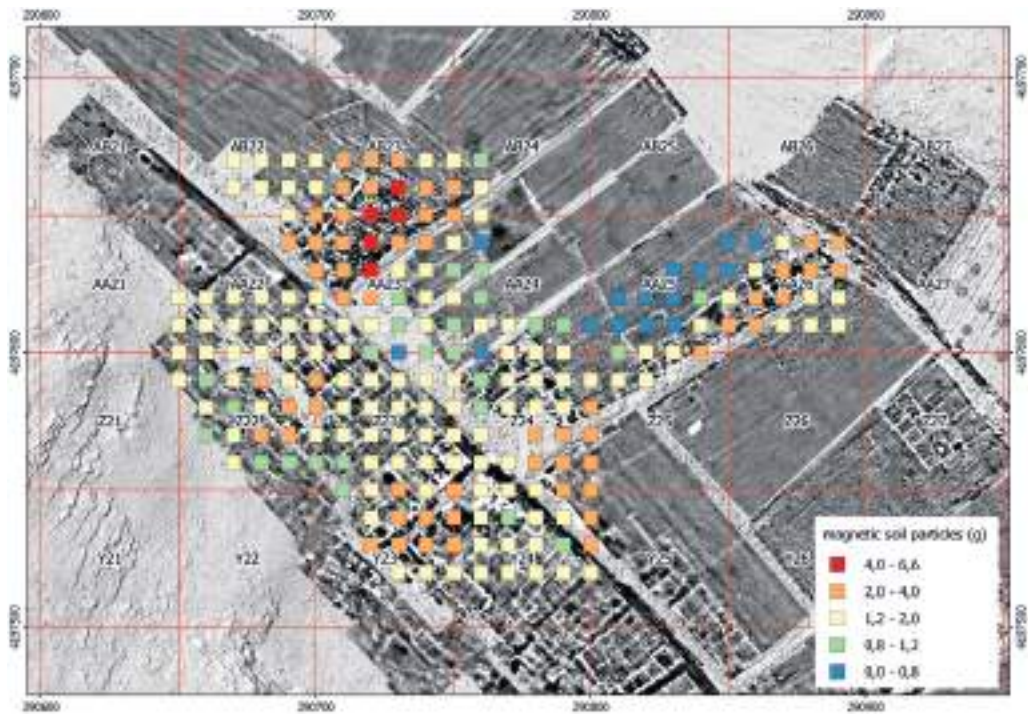


Fig. 13

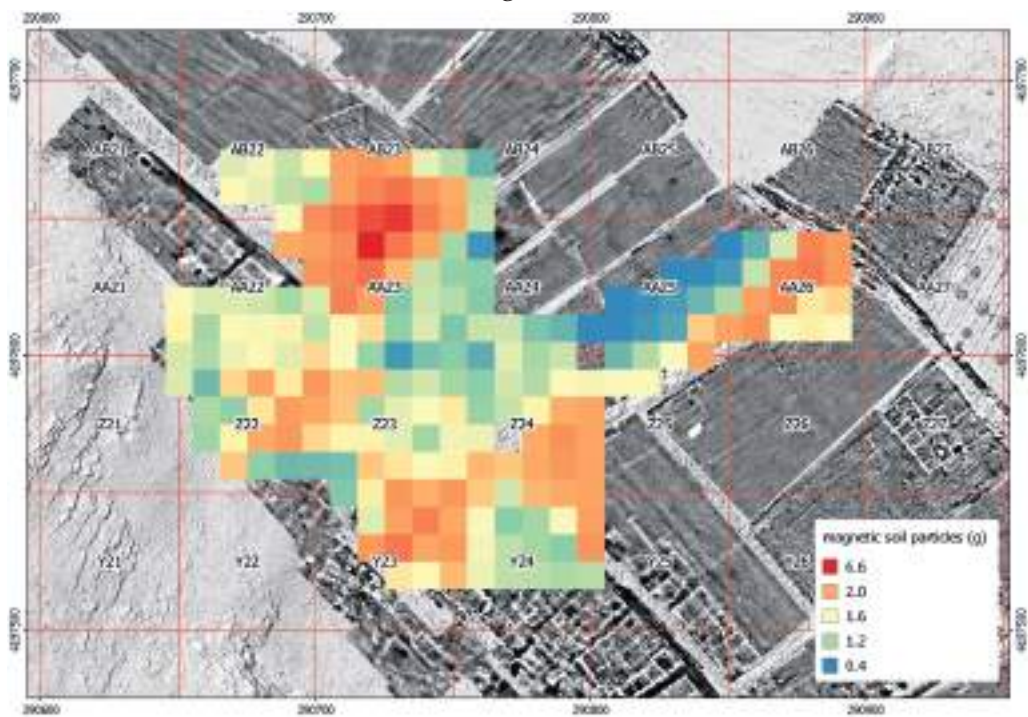


Fig. 14

## **Figure List**

*(All figures and graphics by Thomas Schenk, HTW Berlin)*

Fig. 1. Carrier system with five magnetic sensors, deployed in 2016 and 2017.

Fig. 2. Measuring cart for geomagnetics with seven sensors, used in the 2018 campaign.

Fig. 3. For the 2019 campaign, the measuring cart was upgraded with an additional GPS component.

Fig. 4. Overview of the status of geomagnetic prospecting in Seleukeia Sidera (September 2019).

Fig. 5. Preliminary interpretations of the magnetic measurements.

Fig. 6. Detailed view of the magnetics of the plateau on Hisar Tepe.

Fig. 7. The geomagnetic survey image of the area northeast of Hisar Tepe; the red markers indicate concentrations of iron slag.

Fig. 8. House structures and their street-side entrances in the magnetic image.

Fig. 9. Detailed view of the results of geomagnetics in the area east of the theater.

Fig. 10. Interpreted public area south of Hisar Tepe, a) presumed agora, b) rectangular building with divergent orientation, c) macellum, d) basilica.

Fig. 11. Detailed view of geomagnetics to the southwest with evidence of a production center.

Fig. 12. Preparation of the soil samples and extraction of the hammer scale particles.

Fig. 13. Symbol mapping to clarify hammer scale concentrations. At least five workshop areas can be roughly mapped in their location.

Fig. 14. In the raster graphic created according to statistical parameters, the measurement results are shown in a more differentiated way.

## Bibliography

- Schenk, T., Köker-Atav, İ., Sönmez, B., Hürmüzlü, B., Tütünsatar, E. & Akaslan, M. (2018). Seleukeia Sidera Antik Kenti Yüzey Araştırmaları- 2018 Demircilik Faaliyetlerine İlişkin Veriler. *Türk Eskiçağ Bilimleri Enstitüsü Haberler*, 44, 66–72.
- Schenk, T., Tütünsatar, H.E., Schlegel, J., Akaslan, M., Hürmüzlü, B. & Atav-Köker, İ. (2019). Seleukeia Sidera Antik Kenti 2016-2017 Jeofizik Çalışmalarının Sonuçları. *Arkeometri Sonuçları Toplantısı*, 34, 103-112.
- Schenk, T. (2020). Archäologische Prospektionen in Seleukeia Sidera und der Versuch, Produktionszentren zu bestimmen. In A. Mörel, G. Kaşka, H. Köker, M. Kaşka, M. Fırat & S. O. Akgönül (Eds.), *Production, Trade and Economy in Pisidia and its Surrounding Areas. International Symposium Proceeding Pisidian Studies II, 31 October – 03 November 2018 Isparta, Turkey* (pp. 154-165). Süleyman Demirel University Press.
- Schenk, T. (2023). Aus dem Boden gelesen - Proben vom Hausbefund Brielow, Lkr. Potsdam-Mittelmark, und vom Klostergutshof Schönerlinde, Lkr. Barnim. *Archäologie in Berlin und Brandenburg 2021* (pp. 33-36). wbg Theiss in Wissenschaftliche Buchgesellschaft.



## Archaeogeophysical Investigations at Seleukeia Sidera

*Seleukeia Sidera'da Gerçekleştirilen Arkeojeofizik Araştırmalar*

Çağlayan Balkaya\* – Olcay Çakmak\*\* – Hatice Evrim Tütünsatar\*\*\*

Toprak altında örtülü/saklı durumda bulunan arkeolojik yapı kalıntılarının yerinin ve güncel durumlarının belirlenmesi bu yapıların korunması ve gelecek nesillere aktarılması için oldukça önemlidir. Bu nedenle, uygulamalı jeofizik yöntemler, arkeojeofizik/arkeoloji jeofiziği araştırmalarında yaygın olarak kullanılmaktadır. Özellikle manyetik prospeksiyon, yer radarı ve elektrik öz direnç gibi yöntemlerin tekil ve/veya birlikte uygulamaları ile yüzeye yakın arkeolojik yapıların konum, uzanım, kalınlık ve derinlik gibi mekânsal parametreleri bu yapılara bir zarar vermeden oldukça verimli bir süreçte belirlenebilmektedir. Arkeolojik araştırmaların, arkeojeofizik uygulamalar ile belirlenen umut verici alanlarda yoğunlaşması sınırlı bütçe kaynaklarının da daha etkin bir şekilde kullanılmasına önemli katkılar sağlamaktadır. Arkeojeofizik çalışmadan elde edilen veriler ile arkeolojik kalıntıların detaylı haritalarının oluşturulması ve böylece bu kalıntıların durumlarının belgelenecek kaydedilmesi gelecekteki araştırmalar ile restorasyon çalışmaları için de önemli bir referans noktası oluşturmaktadır. Tüm bu nedenlerle, bir arkeolojik prospeksiyon yöntemi olarak arkeojeofizik, arkeologlar için yer altında örtülü/saklı durumda bulunan arkeolojik kalıntıların tahribatsız olarak belirlenmesi, haritalanması ve böylece doğal ortamlarında koruma altına alınmaları için oldukça önemli bir araçtır. Kısaca, arkeojeofizik çalışmalar, arkeolojik araştırmaların daha verimli ve özellikle koruma odaklı bir şekilde gerçekleştirilmesine önemli bir katkı sağlamaktadır.

Bu amaçlar doğrultusunda Seleukeia Sidera antik kenti arkeojeofizik çalışmaları, 2020 yılından itibaren Süleyman Demirel Üniversitesi Deprem ve Jeoteknik Araştırma Merkezi tarafından gerçekleştirilmektedir. Kentin yerleşim gördüğü Hisar Tepe ve çevresinin özellikle güney doğusunda kalan ve günümüzde tarımsal faaliyetler için kullanılan düzlük alanlarında yüzey altında kalan arkeolojik yapıların lokasyon, derinlik ve uzanımlarının belirlenebilmesi amacıyla yer radarı yöntemi uygulanmaktadır. Yer radarı, yüksek frekanslı elektromanyetik (EM) dalgaları kullanarak yeraltında örtülü/saklı kalan arkeolojik yapıya hiçbir zarar vermeden onu yüksek çözünürlükle görüntüleyebilen

---

\* Süleyman Demirel University, Faculty of Engineering, Department of Geophysical Engineering, Earthquake and Geotechnical Research Center, 32260 Isparta/TR, caglayanbalkaya@sdu.edu.tr, ORCID: 0000-0002-0191-8564.

\*\* Süleyman Demirel University, Earthquake and Geotechnical Research Center, 32260 Isparta/TR, olcaycakmak@sdu.edu.tr, ORCID: 0000-0003-4282-4481.

\*\*\* Isparta University of Applied Sciences, Gönen Vocational School, Cultural Heritage and Tourism Program, 32090 Isparta/TR, evrimtutunsatar@isparta.edu.tr, ORCID: 0000-0002-0712-3164.

bir jeofizik yöntemdir. Yer radarı ölçüm sistemi bir verici ve bir alıcı antenden oluşmaktadır. Yöntemin en yalın çalışma prensibi, EM enerjinin verici anten aracılığı ile kısa bir darbe şeklinde toprağa iletilmesi, iletilen enerjinin toprak altında bulunan farklı dielektrik özelliklere sahip malzemeler ile karşılaştığında kısmen yansması ve yansıyan bu enerjinin de yüzeyde alıcı anten aracılığı ile kaydedilmesi esasına dayanmaktadır. Dolayısıyla, EM dalgalar, yeraltında karşılaştıkları jeolojik ve arkeolojik malzemelerin dielektrik özelliklerine göre farklı şekillerde etkileşime girmektedir. Bu bağlamda, Seleukeia Sidera antik kentinin toprak altındaki arkeolojik yapı kalıntılarının içinde örtülü oldukları toprak yapısına göre görece yüksek dielektrik özellik göstermesi yöntemin bu alandaki başarısını büyük ölçüde arttırmaktadır.

Seleukeia Sidera antik kenti arkeojeofizik uygulamaları; araştırma alanı tasarımı, veri toplama, değerlendirme, yorumlama ve raporlama aşamalarını kapsayan bir iş akışıyla yürütülmektedir. Bu bağlamda, başlıca araştırma yöntemi olarak yer radarı ve destekleyici yöntem olarak da elektrik özdirenç yöntemi uygulanmaktadır. Kentin 2020-2022 yılları arasındaki üç dönem kazı çalışmaları kapsamında gerçekleştirilen yer radarı uygulamalarında 500 MHz merkez frekanslı korumalı bir anten kullanılmıştır. Yansıma profili ölçümleri ile şimdiye kadar yaklaşık 5,5 ha büyüklüğünde bir alan taranmıştır. Toplanan yansıma verileri bir dizi veri işlem teknikleriyle değerlendirilerek yaklaşık 2 m derinlik seviyelerine değin yüksek çözünürlüklü sığ yeraltı görüntüleri elde edilmiştir. Elde edilen sonuçlar, daha önceki araştırma dönemlerinde manyetik prospeksiyon ile gerçekleştirilen çalışmaların sonuçlarıyla oldukça uyumludur ve Hisar Tepe'nin güneydoğusunda konumlanan kent konut alanlarının ve mimarisinin aydınlatılmasına katkı sağlamaktadır. Bu bölgedeki araştırma alanında ayrıca yaklaşık 5 m genişliğinde GB-KD ve KB-GD yönelimli birbirini dik kesen iki cadde de belirlenmiştir. Bu bulgu Seleukeia Sidera'nın düzenli bir kent planına sahip olduğunu da açık bir şekilde göstermektedir. Arkeojeofizik araştırmalar ilerledikçe, kentin bu alandaki konut yapıları, ulaşım yolları ve mimari arka planı hakkında daha fazla bilgiler elde edilmesi mümkün olmaktadır.

İki ve/veya daha fazla jeofizik yöntemin birlikte uygulanması ile gerçekleştirilen arkeojeofizik araştırmalarda oldukça verimli sonuçlar elde edilmesinden dolayı kentin tiyatro yapısının konumlandığı alanın güneyinde kalan bir alanda ayrıca elektrik özdirenç tomografi (EÖT) tekniği de uygulanmıştır. Uygulama, 48 elektrotlu bir sistem kullanılarak dipol-dipol dizilimi ile toplam 38 profil üzerinde gerçekleştirilmiş ve yaklaşık 0,67 ha büyüklüğünde bir alan araştırılmıştır. Toplanan görünür özdirenç veri kümelerinin iki boyutlu ters çözümünden elde edilen sonuçlar bu alanda gerçekleştirilen yer radarı yönteminin sonuçları ile oldukça uyumludur. Buna göre, görece yüksek özdirençli ve düzenli bir geometri sunan arkeolojik yapı kalıntılarının belirtileri, yaklaşık 30-40 cm kalınlığındaki modern örtü katmanının altındaki kültürel tabaka içerisinde uzanmaktadır. Seleukeia Sidera antik kentinde manyetik (Schenk 2020), yer radarı ve elektrik özdirenç yöntemleri ile gerçekleştirilen arkeojeofizik ça-

lışmaların başarısında toprak ile içinde barındırdığı arkeolojik yapılar arasında ilgili yöntemlerin ölçümlerinde duyarlı oldukları fiziksel parametrelerin görece yüksek bir fark oluşturması şüphesiz oldukça önemli bir rol oynamaktadır. Bu durum, Seleukeia Sidera antik kentini arkeojeofizik çalışmalar açısından doğal bir araştırma laboratuvarına dönüştürmektedir. Böylece, izleyen dönemlerdeki çalışmalarda farklı jeofizik yöntemlerin, veri toplama ve değerlendirme tekniklerinin kentte uygulanabilirliğinin test edilebilmesine de olanak sağlamaktadır. Genel olarak, yer radarı ve EÖT araştırmalarının sonuçları, Seleukeia Sidera antik kentinin arkeolojik yapı kalıntılarının yeraltında yaklaşık 30 cm ile 180 cm derinlikte bulunduğunu göstermektedir. Ne yazık ki bu durum, yerel halkın üretimde traktör tırmık ve kültivatör kullanması durumunda, tarımsal faaliyetlerin antik kentin yüzeye yakın arkeolojik kalıntılara bir zarar verme potansiyeline sahip olduğunu düşündürmektedir.

## Introduction

Archaeo-geophysical surveys, with non-invasive magnetic prospection, ground-penetrating radar (GPR), and electrical resistivity with the tomography technique (i.e., ERT), either used alone or in combination, are very effective and useful for determining spatial parameters such as location, extent, thickness, and depth of buried archaeological structures in the subsurface. Each method has its own physical contrast mechanisms that make them suitable for certain types of features or ground conditions. They can image archaeological structures without damaging them if there is a relatively high physical contrast between the soil and the archaeological target. Magnetic methods measure variations in the soil magnetic field caused by buried objects or structures. Archaeological features such as iron tools or stone structures can produce magnetic anomalies that can be detected with magnetic instruments. The contrast in magnetic susceptibility between the archaeological object / structure and the surrounding soil allows it to be detected. GPR can detect changes in the electrical properties of the soil, such as variations in moisture content or the presence of buried artefacts with different dielectric constants; it's the contrast in dielectric properties between the object/structure and the surrounding soil enables its detection. ERT involves passing an electric current through the soil and measuring the resulting voltage. The method is based on the contrast in electrical resistivity between different materials. The electrical resistivity of soil can vary depending on its moisture content, mineralogy, and the presence of buried objects. For example, archaeological elements such as walls or floors may have different resistivity values than the surrounding soil, allowing them to be imaged with ERT. Overall, the choice of which method to use depends on the specific characteristics of the site and the type of archaeological object being sought. Different combinations of these methods are also used to achieve more comprehensive results. In some cases, the physical contrast may be low, making it more challenging to identify and interpret the subsurface features. Nonetheless, geophysical techniques have become an essential tool for archaeologists, providing a non-invasive and

cost-effective way to map and understand archaeological sites.

In the last decade, there have been successful examples of the use of geophysical techniques to identify archaeological features in the ancient cities in Anatolia. Magnetic and ERT imaging were used to discover the hidden ruins of the Upper City of Amorium, a Byzantine city in the Phrygia region of midwestern Anatolia (Ekinici et al., 2014). Promising results from a combination of GPR and ERT surveys revealed possible traces of archaeological remains at Pisidian Antioch on the border between Pisidia and Phrygia (Yalvaç, southwestern Anatolia) (Balkaya et al., 2018). An integrated GPR and ERT survey was conducted to identify the urban architecture in the episcopal district of the ancient city of Side in the Pamphylia region of southern Anatolia (Akca et al., 2019). GPR and ERT were applied and discovered the remains of a basilica with a central nave with a side aisle on each side and an apse at the end at the archaeological site of Kılıç village in the Pisidia region (Isparta, Southwest Anatolia) (Yılmaz et al., 2019). GPR and ERT surveys were conducted at Keber Tepe, the city mound of Doliche, Commagene (Gaziantep, southeastern Anatolia), and yielded satisfactory results, although the physical contrast between the archaeological remains and the subsoil was low (Balkaya et al., 2021).

Under the direction of the Earthquake and Geotechnical Research Center of Süleyman Demirel University, ground-penetrating radar (GPR) surveys have been conducted in the ancient city of Seleukeia Sidera since 2020. The previous geophysical surveys in Seleukeia Sidera, conducted by HTW (Berlin) under the direction of Thomas Schenk between 2016 and 2019 (Schenk, 2020)<sup>4</sup>, clearly showed that public buildings are located in the southeast part of the city and domestic area in the west part (Pl. 2: 9). The current investigation is mainly focused on the study of the domestic areas of the Roman Imperial period in new locations, together with the areas previously studied by magnetic research, in order to discuss the plans revealed by the GPR measurements. Fig. 1 shows the areas that have been surveyed over the years with the GPR technique in the vicinity of Hisar Tepe. The survey was conducted in the flat areas southeast of Hisar Tepe where agricultural activities are now occurring. Based on the effectiveness of the integrated applications mentioned above, an ERT survey has also been conducted in a small area on the northeastern slope of Hisar Tepe and near the city's theatre (Pl. 2: 6).

---

<sup>4</sup> See, in this volume, Schenk, Results of Geomagnetic Surveys and Evidence for Forging Activities in Seleukeia Sidera.

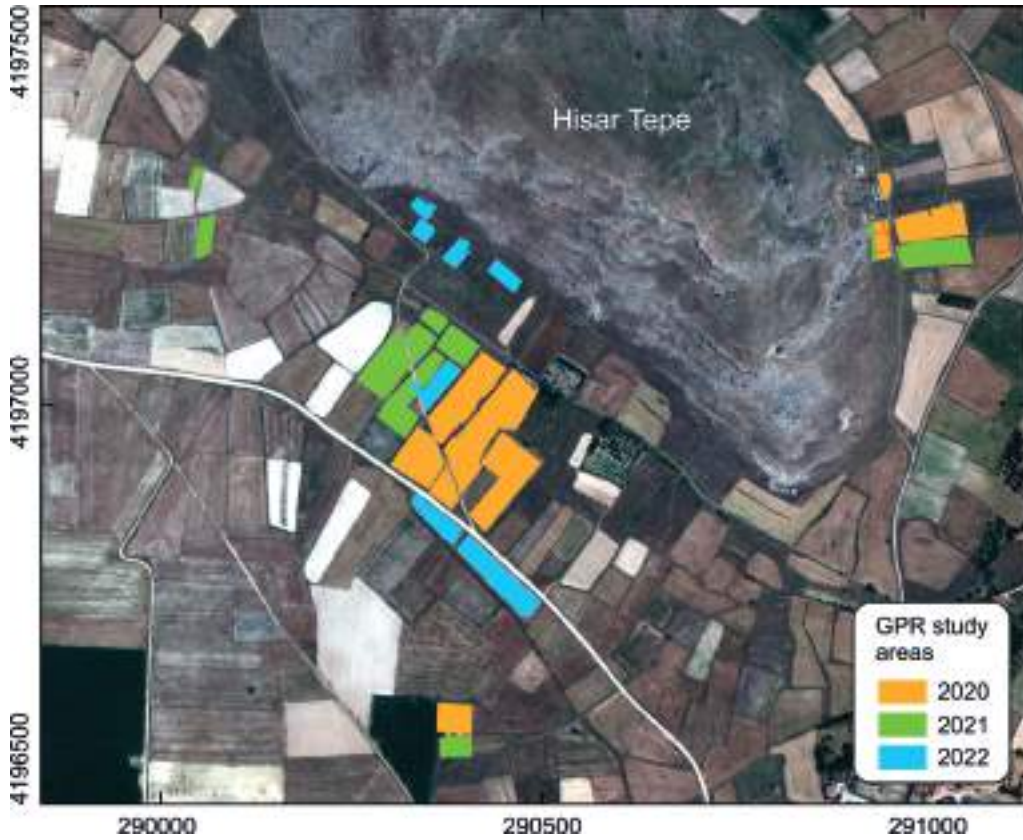


Fig. 1

### GPR and Electrical Resistivity Methods

The archaeo-geophysical survey of the ancient city was carried out mainly by a GPR survey. In addition, an ERT survey was conducted in one area. Fig. 2 shows simplified sketches to illustrate their basic operating principles.

GPR is a geophysical method commonly used in archaeology for non-invasive subsurface investigations. It primarily uses high-frequency electromagnetic waves to visualize and map buried structures, artifacts, and other features without the need for excavation. This makes it a valuable tool in archaeological investigations. As illustrated in the left panel of Fig. 2, the basic principle of GPR is to transmit short pulses of electromagnetic waves into the ground with a transmitting antenna and then to detect the signals reflected from subsurface features with a receiving antenna. By analyzing the time delay and amplitude of the reflected signals, the GPR data can be used to create cross-sectional images or depth profiles of subsurface. In archaeology, GPR is typically used in reflection mode for a variety of applications, including locating buried structures such as walls, foundations, and graves; mapping ancient roads and tracks; identifying buried artifacts and cultural deposits; and examining the stratigraphy and geomorphological features of the subsurface associated with

past human activities. Thus, it supports excavations by providing information on the depth and extent of buried features that can help archaeologists plan their excavations. The advantages of using GPR in archaeological investigations are numerous. GPR is non-destructive and non-invasive, meaning it does not require excavation or disturbance of the archaeological site, thus preserving the integrity of the site. GPR can provide high-resolution images of subsurface features that allow detailed mapping of buried structures, artefacts, and other archaeological targets. It can also cover large areas relatively quickly, making it efficient for surveying large archaeological sites. However, there are also some limitations to the use of GPR for archaeological surveys. GPR penetration depth depends on the frequency of electromagnetic waves and the electrical properties of subsurface materials, which may vary depending on site conditions. Interpretation of GPR data in archaeology requires expertise and experience to accurately identify archaeological features and distinguish them from natural features or other anomalies. In addition, clayey and moist soils with high electrical conductivity result in a lower depth of penetration during surveys. The method is also sensitive to disturbances, called noise, caused by various geological and cultural factors. The presence of trees, tree roots, and animal burrows in the survey area contaminates the acquired GPR data by causing unwanted reflections or scattering. Cultural noise sources near the survey area, such as buildings, power lines, and metal objects such as fences and vehicles, can also greatly affect the quality and interpretation of the results.

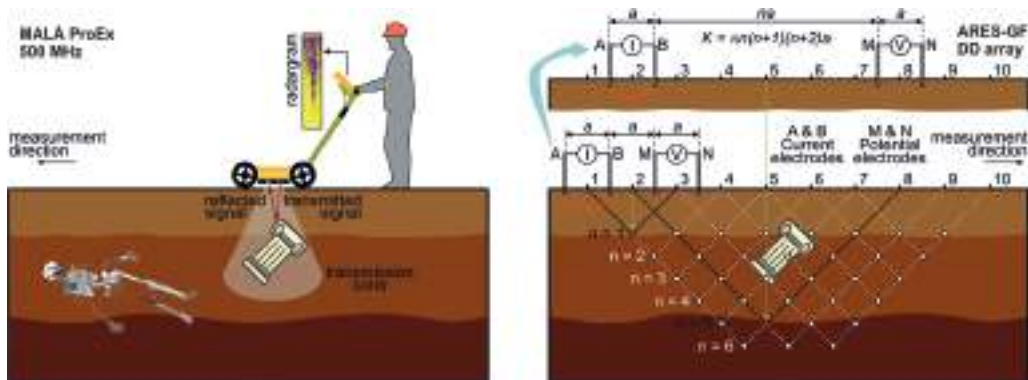


Fig. 2

The ERT is a second geophysical technique used in the ancient city. It is one of the widely used geophysical methods to study the properties of soils, rocks and other subsurface materials. In archaeological investigations, ERT can be used to detect buried objects such as walls, trenches, or artifacts by measuring the differences in electrical resistivity between the target objects and the surrounding materials. In an ERT survey, as seen in the right panel of Fig. 2, electrodes are placed in the ground, usually at regular intervals along survey lines or grids. The number and spacing of electrodes depend on the

size of the survey area and the desired resolution. An electric current is then injected into the soil through one set of electrodes, and the resulting voltage is measured by another set of electrodes. The injected current propagates through the soil, and the voltage values, which provide information about the electrical properties of the subsurface, are recorded for each pair of electrodes, creating a data set of apparent resistivity. This process is repeated for multiple current injection points along the survey lines or grid. Similar to GPR, ERT has several advantages and disadvantages when investigating archaeological sites. It is also a non-invasive technique that does not require excavation or disturbance of the cultural heritage site. It is also best suited for shallow subsurface investigations, typically to a depth of 10-20 m, depending on soil conditions, making it an indispensable application in the investigation of archaeological sites. Moreover, ERT can provide high-resolution images of the subsurface that allow detailed mapping of archaeological features and structures, and surveys can be conducted relatively quickly, making it a cost-effective method for large-scale investigations. Because it can be used in a variety of ground conditions and environments, it is a versatile technique for archaeological investigations. However, the interpretation of ERT data can be challenging because variations in resistivity values can be caused by factors other than archaeological features. Placement of the electrodes requires good access to the surface, which can be difficult in densely vegetated or rocky areas. In addition, measurements can be disturbed by electrical interference from nearby power lines or other electrical equipment, which can affect the accuracy of the data.

In summary, GPR and ERT are effective and versatile tools for visualizing archaeological structures and the composition of the shallow subsurface. The workflow of the GPR and ERT investigations in Seleukeia Sidera is shown in Fig. 3. It basically includes five steps: survey design, data acquisition, data processing, data interpretation, and finally reporting and documentation. The following is a general overview of each step of the workflow.

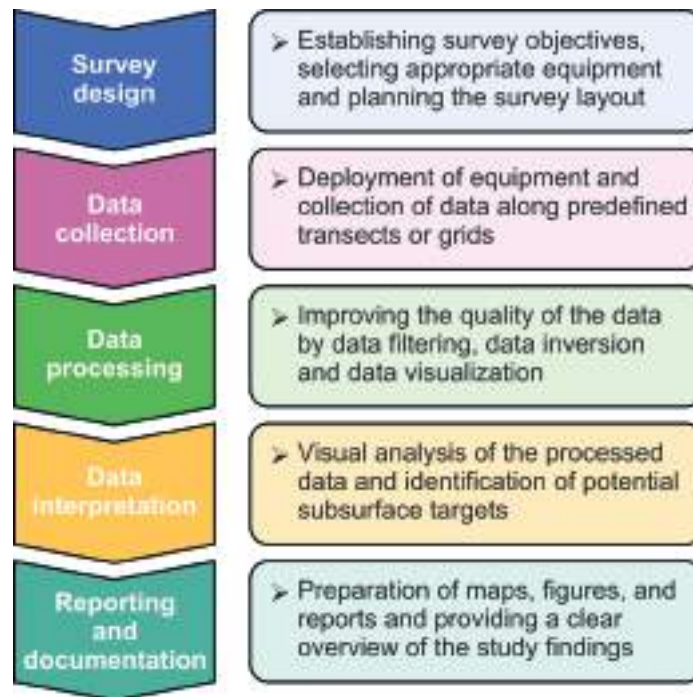


Fig. 3

**Survey Design:** this stage includes establishing survey objectives, selecting appropriate equipment, and planning the survey layout. Factors to consider in survey planning include the nature of the objective or feature of interest, the size and shape of the survey area, subsurface characteristics, and available resources (e.g., time, budget, personnel). In this context, planning a GPR survey in the city, includes decisions about antenna frequency, antenna spacing, and data acquisition parameters that depend on the specific objectives of the survey and the characteristics of the site. Planning an ERT survey, on the other hand, includes the depth of investigation required, the size and shape of the survey area, the spacing and orientation of the measurement electrodes, and the measurement configuration. It is worth noting that the specific configuration and spacing of the electrodes depend on the objectives of the ERT survey and the desired resolution and depth of investigation. Different electrode arrays such as Wenner, Wenner-Schlumberger (WS), pole-dipole, or dipole-dipole (DD) have different advantages and limitations in terms of data quality and applicability to different subsurface conditions. The choice of the array depends on the specific goals of the archaeological survey. For example, if the goal is to detect shallow features at high resolution, the DD array may be more appropriate. If deeper features are of interest, pole-dipole or Wenner arrays may be considered. It is important to evaluate the tradeoff between resolution and depth of penetration and select the array that best fits the goals of the survey and site conditions.

**Data Collection:** once the study design is established, the actual GPR and ERT investigations are conducted in the field during the data collection stage. For the GPR survey, this typically involves the deployment of equipment, including transmitting and receiving antennas, and the collection of data along predefined transects or grids. Data collection can be continuous or at discrete intervals, depending on the design and objectives of the survey. It is important to follow proper protocols during data collection, such as maintaining a consistent antenna height, avoiding overlaps or gaps in data collection, and considering any relevant site conditions or environmental factors that could affect the data. In ERT surveys, data acquisition is typically accomplished by passing an electric current through pairs of electrodes into the ground and measuring the resulting voltage differences with other pairs of electrodes. During data acquisition, electrodes can be moved manually or by automated systems, and data can be acquired along predefined transects or grids. The parameters for data collection, such as the level of current injection and measurement intervals, should be carefully selected based on the specific objectives of the study and the characteristics of the site. In the GPR study at Seleukeia Sidera, data were collected using the profiling technique, also called reflection profiling, with a shielded antenna system (MALÅ™ ProEx) at a centre frequency of 500 MHz over parallel profiles spaced 50 cm apart in zigzag mode. The ERT survey was performed with a DD array using the ARES GF instrument multi-electrode resistivity measurement system with 48 electrodes along a total of 38 transects. A brief overview of survey design and data collection parameters are given in Table 1. Fig. 4 shows some images from the data collection of the GPR and ERT surveys conducted in the ancient city.

Explanations	Survey	
	GPR	ERT
Control unit / Instrument	MALÅ ProEx	ARES-GF
The total number of measured profiles	2453	38
The total length of measured profiles	110512 m	2390 m
The total covered area	54871 m <sup>2</sup>	662.7 m <sup>2</sup>
Antenna frequency / Electrode configuration	500 MHz	DD
Time window & number of samples / number of electrodes	80 ns & 512	48
Profile distance	50 cm	70 cm
Trace distance / Electrode separation	5 cm	50 cm
Number of stacks	4	*8/16

**Table 1.** The primary data collection parameters used and information obtained from both GPR and ERT surveys carried out in Seleukeia Sidera. (\* The minimum and maximum number of stacking).



Fig. 4

**Data Processing:** After GPR and ERT data are collected, they must be processed. GPR data processing is used to improve the quality of the reflected signals and extract meaningful information. It usually involves several steps, including data filtering, data stacking, and data migration. Filtering techniques are used to remove noise and improve signals of interest, while stacking combines multiple traces to improve the signal-to-noise ratio. Migration techniques are used to correct the geometric scattering of signals and to produce depth-registered images. Different data processing techniques can be used depending on the specific objectives of the study and the characteristics of the GPR data. The collected GPR datasets at Seleukeia Sidera were analysed using GPR-SLICE software (v7.MT, Goodman, 2016) to obtain time/depth-slice amplitude maps. Basic processing steps such as dewow, time-zero correction, gain, bandpass filter (185-738 MHz), and migration (0.09 m/ns) were applied in the analysis. Some raw GPR profile data were also digitally processed using the ReflexW, a scientific computer program delivered by Sandmeier Scientific Software (URL 1). Processing steps include dewow, time-zero correction, gain (energy decay), background removal, bandpass Butterworth filter (220-750 MHz), FK filter, Kirchhoff migration and time cut (60 ns). In the case of ERT, data processing usually involves several steps, including data inversion, data filtering, and data visualization. Inversion techniques are used to convert the measured data into models or images of electrical resistivity in the subsurface, which can provide information about the resistivity distribution and characteristics of features in the subsurface. Data filtering techniques can also be used to remove noise or artifacts from the data, and data visualization techniques can be used to create maps, profiles, or other graphical representations of the processed data. Similar to GPR case, different data processing techniques can be used depending on the specific objectives of the study and the characteristics of the electrical resistivity data. ERT profile data were inverted using ResIPy, an intuitive open-source software for complex geo-electrical inversion/modelling (Blanchy et al., 2020),

available on GitLab (URL 2) and visualised using ParaView (v5.11.0) which is an open source post-processing visualization software (URL 3).

**Data Interpretation:** once the GPR and ERT data are processed, the interpretation of the data follows. In the case of GPR, this includes visual analysis of the processed data, such as time or depth slices, and identification of potential targets or features in the subsurface. Interpretation of the data requires expertise and experience to accurately identify and interpret reflections of buried structures, artifacts, or other features of interest, and distinguish them from natural features or other anomalies. Interpretation may also involve integrating GPR results with other geospatial or archaeological data to develop a comprehensive understanding of subsurface features and their archaeological significance. In the case of ERT, data interpretation involves visual analysis of processed data and identification of potential subsurface targets or features based on their resistivity values and spatial distribution. Interpretation requires expertise and experience to accurately interpret patterns of resistivity and relate them to archaeological features of interest, such as walls, ditches, or artifacts. Interpretation may also involve integrating the results of the GPR and ERT surveys with each other or with other geospatial or archaeological data, in order to develop a comprehensive understanding of subsurface features and their archaeological significance.

**Reporting and Documentation:** finally, the results of the GPR and ERT studies, including processed data and interpretations, should be documented, and reported. This may include the preparation of maps, figures, and reports that summarize the results and provide a clear overview of the study findings. Proper documentation and reporting is important to preserve the integrity of survey data, facilitate communication among stakeholders, and support future research or management decisions.

### **GPR and ERT Results**

The total raw GPR data collected during each survey campaign in 2020 and 2022 were visualized in the form of a time slice map between 55-75 cm as shown in Fig. 5. As can be clearly seen here, the GPR survey was mainly focused on the area southwest of Hisar Tepe within the green ellipse. In this area, one of the main streets of the city, which leads to Hisar Tepe and runs in a southwest-northeast direction, is well monitored for a length of about 190 m. The street, which is almost 5 m wide, probably also intersects with another street that runs parallel to Hisar Tepe. This observation could indicate that the city was regularly planned. The reflection anomalies with high amplitude, regular geometric shapes, and extensions on both sides of the street indicate public areas of the ancient city. The absence of archaeological structures in the southwestern areas could be the result of quarrying by locals in search for building material, something which is very common in the region. According to the results of the 2022 GPR survey, the settlement areas extend to the slopes

of the hill in the northwest part of the study area, as shown by the turquoise ellipse. The same observations can be traced in the north-eastern part of the hill, near the remains of the theatre, which can be seen in the yellow ellipse. An Early Christian Basilica, previously determined by magnetic survey and seen within pink ellipse in the south of the depth-slice map, was also imaged with high resolution. The foundation walls of the basilica, such as the central nave, the two side aisles, the arms of the transept and the apse facing east, are still preserved, while the narthex was not observed.



Fig. 5

The results of the high-resolution GPR survey show the effectiveness and success of the application and, more importantly, they can help archaeologists identify dwellings in the ancient city. To this end, we also try to improve the results by using different visualization techniques, such as the relief rendering shown in the left panel of Fig. 6. This rendering allows us to better identify and visualize hidden remains in the domestic area (Pl. 2: 6). Since the streets in the slice map have a higher amplitude and thus obscure the visibility of the ruins, we also try to use different amplitude colour range arrangements in this case. One of them can be seen in the right panel of Fig. 6. This representation highlights the traces of the hidden structures under the surface, especially near the so-called streets.

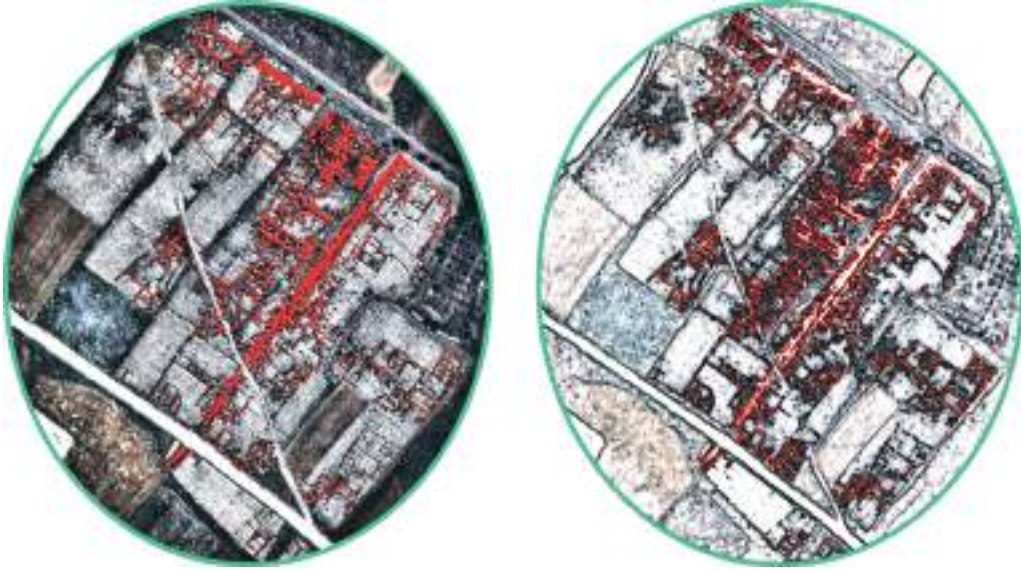


Fig. 6

The two-dimensional (2D) analyses of the GPR profiles were also carried out to reveal the traces of the remains of the near-surface archaeological structures based on the promising results of the depth slices that provided layer-by-layer images of the subsurface. A specific example with a scientific illustration can be seen in Fig. 7. These examples include three areas that were investigated during the 2022 campaign. They are labelled A, B, and C on the map in the centre right of the figure. The first column of the figure shows the snapshots from the map of the 55-75 cm depth layer in Fig. 5. The green arrows on the snapshots of each area represent the GPR profiles measured during the survey, and the adjacent sections show the processed radargrams of the raw data. The dashed turquoise lines on the radargrams represent 55-75 cm levels. Since the selected GPR measurement profiles intersect the remnants perpendicularly, it is possible to track their strong reflections in the radargrams. The remains of some selected walls, shown in yellow ellipses on each snapshot, can be traced by strong reflections in black ellipses on the corresponding radargrams. Thus, we can conclude that both depth-slice maps and 2D radargram representations are useful and can be effectively used to represent the hidden subsurface ruins of Seleukeia Sidera, where GPR scans were performed.

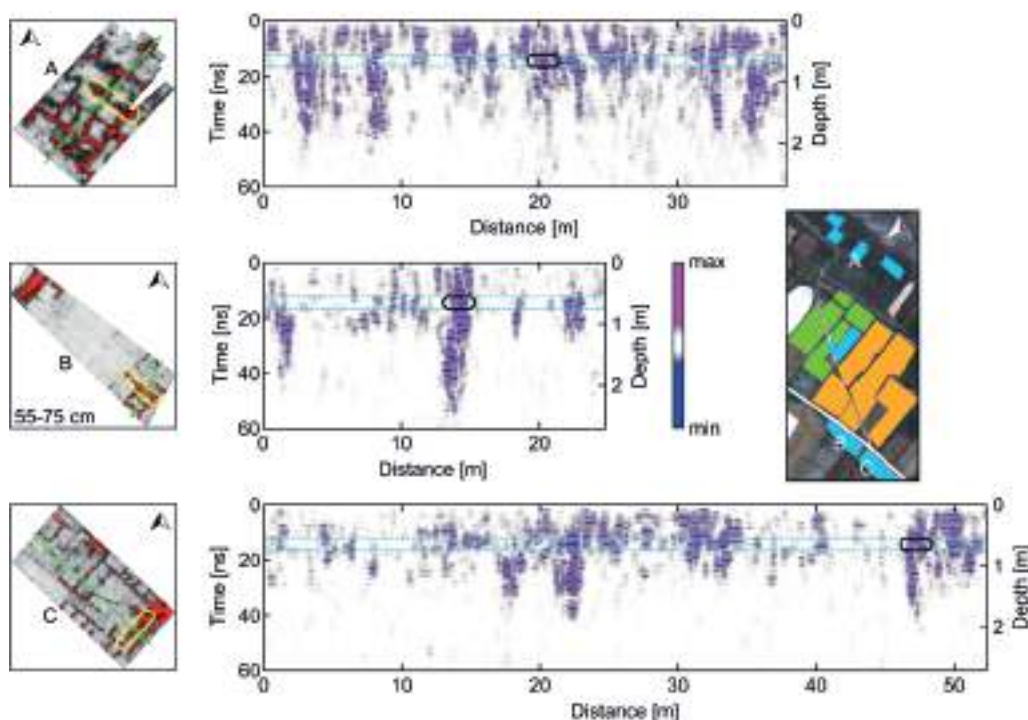


Fig. 7

Based on the effectiveness of the GPR survey, we conducted an additional ERT survey in the area where GPR surveys were conducted in the 2020 and 2021 campaigns. The ERT survey in the area previously investigated by the GPR survey, located to the south of the ancient theatre (Pl. 2: 6), was limited to the regular shape anomalies with high amplitude reflections. In this area, two selected ERT profiles (i.e., 10 and 11) crossing the remains of the discovered archaeological structure at right angles were inverted in 2D by considering the elevation in the direction of the hill to obtain the resistivity distribution of the subsurface in both lateral and vertical directions. Fig. 8 shows the inverted tomograms, which were marked by three identifications during interpretation, including modern topsoil (1), cultural layer (2), and promising resistivity anomalies. According to these, the cultural layer is located under the thin modern subsoil, which is about 30-40 cm thick and has a resistivity of  $< 120 \Omega\text{m}$ . In this cultural layer, which has a moderate resistivity of about  $700 \Omega\text{m}$ , there are promising anomalies that can be attributed to the remains of archaeological structures characterized by relatively high resistivity values of more than  $700 \Omega\text{m}$ . These 2D inversion results also agree well with the results of the GPR survey. The next step will be a 3D inversion of the entire collected apparent resistivity data and a comparison with the corresponding depth section from the GPR data analysis. Both the GPR and ERT investigations will continue in the future campaigns at Seleukeia Sidera.

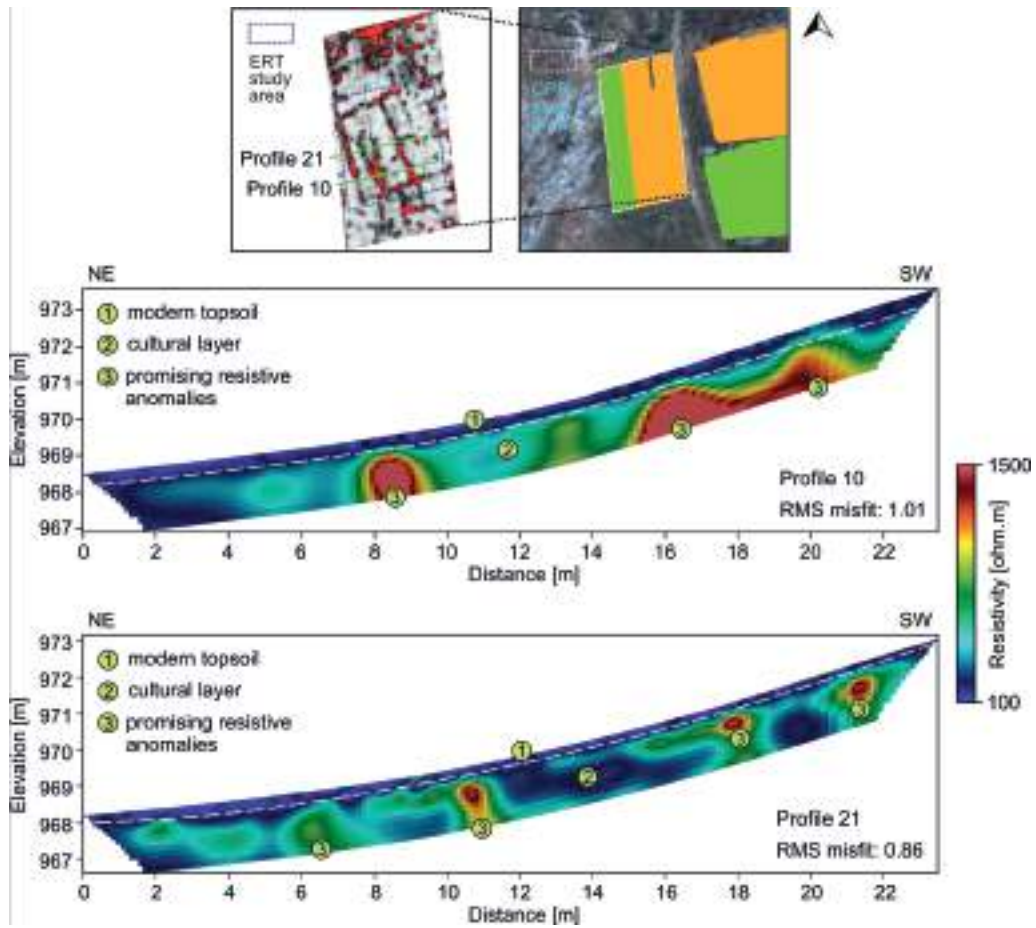


Fig. 8

Overall, the results of the GPR and ERT surveys indicate that the remains of the buried archaeological structures are located at a depth of approximately 30 cm to 180 cm. Unfortunately, this suggests that agricultural activities pose a risk of damaging the archaeological remains of the ancient city if the local population uses power harrows and cultivators in production.

### **Figure List**

Fig. 1. The surveyed GPR areas around Hisar Tepe during the archaeological campaigns between 2020 and 2022. The red rectangular area near the ancient theater shows where the ERT survey was also conducted in 2021.

Fig. 2. The basic functional sketches of the GPR method in reflection mode and the ERT technique with DD array.

Fig. 3. The basic archaeo-geophysical workflow for GPR and ERT surveys in Seleukeia Sidera.

Fig. 4. Some images of data collection from GPR and ERT surveys. Prior to surveying, the corner coordinates of each survey area were determined using the Topcon Hiper Pro GNSS instrument.

Fig. 5. A general overview of the GPR results from the 55-75 cm time slice map, overlaid on the aerial photo.

Fig. 6. Examples of improved visualization of hidden remains in the domestic area of the city with a relief representation and a different arrangement of the amplitude colours.

Fig. 7. Three examples of radargrams through 2D-processed GPR profiles measured during the 2022 campaign. The areas surveyed and the locations of the profiles were also shown on each time slice map.

Fig. 8. Two examples of 2D inverted apparent resistivity data collected during the ERT investigation. The location of the ERT survey area and the extent of the profiles were also shown on the associated GPR time slice map.

## Bibliography

Akca, İ., Balkaya, Ç., Pülz, A., Alanyalı, H.S. & Kaya, M.A. (2019). Integrated geophysical investigations to reconstruct the archaeological features in the episcopal district of Side (Antalya, Southern Turkey). *Journal of Applied Geophysics*, 163, 22-30. <https://doi.org/10.1016/j.jappgeo.2019.02.006>

Balkaya, Ç., Kalyoncuoğlu, Ü.Y., Özhanlı, M., Merter, G., Çakmak, O. & Güven, İ.T. (2018). Ground-penetrating radar and electrical resistivity tomography studies in the biblical Pisidian Antioch city, southwest Anatolia. *Archaeological Prospection*, 25, 285-300. <https://doi.org/10.1002/arp.1708>

Balkaya, Ç., Ekinci, Y.L., Çakmak, O., Blömer, M., Arnkens, J. & Kaya, M.A. (2021). A challenging archaeo-geophysical exploration through GPR and ERT surveys on the Keber Tepe, City Hill of Doliche, Commagene (Gaziantep, SE Turkey). *Journal of Applied Geophysics*, 186, 104272. <https://doi.org/10.1016/j.jappgeo.2021.104272>

Blanchy, G., Saneiyani, S., Boyd, J., McLachlan, P. & Binley, A. (2020). ResIPy, an intuitive open-source software for complex geoelectrical inversion/modelling. *Computers & Geosciences*, 137, 104423. <https://doi.org/10.1016/j.cageo.2020.104423>

Ekinci, Y.L., Balkaya, Ç., Şeren, A., Kaya, M.A. & Lightfoot, C.S. (2014). Geomagnetic and geoelectrical prospection for buried archaeological remains on the Upper City of Amorium, a Byzantine city in midwestern Turkey. *Journal of Geophysics and Engineering*, 11, 015012. <https://doi.org/10.1088/1742-2132/11/1/015012>

Schenk, T. (2020). Archäologische Prospektionen in Seleukeia Sidera und der Versuch, Produktionszentren zu bestimmen. In A. Mörel, G. Kaşka, H. Köker, M. Kaşka, M. Firat & S. O. Akgönül (Eds.), *Production, Trade and Economy in Pisidia and its Surrounding Areas. International Symposium Proceeding Pisidian Studies II, 31 October – 03 November 2018 Isparta, Turkey* (pp. 154-165). Süleyman Demirel University Press.

Yılmaz, S., Balkaya, Ç., Çakmak, O. & Oksum, E. (2019). GPR and ERT explorations at the archaeological site of Kılıç village (Isparta, SW Turkey). *Journal of Applied Geophysics*, 170, 103859. <https://doi.org/10.1016/j.jappgeo.2019.103859>

## Webpage on a Website References

URL 1: <https://www.sandmeier-geo.de/> (19 June 2023)

URL 2: <https://gitlab.com/hkex/resipy> (19 June 2023)

URL 3: <https://www.paraview.org/> (19 June 2023)



## Mapping the Ancient City of Seleukeia Sidera and Its Surrounding Landscape

### *Seleukeia Sidera ve Çevresinin Haritalandırılması*

Arie Kai-Browne\*

Arkeoloji, antik dönem kalıntıları ve çevreleri arasındaki karmaşık ilişkinin daha iyi anlaşılmasını sağlamak amacıyla doğru haritalama gerektiren doğal bir mekânsal unsura sahiptir. Yeri bilinmeyen bir eserin bilimsel değeri sınırlıdır; zira eser ile bağlamı arasında bir ilişki kurulamaz. Harita ve planların oluşturulması, saha arkeolojisinin önemli bir parçasıdır ve daha sonraki araştırmaların çoğunun temelini oluşturur. Son on yılda buluntular, özellikle yapılar ve alanlar arasındaki mekânsal ilişkilerin nasıl kaydedildiği ve haritalandırıldığına dair metodolojik yaklaşımda önemli bir değişim yaşanmıştır. Arkeolojik kalıntıların üç boyutlu belgelenmesine yönelik çeşitli yöntemler, nispeten kısa sürede kayıt altına alınan yüksek doğruluk ve mekânsal çözünürlüğün sunduğu çok yönlü faydalar nedeni ile saha arkeologları tarafından yaygın olarak benimsenmiştir.

Prof. Dr. Bilge Hürmüzlü ve Prof. Dr. Thomas Schenk'in başkanlığında 2016 yılında Süleyman Demirel Üniversitesi ve Berlin Uygulamalı Bilimler Üniversitesi arasında ortak bir araştırma projesi başlatılmıştır. Gerda Henkel Vakfı tarafından 2018 yılı itibariyle finanse edilen bu proje, Seleukeia Sidera antik kentinin araştırılmasına odaklanmıştır. O tarihten bu yana Seleukeia Sidera'da jeofizik araştırma, total station ve GNSS gözlemleri, 3D lazer taramaları, alçak irtifa hava fotogrametrisi ve yersel fotogrametri gibi çeşitli yöntemler kullanılarak araştırılmıştır. Bu yöntemler alanın kapsamını, topografik özelliklerini ve mimari kalıntılarını anlamaya yardımcı olmayı amaçlamıştır.

Başlangıçta Seleukeia Sidera'nın araştırılması için önemli gereklilik, bir kontrol noktası ağının kurulmasıydı. Bu kontrol noktaları, detaylı yüzey araştırmaları ve bilinmeyen noktaların koordinatlarının belirlenmesi için ana referans görevi görmüştür. Arkeolojik alanları kendi peyzajları içinde ve diğer alanlar ile ilişkili olarak saptamak için, kontrol noktalarının koordinatları küresel bir koordinat referans sistemi (UTM 36 N WGS86) içinde düzenlenmiştir.

Seleukeia Sidera ve yakın çevresinin havadan haritalanması, İHA görüntüleri ve görüntü tabanlı bir modelleme yaklaşımı kullanılarak gerçekleştirilmiştir. Amaç, Coğrafi Bilgi Sistemi (CBS) içinde mimari kalıntıların ayrıntılı çizimlerini kolaylaştırmak için yeterli mekânsal çözünürlüğe sahip doğru orthomozaikler oluşturmaktır. Ayrıca, elde edilen veriler, topografik haritalar ve alanın mekânsal analizi için temel teşkil eden Dijital Yükseklik Modelleri

---

\* Hochschule für Technik und Wirtschaft, Wilhelminenhofstraße 75A 12459 Berlin/Germany, arie.kai-browne@htw-berlin.de; ORCID: 0000-0002-3019-7313.

(DEM) oluşturmak üzere kullanılmıştır. Bu, Hisar Tepe'deki sur sistemi gibi yer üstünde doğrudan görülemeyen ince topografik özelliklerin belirlenmesi açısından özellikle önemliydi. 2017-2019 ve 2021 yıllarında çok sayıda havadan haritalama kampanyası gerçekleştirilmiştir. Yer Kontrol Noktaları (YKN) her çalışma sezonu için sahanın etrafına dağıtılmış ve araştırma sınıfı RTK/PPK özellikli bir GNSS sistemi kullanılarak ölçülmüştür.

Ağustos sonu ile Eylül 2017 başındaki ilk sezon, Hisar Tepe için piksel başına 7 mm ve çevredeki tarım alanları için piksel başına 11 mm Yer Örnekleme Mesafesi (GSD) ile 1,6 x 1,3 km'lik bir alanı kapsamıştır. 2018 yılında, 2017 yılında kaydedilen alanı toplam 1,9 x 1,7 km'ye genişletmek için Hisar Tepe'nin çevresi piksel başına 11 mm'lik bir GSD ile çekilmiştir. Ağustos- Eylül 2019'da Hisar Tepe, aynı ekipman kullanılarak 1,1 x 1,1 km'lik biraz daha küçük bir alanı kapsayacak şekilde ancak piksel başına 4 mm'lik daha yüksek bir çözünürlükle ikinci kez haritalanmıştır. Temmuz 2021'de Hisar Tepe, piksel başına 5 mm GSD ile 1 x 1 km'lik bir alanı kapsayacak şekilde tekrar kaydedilmiştir. Aynı yıl Hisar Tepe'nin kuzeyindeki taş ocakları da piksel başına 15 mm GSD ile 1600 x 850 m'lik bir alanı kapsayacak şekilde haritalanmıştır.

Hava fotogrametrisinin mekânsal çözünürlük ve görüş açılarındaki sınırlamalar nedeniyle, bazı arkeolojik yapıların belgelenmesi için yersel fotogrametriye ihtiyaç duyulmuştur. Yersel fotogrametri, belirli arkeolojik özelliklerin yeterince belgelenmesi için gerekli olan daha yüksek mekânsal çözünürlük sunmuştur.

1993'te kazılan nekropolisin küçük bir kısmı 2016'da yersel fotogrametri kullanılarak belgelenmiştir. Sonraki yıllarda Kuzeybatı Nekropolisi (Pl. 2: 14) OM004, OM007, OM008, OM010 - OM013, OM0015 ve OM020 - OM022 oda mezarlarının iç kısımları aynı yöntem kullanılarak belgelenmiş ve nekropolisin topografik modeliyle birleştirilmiştir. Nekropolise ek olarak, diazoma ve çevresi Ağustos 2016'da yersel fotogrametri ve lazer taramasının bir kombinasyonu kullanılarak belgelenmiştir. Tiyatro scaenae frons'u (Pl. 2: 6) Ağustos 2017'de yine yersel fotogrametri kullanılarak belgelenmiştir. Ayrıca, Hisar Tepe'nin güneybatı yamacındaki atölye alanı (Pl. 2: 5) Eylül 2017'de yersel ve havadan fotogrametrisinin bir kombinasyonu kullanılarak belgelenmiştir. Bu alan, veri toplamayı iyileştirmek için Eylül 2021'de bir kameralı direk kullanılarak yeniden belgelenmiştir.

Seleukeia Sidera'nın çevresindeki peyzajı değerlendirmek amacı ile çeşitli hava ve uzaktan algılama veri kaynakları elde edilmiştir. Bunlar arasında genel topografya için Alman Havacılık ve Uzay Merkezi (DLR) tarafından sağlanan TanDEM-X Sayısal Yükseklik Modeli (DEM) de yer almaktadır. Avrupa Uzay Ajansı'nın (ESA) Copernicus programından alınan ve çok yüksek çözünürlüklü uydu görüntülerini de içeren uzaktan algılama verileri, bina yapılarının ve bitki örtüsü işaretlerinin haritalanması için kullanılmıştır. Amerika Birleşik Devletleri tarafından 1971 yılında fırlatılan KeyHole-9 (HEXAGON) keşif uydu prog-

ramından da yararlanılmıştır. Seleukeia Sidera ve çevresi için panoramik stereo kameralar ve haritalama kamerası modülü tarafından çekilen önemli sayıda negatif elde edilmiş ve verilerin işlenmesi devam etmektedir. Elde edilen tüm veri kümeleri ücretsiz ve açık kaynaklı Coğrafi Bilgi Sistemi (QGIS) içinde birleştirilerek araştırmacıların verilere serbestçe erişebilmeleri sağlanmıştır. Seleukeia Sidera ve arkeolojik kalıntılarının haritalarını oluşturmak amacı ile mekânsal veri analizi ve görselleştirme için çeşitli araçlar kullanılmıştır.

Sonuç olarak, gelişmiş ölçme ve haritalama tekniklerinin uygulanması, belgeleme kalitesini artırmış ve Seleukeia Sidera antik kentinin anlaşılmasına yardımcı olmuştur. Havadan ve karadan fotogrametri, lazer tarama, GNSS gözlemleri ve uzaktan algılama verilerinin entegrasyonu, daha fazla analiz ve araştırma için kapsamlı bir veri seti sağlamıştır.

## Introduction

Archaeology has an inherent spatial element requiring accurate mapping to enable a better understanding of the complex relationship between archaeological remains and their environment. An artefact of unknown location only holds a limited amount of scientific value since no association between it and its context can be established. Creating maps and plans are an essential part of field archaeology, setting the foundation for much of the further research. As Wheatley & Gillings (2002, pp. 2-3) said:

*Much, if not all, of the data that archaeologists recover is spatial in nature, or has an important spatial component. As a discipline archaeology routinely deals with enormous amounts of spatial data, varying in scale from the relative locations of archaeological sites upon a continental landmass, down to the positions of individual artefacts within excavated contexts. Artefacts, features, structures and sites, whether monument complexes, chance finds of individual objects, scatters of ploughsoil material or rigorously excavated structural and artefactual remains, are all found somewhere.*

Over the last decade there has been a significant shift in the methodological approach on how the spatial relationship between artefacts, features, structures and sites are recorded and mapped. Various methods for the three-dimensional documentation of archaeological remains have been widely adopted by field archaeologists due to the manifold benefits offered by the high accuracy and spatial resolution which can be recorded in a comparatively short time. In comparison to classical methods for recording sites, such as topographic surveys using a total station or drawings of architectural remains, one of the major benefits is the acquisition speed and the objective way in which the data can be recorded. The surveyor does not have to choose single measurement points to represent shapes, which in itself already can be considered a type of interpretation. Since the object of interest is covered by a grid of unclassified 3D points describing the entire surface of the object, the previously mentioned circumstance is negated and can therefore be considered a more objective

manner of recording the physical evidence. Nonetheless, drawings and their interpretative nature remain of critical importance and surely will never be replaceable. It is of paramount importance that, even with the highest resolution and most accurate methods of acquiring spatial data, archaeologists use the data on-site for verification and interpretation.

In 2016, the joint research project between the Süleyman Demirel University and the University of Applied Sciences Berlin, financed as of 2018 by the Gerda-Henkel foundation, under supervision of Prof. Dr. Bilge Hürmüzlü and Prof. Dr. Thomas Schenk began with the investigation of the ancient city of Seleukeia Sidera. Since then Seleukeia Sidera has been surveyed using a variety of methods, including geophysical prospection, total station and GNSS observations, 3D laser scans, low-altitude aerial as well terrestrial photogrammetry, in order to investigate the extent and topographic situation of the site and its architectural remains.

In the following chapter the methodological approach of mapping Seleukeia Sidera will be presented, giving a general overview on the data acquired to create maps and plans for further archaeological research.

### **Control Survey**

One of the essential requirements for surveying archaeological sites is to establish a network of control points, which serve as the main reference for detail surveys, i.e. determining the coordinates of unknown points. Due to the importance of viewing archaeological sites within their landscape and in relation to other sites, the coordinates of the control points should be set within a global coordinate reference system.

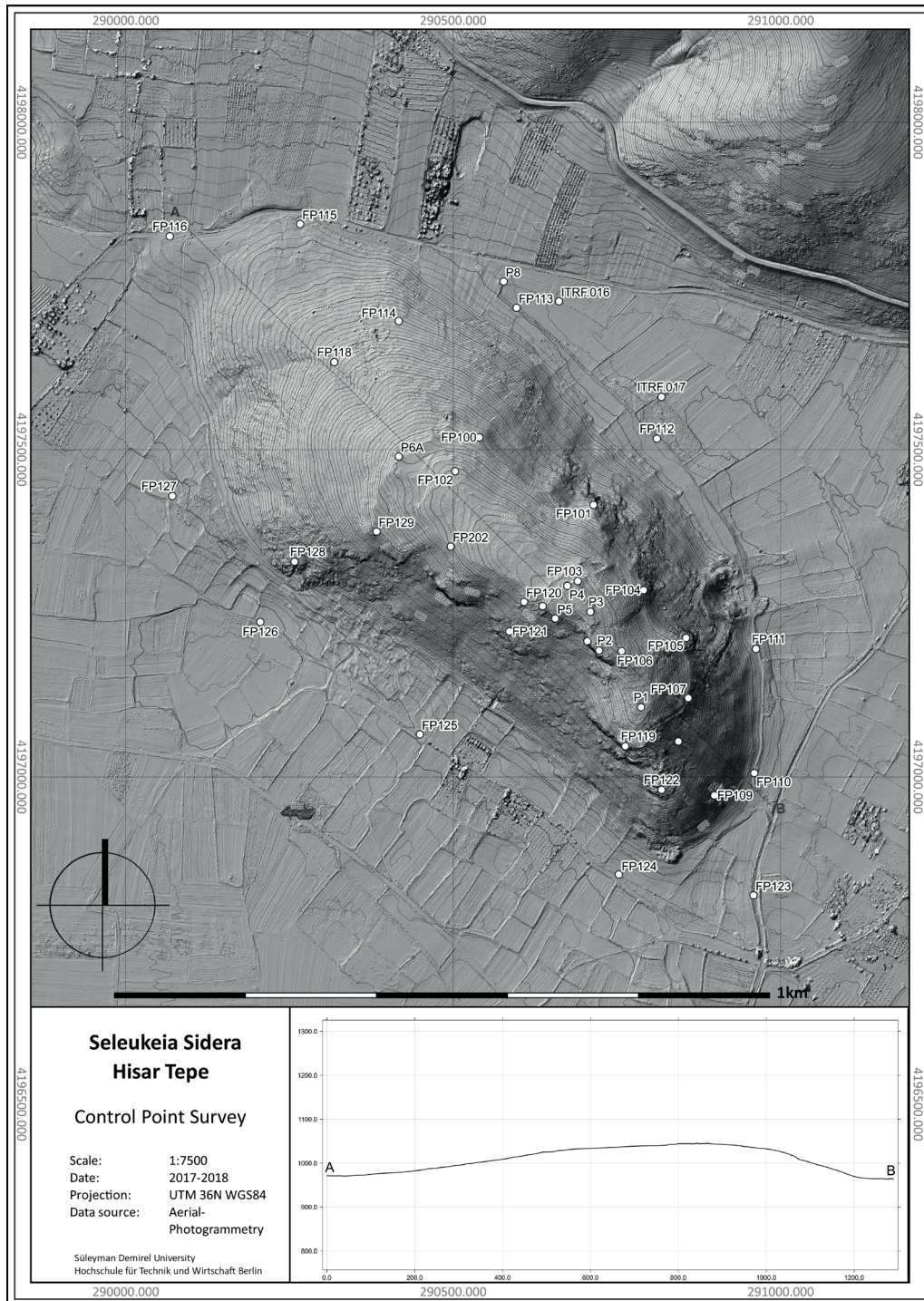


Fig. 1

Unfortunately, no documentation on the control survey from previous excavation work is available. Therefore, it was necessary to set up a new control point network. In 2016, Uygur Hecebil began with the topographic mapping for which nine control points on top and to the north of Hisar Tepe were distributed using a Topcon GTS-105N (P1 - P8, ITRF.016, ITRF.017). Prof. Dr. Thomas Schenk measured five of the control points with the Leica GPS 900 system to add temporary control points for the geophysical survey.

In 2017, the author of this chapter extended the existing control point network to encompass Hisar Tepe entirely. For this purpose, 32 additional control points (FP100-FP129, FP200-FP202) were distributed around Hisar Tepe and were either marked with spray paint or fixed in the soil using steel rods<sup>2</sup>. The control points were measured with the Leica GPS 900 system in Real Time Kinematic (RTK) positioning mode and exported in the coordinate reference system UTM 36 N WGS86 (Fig. 1).

Since the base station of the Leica GPS 900 system was set up over a point with unknown coordinates, the global accuracy of the entire control point network is within the usual error of uncorrected GNSS observations, which is in the range of 2-3m<sup>3</sup>. Therefore, in 2018 the Leica GNSS 1200 was used to observe the control point FP102 for a total of over 8 hours<sup>4</sup>. The recorded observation data enables the absolute global position of the control points in Seleukeia Sidera to be corrected using data from TUSAGA-AKTIF, which allows for repeatable positioning of GNSS systems in future with centimetre accuracy, even if all current control points should be lost.

### **Aerial Photogrammetry**

The aerial mapping of Seleukeia Sidera and its immediate surrounding area was performed using UAV imagery and the image based modelling approach<sup>5</sup>. The goal was to create accurate orthomosaics in a sufficient spatial resolution to enable detailed drawings of the architectural remains within a Geographic Information System (GIS)<sup>6</sup>. Furthermore, the data was used to create Digital

- 
- 2 It should be noted that the control points marked with spray paint were set up on stable surfaces such as the visible bedrock where naturally occurring nooks and crannies were used. These were filled with a fairly large amount of paint to ensure durability of the control points. Nonetheless, the control points should be visually inspected during each campaign.
  - 3 While the global accuracy of the control point network is in the range of a few meters, the accuracy between all control points should lie within the specified accuracy of 1cm horizontal and 2cm vertical (Leica, 2007, p. 127).
  - 4 Further long term observations have been conducted in the years of 2019 and 2021 using both the Leica GNSS 1200 and the Emlid Reach RS2 system.
  - 5 Image based modelling describes the entire pipeline of creating 3D-models from overlapping digital imagery taken from different viewpoints. It includes both Structure-from-Motion algorithms for determining the cameras internal and external camera parameters, as well as Multiview-Stereo algorithms for creating high resolution 3D-models.
  - 6 It is important to note that the drawings created based on the orthomosaic always should be

Elevation Models (DEMs), which served as the basis for topographic maps as well as spatial analysis of the site. These are in so far especially relevant as that some key archaeological structures on Hisar Tepe, such as the fortification system, are not directly visible above ground but only show as subtle topographic features.

The spatial resolution of orthomosaics and DEMs are determined by the Ground Sampling Distance<sup>7</sup> (GSD) of the digital images, which in turn depends on the distance between camera and subject i.e. the flight altitude, the field of view i.e. the focal length of the lens and the resolution of the camera sensor. In practical terms, increasing the resolution is done by lowering the flight altitude or using a lens with a narrower field of view. Since the image footprint covers a smaller area, the flight time as well as the amount of images increases, making it necessary to carefully deliberate the relationship between the required spatial resolution for mapping archaeological features and the amount of time spent in the field.

For mapping the visible archaeological structures of Seleukeia Sidera it was determined that a GSD of below 1cm per pixel was required while for the surrounding topography, including the quarries to the north, a resolution of approx. 1.5cm per pixel was deemed sufficient.

To fulfil the above mentioned requirements within a feasible time frame, a multicopter drone, HiSystems MK EASYOkto XL2 6S, was used in combination with a full-frame digital camera, the Sony A7R + Sony Sonnar T\* 35mm f2.8.

The EASYOkto XL2 6S is capable of waypoint based flights using HiSystems own software MikrokopterTools. This approach enables systematic flight planning, where parameters such as the degree of forward and sideward overlap, flight altitude and camera angle can be set. Mikrokopter Tools does not support terrain aware flight paths<sup>8</sup>, which is particularly problematic when flying in areas with large topographic changes. This circumstance leads to a non-systematic coverage, where parts of the terrain are captured with barely any overlap leading to gaps while other parts have such a large overlap that it leads to errors in the topographic model. To avoid the problem of Mikrokopter

---

checked in the field. Even very high-resolution imagery of architectural elements can have a misleading appearance due to the lighting conditions during data acquisition, which can result in misinterpretation of the actual situation.

- 7 The Ground Sampling Distance (GSD) describes the size of a single pixel of the images in reality. For example, currently the highest resolution of satellite imagery available commercially has a GSD of 15cm per pixel. As such, archaeological features smaller than the GSD of the imagery cannot be mapped adequately.
- 8 Due to the high inaccuracy of altitude readings when using uncorrected GNSS, most drones use the barometric pressure to determine the height above ground. Therefore, the start position of the UAV is considered as 0m above ground and the designated flight height per waypoint is strictly related to the start point. The inherent problem here is that for a systematic coverage of the area-of-interest the distance between subject and camera has to be maintained constantly. This is not possible when using the barometric height in hilly terrains.

Tools lacking terrain awareness, a highly accurate DEM provided by the German Centre for Aerospace (DLR) was used to extract the relevant information, thus solving the problem of non-systematic coverage<sup>9</sup>.

Due to the flight time of about 18 minutes per battery pack, the site had to be divided into quadrants, where each quadrant was covered with a single battery pack. Based on the area to be recorded, the chosen resolution and overlap, the mapping had to be performed over multiple days. To minimise varying lighting conditions between the quadrants recorded on different days, the flights were performed approximately at the same time of the day.

All images were recorded in Sony's raw image format (.ARW) and every day the X-Rite ColourChecker Passport was photographed for creating a custom white balance as well as a colour profile. Image processing was performed in Adobe Lightroom, where colour calibration and white balance were performed, as well as slight image adjustments.

All data processing was performed in Agisoft Metashape<sup>10</sup>. During the most recent data processing phase, the image alignment and optimization workflow used followed the recursive approach mentioned by (Over et al., 2021, pp. 22-30). Camera calibration groups were created for each separate work day due to the use of a consumer grade camera where the camera's internal parameters can change due to temperature and other issues.

One major aspect processing image based modelling data is the image resolution used for computing the cameras intrinsic and extrinsic, as well as the depth information. While for image alignment the full image resolution was used, the depth map computation was either reduced to  $\frac{1}{2}$  or  $\frac{1}{4}$  of the original resolution<sup>11</sup>. Increasing the resolution increases processing time and memory requirements substantially and the actual benefits in regards to mapping archaeological structures have to be considered carefully. Of course it is possible to process only certain areas in a higher resolution separately, decreasing memory requirements and processing times.

---

9 To solve this issue the flight planning was performed in QGIS: The waypoints were laid out according to the intended GSD and segmented into quadrants, each representing a single flight. For each waypoint the absolute height values were extracted from the DEM. For converting the absolute height values into relative height difference, the absolute height of every starting point for each single flight had to be extracted as well. The height value of the starting point was subtracted from the absolute height values of the waypoints and the intended height above ground added.

10 The first version used within this project was Metashape 1.2.5 and has been continuously updated until version 1.8.4. During this time a variety of different processing settings were used and shall be discussed in a future paper.

11 Using half of the input resolution means that for each group of four pixels of the original image, only a single depth value is computed. When using the full resolution, a depth value is computed for each single pixel of the original image.

## High Resolution Aerial Photogrammetry of Hisar Tepe

Multiple aerial mapping campaigns were conducted in 2017, 2018, 2019 and 2021. The initial aerial photogrammetry campaign in late August - early September 2017 covered a total area of 1.6 x 1.3km with a GSD of 7mm per pixel for Hisar Tepe and 1.1cm per pixel for the surrounding agricultural fields using the HiSystems MK EASYOkto XL2 6S in combination with the Sony A7R + Sony Sonnar T\* 35mm f2.8.

The flight overlap was set to approx. 80% in forward and 60% sideward direction with a respective flight altitude of 50m and 80m above ground. A total of 100 GCPs were measured using the Leica GPS 900 system in addition to the 27 already existing control survey points. Due to time constraints the 100 GCPs used for aerial mapping were natural features that could be distinguished in the images. These flight parameters required a total of 28 single flight quadrants, which were acquired in the course of ten days. A total of over 10800 images à 36 megapixels were recorded in that time frame.

Processing the dataset resulted in a total of over 1.2 billion 3D points. The resulting orthomosaic was generated with a GSD of 7.6mm per pixel while the DEM has a GSD of 35mm. The accuracy of 18 checkpoints is 3.1cm east, 3.3cm north and 2.5cm altitude.

For the second aerial mapping campaign performed in August - September of 2019, the same equipment mentioned previously was used. During this campaign an area of 1.1 x 1.1km was covered with a slightly higher GSD of 4mm per pixel. For reference and accuracy assessment a total of 59 GCPs were distributed around the site, marked with red spray paint and measured with the Leica GNSS 1200 system in Post Processing Kinematic (PPK) mode<sup>12</sup>.

The flight overlap was set to approximately 90% in forward and 60% sideward with a flight altitude of 30m above ground. These flight parameters required a total of 27 single quadrants, which were covered in eight days. A total of over 21700 images à 36 megapixel were captured.

Processing the data resulted in a total of over 29 billion 3D points <sup>13</sup>.

---

12 Real Time Kinematic (RTK) requires a continuous link between a GNSS receiver (Rover) and correctional data, which can be a second GNSS receiver set up on a known control point (base station). In Post Processing Kinematics, no continuous link is required: the base station as well as the rover collect observational data and are processed afterwards. This can be especially useful when obstacles, such as hills, are blocking the radio signal between the two GNSS receivers. The only disadvantage is that one does not receive accurate coordinates in real-time.

13 This extremely large amount of 3D points is due to using a higher input resolution for generating the depth information. At this point I would like to express my gratitude to Prof. Thomas Bremer and Sebastian Plesch (DE:HIVE Institute Berlin) for allowing and helping me set up a cluster of twenty gaming PCs to process the dataset using Agisoft Metashape network processing.

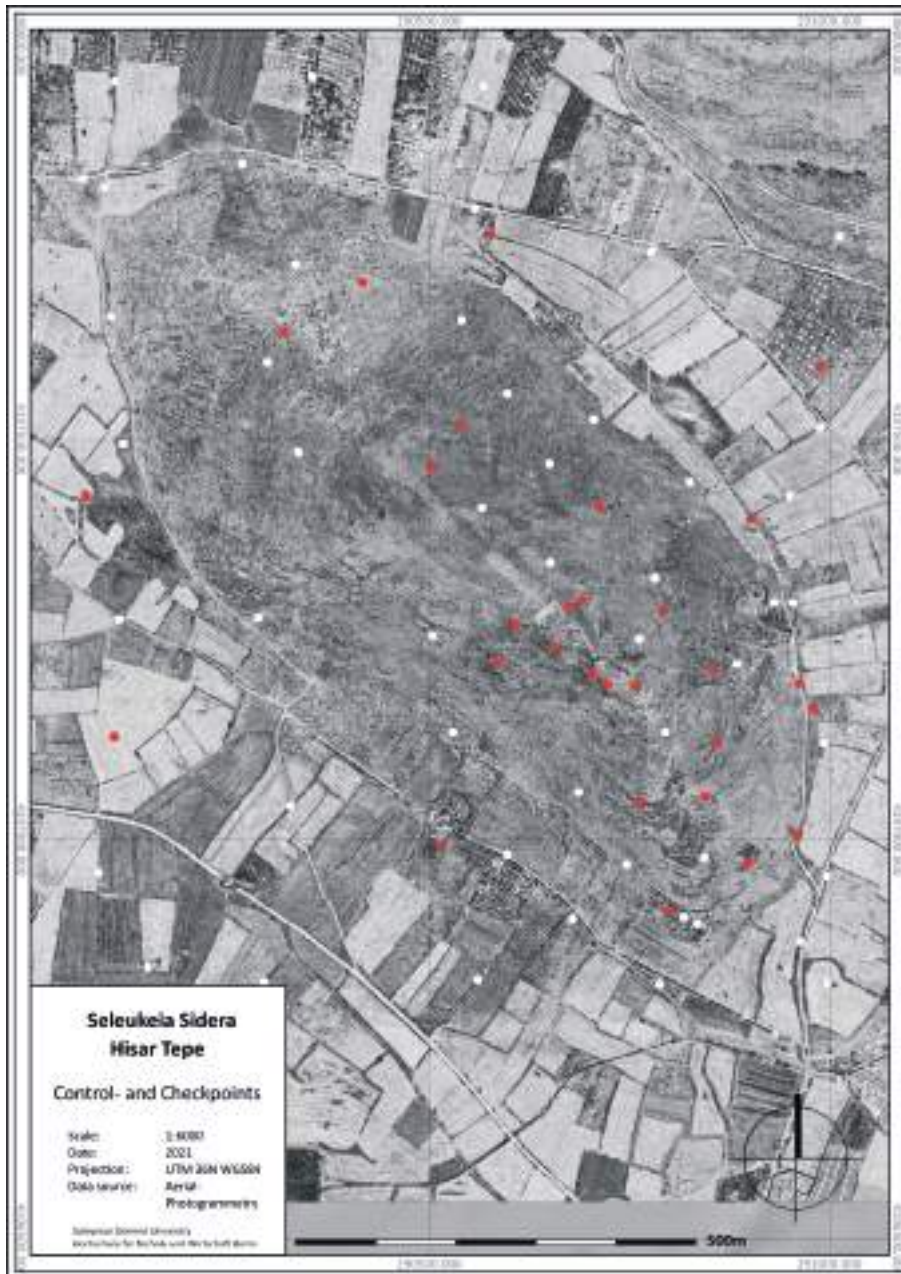


Fig. 2

The resulting orthomosaic was generated with a GSD of 4mm per pixel while the DEM has a GSD of 8mm per pixel. The accuracy of ten checkpoints is 2.8cm east, 3.6cm north and 3.7cm altitude.

The third aerial mapping campaign of Hisar Tepe was performed in July of 2021 using the newer HiSystem EASYOkto XL2 V3, as well as a higher resolution digital camera, the Sony A7R IV + Sony Sonnar T\* 35mm f2.8. A total

area of 1 x 1km was covered with a GSD of 5mm per pixel. A total of 52 GCPs were measured using the Emlid Reach RS2. The flight overlap was set slightly higher with a forward overlap of 90% and 70% sideward with a flight altitude of 40m. A total of 28 quadrants were required, which were recorded in nine days. A total of over 15800 images à 61 megapixel were captured.



Fig. 3

Processing the data resulted in a total of over 2 billion faces<sup>14</sup>. The resulting orthomosaic was generated with a GSD of 5mm per pixel while the DEM has a GSD of 30mm per pixel. The accuracy of 30 checkpoints is 3.4cm east, 4.0cm north and 4.3cm altitude (Fig. 2).

Additionally, a second mapping mission covering the same area was performed. Due to time constraints the data was captured with a lower resolution using slightly oblique imagery in combination with the Reach M2 module<sup>15</sup>. This approach enables the localisation of each image with a specified accuracy of 7mm horizontally and 14mm vertically (Emlid, 2021, p. 6).

### **Surrounding of Hisar Tepe**

The topographic map recorded in 2017 was extended in August of 2018 and July 2021 to include the areas north, east and south of Hisar Tepe where geophysical surveys were conducted, as well as the stone quarries to the north (Fig. 3).

In 2018, three stripes overlapping the topographic map of 2017 were captured with a GSD of 11mm per pixel using the HiSystems MK EASYOkto XL2 6S in combination with the Sony A7R + Sony Sonnar T\* 35mm f2.8. This additional area extended the recorded area of 2017 to a total of 1.9 x 1.7km.

A total of 37 GCPs were recorded using the Leica GNSS 1200 system. The flight overlap was set to a forward overlap of 80% and 60% sideward overlap with a flight altitude of 80m. A total of four quadrants were required, which were recorded in the course of three days.

For processing the data, the images from 2017 were included in the alignment and the entire data set was reprocessed to ensure a seamless transition between the mapping campaigns.

Processing the data resulted in a total of over 1.6 billion faces. The resulting orthomosaic was generated with a GSD of 20mm per pixel while the DEM has a GSD of 50mm per pixel. The accuracy of 30 checkpoints is 2.9cm east, 2.5cm north and 4cm altitude.

Additionally, the stone quarries to the north of Hisar Tepe were mapped in July of 2021, which was done with the EASYOkto XL2 V3 combined with the Sony A7R IV + Sony Sonnar T\* 35mm f2.8. A total area of 1600 x 850m was

---

14 In contrast to the previous data processing, a newer algorithm implemented in Agisoft Metashape was used. The depth-map based reconstruction circumvents the generation of a point cloud and directly creates a mesh surface. This approach is faster and uses less memory than the point cloud based approach.

15 The Reach M2 module is mounted on the UAV and is connected directly to the digital camera. Each time the camera triggers, a coordinate is written to an internal log file. The list of recorded coordinates can be correlated to the images using free software such as GeoSetter and used in processing for optimizing the camera positions, which increases the overall accuracy.

covered with a GSD of 15 mm per pixel. A total of 40 GCPs were measured using the Emlid Reach RS2 in PPK mode. The flight overlap was set to a forward overlap of 80% and 60% sideward with a flight altitude of 120m. A total of eight quadrants were required, which were recorded in two days.

Processing the dataset resulted in a total of over 1 billion mesh faces. The resulting orthomosaic was generated with a GSD of 20mm per pixel while the DEM has a GSD of 50mm per pixel. The accuracy of eight checkpoints is 4.7cm east, 5.1cm north and 5.3cm altitude.

### **Terrestrial Photogrammetry**

Due to the limitation in spatial resolution, as well as the camera's viewing angle of aerial photogrammetry, certain archaeological structures had to be documented using terrestrial photogrammetry. This approach enables a much higher spatial resolution which is required for adequate documentation of certain archaeological features. Furthermore, due to the camera angle when using an UAV, even when shooting oblique imagery, the coverage of certain vertical features is not optimal.

As with the previously mentioned aerial photogrammetry, Agisoft Metashape was used for data processing. One major difference was the approach of using GCPs and CPs during processing: For all terrestrial photogrammetric surveys no camera optimisation was used to increase the overall accuracy. All reference points were merely used for aligning the dataset to a global coordinate system, so that the error was distributed among all reference points equally.

### **Mapping of the Necropolis**

With the beginning of the archaeological research on the necropolis in 2016, a small area excavated in 1999 of around 25 x 20m was documented using terrestrial photogrammetry. For this purpose the Sony A7R + Zeiss Batis 25mm f2.8 were used to capture a total of 970 images in a cross hatched shooting pattern. A total of nine control points were distributed around the area of interest and measured with the Topcon GTS-105N. The error between the resulting 3D-model and the control points was 10mm east, 4mm north and 6mm altitude. The resulting orthomosaic and DEM was used to produce scaled drawings and was the initial basis to reference the 3D-models of the chamber tombs.

The documentation of the interior of chamber tombs pose an exceptional challenge not only for traditional methods of documentation but for modern approaches such as image based modelling as well<sup>16</sup>. This is due to the confined

---

16 In this particular case the use of terrestrial laser scanning (TLS) would have had a significant advantage due to the device sending out its own laser signal making it independent of the ambient lighting situation. Even though the colour information captured by TLS is of significantly lower quality than that of modern digital cameras, the main objective was to

space restricting movement significantly, which is a necessary requirement for image based modelling. Additionally, the ambient lighting is extremely low, which makes either the use of a tripod necessary or to increase the ISO and open the lenses aperture. Another option would have been the use of external light sources, though due to the space and no electricity this approach also was not possible. The use of a ring flash would have been a viable option but unfortunately at the time a ring flash was not available. For a time a tripod was used but due to the confined space and the interior layout of the tombs moving the tripod was time consuming. Therefore, a handheld approach was chosen, which required a fine deliberation between exposure times to acquire motion blur free images, an aperture setting with sufficient depth of field as well as an ISO value that did not exceed certain noise levels.

In August of 2016, the chamber tombs OM010, OM011, OM012, OM013 and OM015 were recorded using the Sony A7R + Zeiss Batis 25mm f2.8 lens resulting in approximately 150 - 250 images per tomb<sup>17</sup>. For referencing the 3D models of the chamber tombs, a slightly untypical approach was taken: instead of using reference points, the entrance of each chamber tomb was recorded with sufficient overlap to the interior. The entrance area was aligned with the very high resolution map captured by terrestrial photogrammetry using the overlapping geometry between both data sets (Fig. 4). Using the iterative closest point (Besl & McKay 1992, pp. 239-256) algorithm implemented in the free and open source software CloudCompare, the following standard deviation between the 3D-models of the tomb and the surface was 5mm for OM010, 2mm for OM011, 4mm for OM012, 4mm for OM013 and 5mm for OM015.



Fig. 5

---

capture the shape of the chamber tombs.

- 17 It should be noted that the chamber tombs captured in 2016 were not fully excavated, therefore the resulting 3D models include partial fillings and do not reflect the complete layout of the actual stone-cut chamber. This circumstance also explains the comparatively low number of images required to capture the entire interior.

In August of 2017, in Northwest Necropolis (Pl. 2: 14) the chamber tombs OM007 and OM008 were recorded with the same camera mentioned above, though the slightly wider angle lens Zeiss Batis 18mm f2.8 was used. The larger field of view enabled a more efficient approach of capturing the interiors. For recording OM007 a total of 113 images were taken, while OM008 required a total of 95 images. Referencing of the models was achieved by utilising the overlapping geometry between the aerial photogrammetry of 2017 and the recorded tombs resulting in a deviation of 6mm for OM007 and 5mm for OM008. In August of 2018, the chamber tombs OM004 and OM020 were recorded using the previously mentioned equipment. In contrast to the approach taken in 2016 and 2017, control points were distributed around the entrance area and measured using a Topcon GTS-105N total station. OM004 was recorded with a total of 281 images and the deviation between five control points and the resulting 3D-model was 2mm east, 3mm north and 1mm altitude. OM020 was recorded with a total of 274 images and the resulting deviation between seven control points was 3mm east, 4mm north and 2mm altitude .

In July - August of 2021, OM021 and OM022 were recorded in various excavation stages using the Sony A7R IV + Zeiss Batis 18mm f2.8 lens. OM021 was captured in a total of nine different excavation stages. For OM021 a total of 1593 images were recorded, with an average of about 150 images per layer (Fig. 5). A total of six control points were used for each recorded layer resulting in an average deviation of 7mm east, 6mm north and 1mm altitude<sup>18</sup>.

---

18 While the deviation in this case is higher than in 2018, it should be noted that the error for all recorded layers deviate in the same direction i.e. the error values do not reflect the difference between the separate layers but between the reference points and the respective 3D-models.

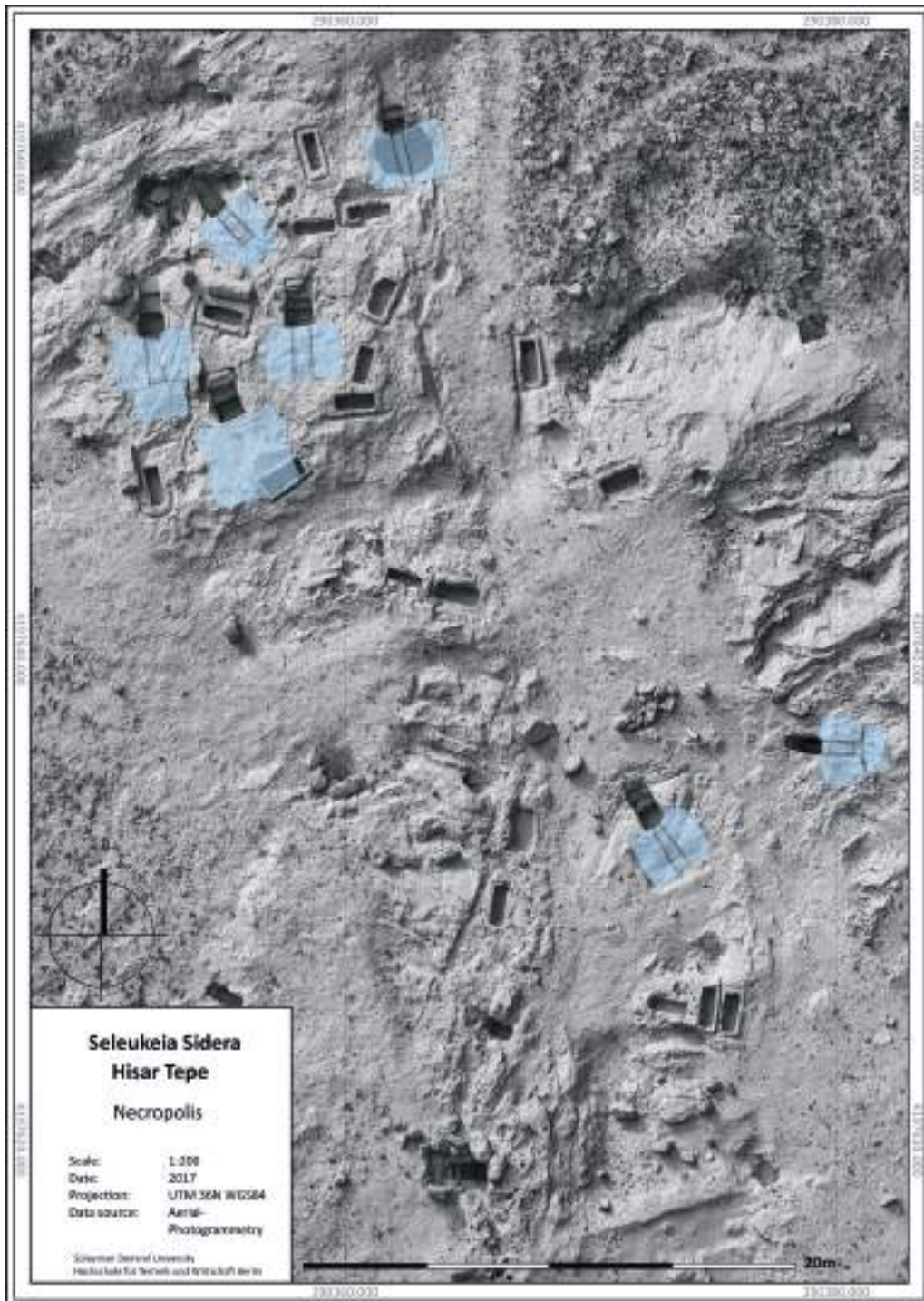


Fig. 4

A total of three excavation stages of OM022 were recorded with a total of 362 images. Seven reference points were distributed around the entrance resulting in an average deviation of 4mm east, 6mm north and 2mm altitude.

### **Theatre Scene Building and *Diazoma***

The *Diazoma* and its immediate surroundings (Pl. 2: 5) was documented in August of 2016 using a combined approach of terrestrial photogrammetry and laser scanning. For this purpose the Leica ScanStation2 was used and a total of 11 scan positions were distributed around the *Diazoma* and the immediate surrounding area. For aligning the single scan positions to each other, spheres were distributed around the site and measured with the 3D-scanner separately. Additionally, each scan position was measured using the Leica GPS900 system to reference the 3D scans to a global coordinate reference system. The resulting point cloud consisted of a total of approx. 290 million 3D points.

Additionally, the interior of the entrance gate was documented using the Sony A7R + Samyang 14mm f2.8, capturing a total of 47 images. The fairly low number of images is due to them only being used to colourise the 3D scans and not to actually generate geometric information.

The theatre scene building was documented in August of 2017 using terrestrial photogrammetry. A total of 1518 images were taken using the Sony A7R + Zeiss Batis 18mm f2.8 covering the building and the surrounding area to the west. For the building itself 789 images were required to ensure full coverage of both vertical and horizontal structures. The data processing was done in Agisoft Metashape resulting in a total of over 210 million 3D points. The 3D-model of the theatre building was referenced by aligning it to the aerial photogrammetry based on the overlapping geometry, resulting in a standard deviation of 7,1 mm<sup>19</sup>. The resulting orthomosaic has a spatial resolution of 0.5mm per pixel while the DEM was generated with a resolution of 1.5mm per pixel (Fig. 6).

---

19 The approach used here is identical to the one used for the chamber tombs. The alignment and deviation analysis was done in CloudCompare. The generation of the orthomosaic and DEM was done in Agisoft Metashape, where it is necessary to apply the alignment values based on a 4x4 matrix using a python script.



Fig. 6

## Workshop Area

The workshop area located at the south-western slope of Hisar Tepe (Pl. 2: 5) was documented in September of 2017 using a combined approach of terrestrial and aerial photogrammetry. A total of 555 images were taken from ground level using the Sony A7R + Zeiss Batis 18mm f2.8 and an additional 702 images with a UAV using the same camera with the Sony Sonnar T\* FE 35mm f/2.8. For referencing, the image set was combined with the aerial mapping campaign of August 2017, so that no further reference points and geometry based alignment was necessary.

Since the UAV was flown manually without a live feed for visual aid to capture the vertical structures hewn into the bedrock, the images were captured in a fairly non-systematic manner. A non-systematic coverage can lead to varying spatial resolution and quality in the final model. Therefore, the area, with a slight extension to the west, was documented again in September 2021 using a 6m camera pole on which the Sony A7R IV + Zeiss Batis 18mm f2.8 was mounted<sup>20</sup>. A total of 1019 images were taken, both from ground level as well as mounted on the camera pole in different heights. For referencing the images, a slightly different approach than the ones used for the chamber tombs and theatre building was used: visually distinctive image features were used as control points. The coordinates of these points were extracted from the aerial photogrammetry of 2021 resulting in a deviation of 6mm east, 7mm north and 9mm altitude. Additionally, the terrestrial photogrammetry was aligned based on the overlapping geometry to the aerial photogrammetry resulting in an overall standard deviation of 7mm.

Processing of the terrestrial images resulted in over 1.4 billion mesh faces. The final orthomosaic, as well as the DEM, was generated with a spatial resolution of 2mm per pixel, though it would be possible to increase the spatial resolution to a sub-millimetre level if required.

## Remote Sensing Data

Due to the importance of considering the surrounding landscape of archaeological sites, a variety of aerial and remote sensing data was acquired. For the general topography the TanDEM-X DEM was provided by the German Aerospace Centre (DLR). The primary mission objective was to create a global DEM with a relative vertical accuracy of 2m, a global vertical accuracy of 10m and a spatial resolution of 12m (Zink et al., 2014, p. 9). As (Wessel et al., 2018, p. 181) show in their accuracy assessment, the above mentioned goals were met and partially even exceeded. Deviation analysis between the aerial

---

20 Sony cameras offer the possibility of remotely controlling the camera using the internal Wi-Fi connected to a smartphone or tablet using the Sony Edge Imaging application. This is especially convenient since a live stream of the camera's current view is transmitted, enabling a continuous control of image overlap and orientation.

photogrammetry of Seleukeia Sidera and the TanDEM-X DEM also confirmed the high accuracy (Fig. 7)

The data provided by the DLR covers a total area of 220 x 180km, though for the current work it has been cropped to cover the area of interest. So far it has mainly been used as a base map to visualise the topography in relation to the distribution of archaeological sites and to analyse the terrain forms following the approach of (Jasiewicz et al., 2014, pp. 1785-1788).

Within the framework of the European Space Agency's (ESA) Copernicus program, a variety of remote sensing data was made available as well. The very high-resolution satellite imagery is of particular interest, since the spatial resolution allows for mapping certain building structures and vegetational markers.

For the area of Seleukeia Sidera two Airbus Pléiades 1A images were acquired covering a total area of 40 x 20km. The satellite imagery was delivered as multiple files consisting of a panchromatic image with a spatial resolution of 50cm per pixel and a multispectral image with a spatial resolution of 2m<sup>21</sup>. The location accuracy without GCPs is specified at 6.5m CE90 and through the use of GCPs the planimetric accuracy can even be increased to 0.35m (Coeurdevey & Fernandez, 2012, p. 71). The acquired image sets were merged within QGIS and pan sharpened to combine the spectral resolution of the multispectral image with the high spatial resolution of the panchromatic image.

---

21 The panchromatic image covers the spectral range between 480-820 nm while the multispectral image covers four spectral bands 450-530nm blue, 510-590nm green, 620-700nm red, 775-915nm NIR (Coeurdevey & Fernandez, 2012, p. 2).

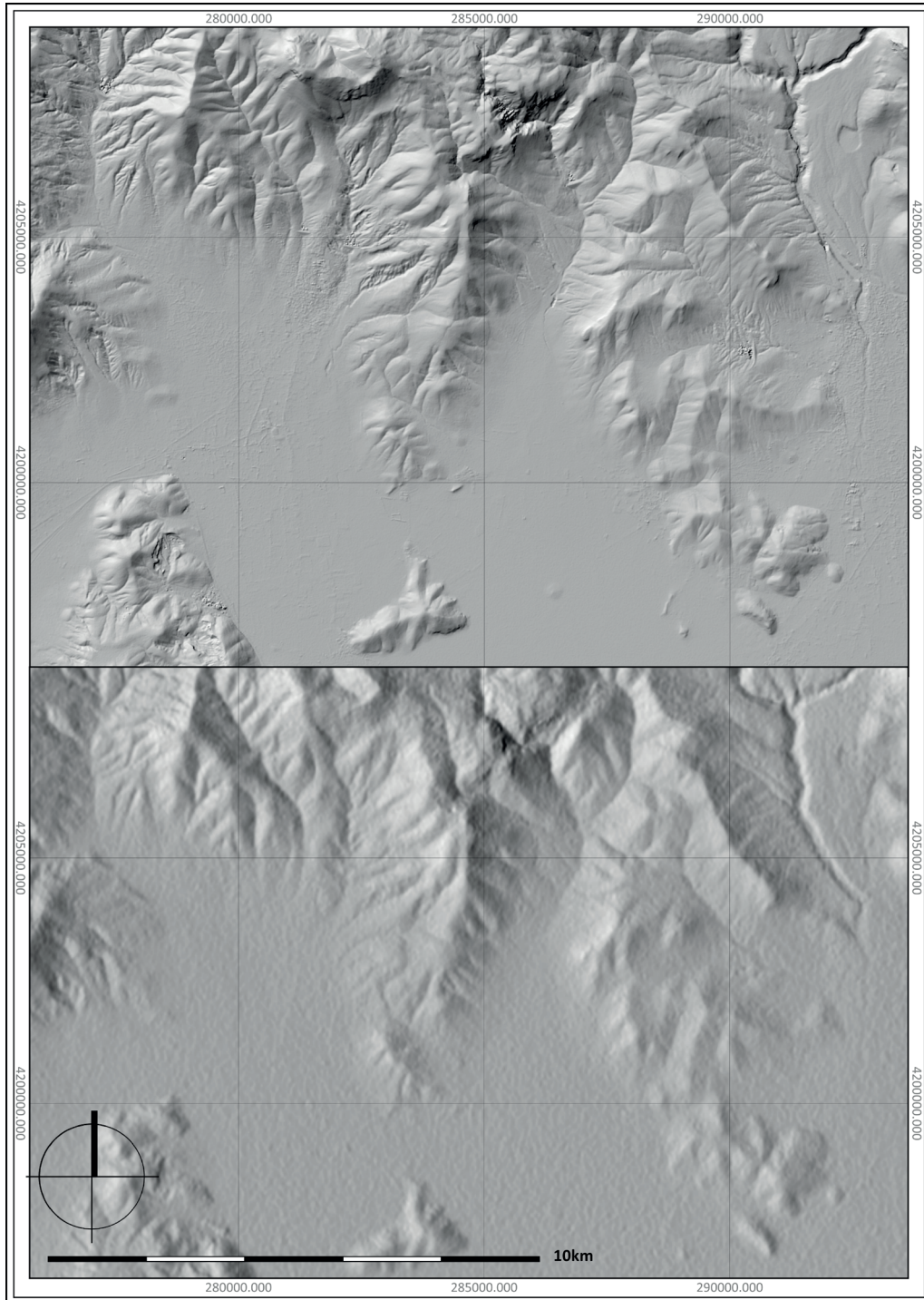


Fig. 7

Another incredibly valuable source of remote sensing data is the reconnaissance satellite program KeyHole-9 codename HEXAGON launched



Fig. 8

by the United States in 1971 (Burnett, 2012, pp. i-13) as the successor to the CORONA program, which already has been used extensively for archaeological research (Ur, 2003, pp. 102-115; Fowler, 2012, pp. 24-29). The main camera system, developed by Perkin-Elmer, consists of two panoramic stereo cameras with a 60-inch focal length, f/3.0 folded Wright optical system (Oder et al., 1992, pp. 81-83). The main camera system was capable of capturing images with a GSD of 2-4 feet, which is sufficient for mapping archaeological structures such as building remains (Fig. 8).

In later missions a second camera system, the mapping-camera module developed by Itek, was added to acquire

large-scale (1:50000) topographic maps. The requirements were to achieve a relative horizontal accuracy of 85 feet and a vertical accuracy of 16 to 33 feet over a distance of 10 to 20 miles (Oder et al., 1992, p. 132).

The acquired imagery was released to the National Archives and Records Administration (NARA) and the U.S. Geological Survey (USGS). The coverage can be accessed using USGS EarthExplorer and, if already available for download, an order to scan the film negatives can be submitted<sup>22</sup>. For Seleukeia Sidera and its surrounding, a total of 17 negatives captured by the panoramic stereo cameras and 12 negatives captured by the mapping-camera module were acquired and processing is currently on-going<sup>23</sup>.

---

22 The scan of the film negatives cost a total of 30\$ per negative. Once the film strip is scanned, USGS makes the digitized film strips available to all, which the author finds highly commendable.

23 Due to the file size, handling of the data is challenging. For example, some digitised film strips of the panoramic stereo cameras measure approx. 350.000 x 25.000 pixels and cannot be processed with regular image editing software such as Adobe Photoshop.

## GIS Based Data Management, Analysis and Mapping

When dealing with such a large amount of spatial data derived from various sources shown above, as well as additional spatial data such as the geophysical surveys, surface artefact surveys, excavation results and more, it becomes an



Fig. 9

absolute necessity for appropriate data management to be able to combine the multitude of data sources within one environment for further analysis. For this purpose, the free and open source software QGIS is being used<sup>24</sup>. It combines a simple user interface with a vast array of options to manage, analyse and visualise raster and vector based data<sup>25</sup>.

For managing the spatial data, a folder system within QGIS “Layers” has been developed (Fig. 9). On the top level, the folder system is grouped into just two main categories, “Landscape” and “Sites”: Former covers the large-scale data i.e. all data pertaining to the entire landscape, which encompass all archaeological sites equally. The subfolders are grouped into data types, consisting again of only two main groups, raster and vector based data. Within the raster folder all data related to satellite and aerial imagery, digitised maps, DEMs is grouped according to their data source, while the vector folder contains all vectorised data such as digitised maps, contour lines and so on.

24 The author highly recommends the use of free and open source software such as QGIS. Especially when dealing with multiple project partners, professionals as well as students, the use of free and open source software mitigates the need for software licenses, which in some cases can create substantial costs. Furthermore, the open source nature enables transparency regarding the algorithms used.

25 It should be noted that traditionally GIS software can only deal with 2 ½ D data e.g. image raster cells (X,Y) can store altitude values (Z). But based on this form of data representation, complex shapes cannot be represented fully, since this requires “true” 3D data formats. Since version 3.18 QGIS is able to import point clouds, though processing and analysing is still in its infancy.

The second main group “Sites” is divided into the individual archaeological sites where surveys of various nature have been conducted and spatial data collected. The subfolders for each site are grouped using a thematic approach, e.g. Topography, Excavation, Geophysics and so on. Depending on the type of data, each of these folders are divided into additional subfolders, further classifying the data by their content and formats.

In general, the need for flexibility was considered in great lengths during the conception since it is nearly impossible to create a management system that can be applied to all types of archaeological mapping work equally. This folder system is not a static entity and can be expanded when needed,

For creating topographic maps of the entire landscape, the archaeological sites as well as architectural structures, some of the basic raster processing tools implemented in QGIS were used. In its most basic form they are composed of a shaded relief in combination with contour lines depicting the altitude values. One issue that arises when using directional lighting, such as used in shaded relief maps, is that depending on the lighting direction some geometric features might not be as well visible as they need to be.

To circumvent this situation, other analysis tools for enhancing geometric detail can be used that show nicely how much relevant information can be extracted from the DEMs. For this purpose, the QGIS plug-in “Relief Visualization Toolbox” developed by (Kokalj & Somrak 2019, p. 747) was used. It features a variety of methods for visualising DEMs such as hillshading from multiple directions, slope gradient, local relief model, sky-view factor and more. For mapping buried structures, which show only as subtle topographic features, the local relief model proved to be of special value (Fig. 10). The toolbox also features an approach especially developed for archaeological purposes in which multiple of the previously mentioned maps are combined to visually enhance relevant features, as shown as a base map in Fig. 2.

For creating printable maps, various layouts in different scales were created. QGIS Layout Manager enables an easy way of managing a large amount of different layouts, print sizes and scales and is very efficient for quickly creating new maps. The layouts include all relevant information, such as the coordinate reference frame, north arrow, scale, header, data sources and such, which are required to make maps as comprehensible as possible.

## **Summary**

The mapping of Seleukeia Sidera and its immediate surrounding landscape was conducted on various spatial scales employing a range of methods ranging from the use of satellite imagery, aerial and terrestrial photogrammetry, 3D laser scans as well as total station and GNSS observations.

During five campaigns between 2016 and 2021, Hisar Tepe and its immediate surroundings were recorded using aerial photogrammetry with a spatial resolution and accuracy sufficient for mapping relevant archaeological structures as well as creating topographic maps for further analysis.

Various architectural remains such as the theatre, the workshop area and the necropolis, including a selection of chamber tombs, were recorded using terrestrial photogrammetry, enabling an even higher spatial resolution and allowing to create profiles and cross sections. Based on the aerial and terrestrial photogrammetry, various GIS compatible derivatives have been created such as orthomosaics, DEMs and contour lines.

Furthermore, different remote sensing data including very high resolution optical imagery, highly accurate DEMs and historical reconnaissance film imagery were acquired and serve as foundation for analysing Seleukeia Sidera and its surrounding sites in the context of the larger landscape.

All of the above mentioned datasets have been combined within a free and open-source GIS, allowing for all participating researchers to access the acquired dataset. Various tools for analysing and visualising spatial data have been used to create maps of Seleukeia Sidera and its archaeological remains.

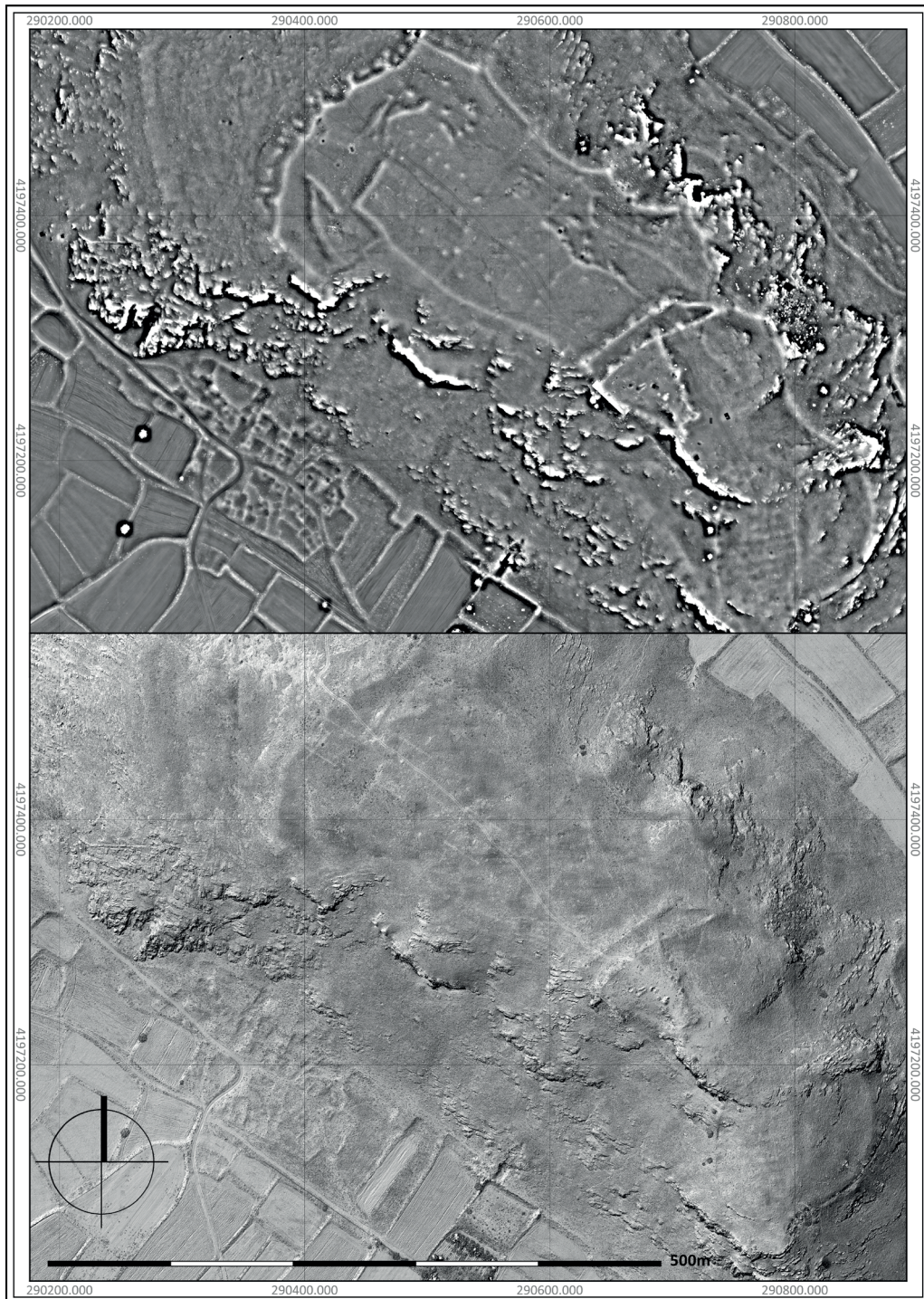


Fig. 10

## Figure List

*(All created by the author)*

Fig. 1. The distribution of control points in Seleukeia Sidera.

Fig. 2. Results of the aerial photogrammetry in 2021 showing the distribution of control- and checkpoints (red).

Fig. 3. Total area captured between 2017 and 2021 using aerial photogrammetry.

Fig. 4. Combination of aerial photogrammetry and the individually captured chamber tombs.

Fig. 5. Visualization of the layers excavated in the chamber tomb OM021.

Fig. 6. Visualization of the theatre scene showcasing the high spatial resolution and accuracy.

Fig. 7. Visual comparison of SRTM and TanDEM-X.

Fig. 8. Example of the digitized reconnaissance satellite film image.

Fig. 9. Layer structure in GIS.

Fig. 10. Visual comparison of a shaded relief and local relief model from a DEM.

## Bibliography

Besl, P.J. & McKay, N.D. (1992). A method for Registration of 3-D Shapes. *IEEE Transactions on Pattern Analysis and Machine Intelligence*, 14(2), 239-256. <https://doi.org/10.1109/34.121791>

Burnett, M.G. (2012). *Hexagon (KH-9) Mapping Camera Program and Evolution*. Military Bookshop.

Coeurdevey, L. & Fernandez, K. (2012). *Pléiades Imagery - User Guide, Airbus Defence and Space Intelligence*.

Fowler, C. (2012). Chalcolithic and Early Bronze Age Burials in Northeast England [data-set]. York, *Archaeology Data Service*, 24-29. <https://doi.org/10.5284/1017128>

Jasiewicz, J., Netzel, P. & Stepinski, T.F. (2014). Retrieval of pattern-based information from giga-cells categorical rasters — Concept and new software. In *IEEE Geoscience Remote Sensing Society (Eds.), 2014 IEEE Geoscience and Remote Sensing Symposium* (pp. 1785-1788). <https://doi.org/10.1109/IGARSS.2014.6946799>.

Kokalj, Ž. & Somrak, M. (2019). “Why Not a Single Image? Combining Visualizations to Facilitate Fieldwork and On-Screen Mapping”, *Remote Sensing Volume*, 11(7)747, 1-26. <https://doi.org/10.3390/rs11070747>

Oder, F.C.E., Fitzpatrick, J. & Worthman, P.E. (1992). *The HEXAGON story*. Military Bookshop.

Over, J.-S. R., Ritchie, A. C., Kranenburg, C. J., Brown, J. A., Buscombe, D. D., Noble, T., Sherwood, C. R., Warrick, J. A. & Wernette, P. A. (2021). Processing coastal imagery with Agisoft Metashape Professional Edition, version 1.6—Structure from motion workflow documentation. *Processing coastal imagery with Agisoft Metashape professional edition, version 1.6—Structure from motion workflow documentation, Open-File Report 2021–1039*. <https://doi.org/10.3133/ofr20211039>

Ur, J. R. (2003). CORONA Satellite Photography and Ancient Road Networks: A Northern Mesopotamian Case Study. *Antiquity*, 77(295), 102-115. <https://doi.org/10.1017/S0003598X00061391>

Wessel, B., Huber, M., Wohlfahrt, C., Marschalk, U., Kosmann, D. & Roth, A. (2016). Accuracy assessment of the global TanDEM-X Digital Elevation Model with GPS data. *ISPRS Journal of Photogrammetry and Remote Sensing*, 139, 171-182. <https://doi.org/10.1016/j.isprsjprs.2018.02.017>

Wheatley, D. & Gillings, M. (2002). *Spatial technology and archaeology: the archaeological applications of GIS*. CRC Press.

Zink, M., Bachmann, M., Brautigam, B., Fritz, T., Hajnsek, I., Moreira, A., Wessel, B. & Krieger, G. (2014). TanDEM-X: The New Global DEM Takes Shape. *IEEE Geoscience and Remote Sensing Magazine*, 2(2), 8-23. <https://doi.org/10.1109/MGRS.2014.2318895>

### **Webpage on a Website References**

Emlid 2021 (26 March 2023). *Reach M2 | M+ - RTK GNSS modules for precise navigation and UAV mapping*. 1-4.

[www.topotech.ro/wp-content/uploads/2021/06/Reach-M2-brochure-ENG\\_web.pdf](http://www.topotech.ro/wp-content/uploads/2021/06/Reach-M2-brochure-ENG_web.pdf)

Leica 2007 (26 March 2023). *Leica GPS900 Technical Reference Manual. Version 2.0*, Leica Geosystems AG, 1-298.

[www.gefos-leica.cz/ftp/GPS/Navody/EN\\_Originaly/GPS900/GPS900\\_TechRef\\_en.pdf](http://www.gefos-leica.cz/ftp/GPS/Navody/EN_Originaly/GPS900/GPS900_TechRef_en.pdf)

## The Ancient City of Seleukeia Sidera and Its Surrounding Area from A Palaeoecological Perspective

*Paleoekoloji Perspektifinden Seleukeia Sidera Antik Kenti ve Çevresi*

Çetin Şenkul\* - Yasemin Ünlü\*\* - Ahmet Köse\*\*\*

Dünyadaki denizler ve denizlerin çevrelediği karalar değerlendirildiğinde Akdeniz, sanılanın aksine çok küçük bir orana sahiptir (2,500,000 km<sup>2</sup>). Ancak şaşırtıcı bir şekilde Akdeniz'in kıyısına yakın alanlarda ortaya çıkan kültürler, günümüz sosyal organizasyon/yaşam pratiklerinin ortaya çıkarak gelişim gösterdiği, insan yaşamı için uygun koşulların ve kaynakların bulunduğu önemli alanlar olarak kabul edilmektedir. Akdeniz, sahip olduğu coğrafyalarının karmaşıklığı sebebiyle adeta bir mikrokozmos (Bölgenin küçük bir dünya olduğu, farklı coğrafi ve biyolojik özellikleri, tarihi ve kültürü bir arada barındırdığı ifade etmek için kullanılmaktadır) niteliğindedir (Broodbank, 2016). Akdeniz'in bu yapısı bağlamında Akdeniz'e kıyısı olan diğer ülkelere kıyasla tarihsel sürekliliği ile ön plana çıkan Anadolu, karmaşık ve çok kısa mesafelerde dahi değişiklik gösterebilen özellikleri bünyesinde barındırması ile ayrılmaktadır. Anadolu'yu Akdeniz havzasında önemli bir yere konumlandırmamıza neden olan etkenlerden biri de şüphesiz Roma İmparatorluğu'dur. Roma İmparatorluğu Akdeniz'de şimdiye kadar kurulmuş olan ve kısa sürede ~4,400,000 km<sup>2</sup>'lik bir alana hükmedebilecek kadar karmaşık strateji ve organizasyon mekanizmasına sahip olmuş önemli bir imparatorluktur. Roma İmparatorluğu'nun Akdeniz'de (ve Anadolu'da) göstermiş olduğu başarıya etki eden faktörler arasında coğrafyasını çok iyi tanıyarak çeşitlilik ve zenginliği göz önünde bulundurması ve bunu planlama / yönetme becerisi örnek olarak gösterilebilir. Roma İmparatorluğu'nun bu denli büyük bir alana başarılı bir şekilde hâkim olmasında mekânı planlama pratiğinin katkısı çok büyüktür. Bu sayede birçok önemli kente sahip olabilen Roma İmparatorluğu'nda Pisidia Bölgesi'nde bulunan Seleukeia Sidera antik kenti de bölgedeki önemli kentlerden biri olarak ayrılarak paleoekolojik perspektiften ele alınmıştır. Anadolu'daki dönemin diğer bütün kentleri ile birlikte ele alındığında Seleukeia Sidera antik kentinin diğer kentler ile ne derece benzerlik ve farklılıklara sahip olduğu ve kurulmuş olduğu alanın kente ne gibi avantaj ve dezavantajlar sunduğu irdelenmiştir.

---

\* Süleyman Demirel University, Faculty of Arts & Sciences, Department of Geography, 32260 Isparta/TR, cetinsenkul@gmail.com, ORCID: 0000-0002-7641-1143.

\*\* Süleyman Demirel University, Faculty of Arts & Sciences, Department of Geography, 32260 Isparta/TR, unlyasemin64@gmail.com, ORCID: 0000-0002-7798-455X.

\*\*\* Isparta University of Applied Sciences, Uluborlu Selahattin Karasoy Vocational School, Department of Architecture and Urban Planning, 32650 Isparta/TR, ahmetkose@isparta.edu.tr, ORCID: 0000-0002-8173-5329.

Anadolu'da kurulan Roma Dönemi kentleri yükselti ve denize uzaklıkları bakımından incelendiğinde 179 Roma yerleşmesinin (Roma İmparatorluğu Dönemi'nde Anadolu'da daha fazla yerleşmenin bulunduğu bilinmektedir ancak burada belirtilen kent sayısı 2016'da Hanson tarafından yayınlanan verilere dayanmaktadır) %60'ı 1-400 metre yükselti aralığında kurulmuştur. Denize kuş uçuşu uzaklık kuşaklarından elde edilen sonuçlara göre de Roma Dönemi kentlerinin denize uzaklıklarına bakıldığında 179 kentten 96 tanesi (%53) denize yaklaşık 0-25 km uzakta konumlanmıştır. Seleukeia Sidera antik kenti ise 900-1000 metre yükselti aralığında kurulmuştur. Anadolu'nun denize olan uzaklığı 100-125 km arasında bulunan 11 Roma yerleşmesinden biridir<sup>4</sup>.

Roma İmparatorluğu'nun kentleri yoğun olarak Akdeniz ikliminin etkili olduğu alanlarda yoğunlaşmaktadır. Kent ve çevresinde günümüz sıcaklık ve yağış değerlerine baktığımızda Thornthwaite yağış etkinlik indisine göre üç farklı iklim tipi bulunmaktadır. Bunlar Kurak-Yarı Nemli, Yarı Nemli ve Nemli iklim sınıflarıdır<sup>5</sup>. Kent ve çevresinin büyük bir kısmının yağış değerleri 500-600 mm arasında değişim göstermektedir. Doğal su kaynakları bakımından zengin yüksek dağlık alanların güney yamaçlarına kurulmuş (bakı faktörü göz önünde bulundurulmuştur) ve topoğrafyanın sunmuş olduğu imkanlardan yararlanmış olan kentte günümüz sıcaklık değerleri incelendiğinde ise yıllık ortalama sıcaklığın 3-15,1 oC arasında değiştiği görülmektedir (Doğan, 2022a). Seleukeia Sidera antik kentinin var olduğu dönemde bir göl alanı olan (Şenkul & Ünlü, 2022) ancak günümüzde Kuleönü-Bozanönü Ovası olarak tabir edilen ova tabanından Barla Dağı'nın zirvesine kadar sıcaklık 12°C farklılık göstermektedir. Sadece sıcaklık ve yağış koşullarının bu kadar dar bir alanda yükseltiye göre bu denli değişiklik göstermesi bile farklı ekolojik istekleri ve fenolojik dönemleri bulunan bitki ve canlıların birlikte yaşamasına izin vermektedir.

Su kaynakları bakımından Akdeniz coğrafyasının zengin olduğu düşünülmektedir. Ancak Akdeniz'in karakteristik özelliği olarak gelişen karstik topoğrafyanın varlığı yüzey su kaynaklarının zayıf olmasına sebep olmaktadır (Erinç, 2012; Huggett, 2015). Nitekim bir Akdeniz imparatorluğu olan Roma'da da klasik bir kent incelendiğinde kentin göz alıcı mimari yapılarının su ile bağlantılı olduğu dikkat çekmektedir. Seleukeia Sidera antik kenti de suya olan yakınlığı ile hem çevresindeki hem de Anadolu'da iç kesimlerde bulunan birçok kentten ayrılmaktadır. Kent yüzey ve karstik su kaynakları bakımından desteklenen Kuleönü Gölü'nün<sup>6</sup> (Şenkul & Ünlü, 2022) kıyısına kurulmuş olmanın yanı sıra önemli su kaynaklarına (mevsimlik ve devamlı akarsu kaynakları) sahip Barla Dağı yamaçlarında konumlanmaktadır.

---

4 Bu konuda daha detaylı bilgi için lütfen bkz. (Kaya Köse et al., 2022; Köse et al., 2022).

5 Detaylı bilgi için lütfen bkz. (Doğan, 2022a).

6 1950'li yıllara kadar günümüzde Kuleönü-Bozanönü Ovası olarak adlandırılan alanda bulunan ve tatlı su karakterinde olan bir paleo-göldür.

Akdeniz biyoçeşitlilik bakımından değerlendirildiğinde bir mikrokozmos alanıdır. Sadece Anadolu'da 12.000'den fazla bitki türü bulunmakta ve bu bitki türlerinin 3600'den fazlası sadece ülkemizde yetişmekte olan endemik tür olarak nitelendirilmektedir (Güner et al., 2012; Şenkul & Kaya, 2017). Anadolu'nun florası kadar faunası da çeşitlilik ve zenginlik göstermektedir (Demirsoy, 1996). Daha küçük bir ölçekte, Seleukeia Sidera antik kentinin bulunduğu coğrafyanın flora ve fauna varlığı göz önünde bulundurulduğunda bölge kentlerinin biyolojik ve ekolojik çeşitliliğin yüksek olduğu noktalara kurulmuş olduğu dikkat çekmektedir (Kaya Köse et al., 2022; Köse et al., 2022). Seleukeia Sidera antik kenti yamaçlarına kurulmuş olduğu Barla Dağı, Akdağ ve Davras Dağı bitki çeşitliliğinin yüksek olduğu alanlar olarak karşımıza çıkmaktadır. Bu dağlık alanlar arasında Seleukeia Sidera'nın arkasında yükselen Barla Dağı, 127 endemik bitki türü (bu türlerin 27 tanesi tehdit altındadır) ile Türkiye'nin nadir alanlarından biridir (Özhatay et al., 2005; Kaya Köse et al., 2022). Bölgenin arazi kullanımı ve yoğun olarak yetiştirilen türleri incelendiğinde Akdeniz genelinde olduğu gibi burada da zeytin-üzüm-buğday üçlüsünün ön planda olduğu dikkat çekmektedir (van Zeist et al., 1975; Bottema & Woldring, 1984; Eastwood et al., 1998; Vermoere et al., 2002). Pisidia Bölgesi hayvan varlığı bakımından değerlendirildiğinde sahada inek, koyun, keçi, domuz gibi büyük ve küçükbaş hayvanlara ek olarak yaban tavşanı ve leylek, sakarmeke vb. küçük av hayvanlarının da yoğun olarak bulunduğu ve besin olarak tüketildiği arkeolojik verilerden bilinmektedir (De Cupere & Van Neer, 2019).

Roma İmparatorluğu'nun Anadolu'da ve hakimiyeti altına aldığı diğer coğrafyalarda taşıma kapasitesinin bilincinde planlama geliştirmesi, doğal kaynakları metalaştırarak ekonomik değeri olan ürünlere dönüştürmesini mümkün kılan faktörlerden biri ekolojik koşullara önem vermesidir. Roma İmparatorluğu'nun fethettiği coğrafyalarda kaynak alanların varlığına, mevcut kaynakların ekonomik değerlerine, merkezi yönetimin/yönetime hızlı bir şekilde ulaşılabilirliğine (yol ağlarının geliştirilmesi), her türlü canlının varlığının bağlı olduğu su kaynaklarına ve bu kaynakların temin/yönetimine verdiği önem, her geçen gün sayısı artan çalışmalar ile doğrulanmaktadır. İmparatorluğun kıyı ve iç kesimlerde bulunan her kenti avantaj/dezavantajları ile birlikte değerlendirerek hakimiyeti altındaki her alandan maksimum gelir/fayda elde etmeye çalıştığı söylenebilmektedir. Sonuç olarak burada güncel ekolojik karakterler üzerinden bir analogi yapılarak paleoekoloji perspektifi ile Roma İmparatorluğu'nun başarisında coğrafyayı yönetebilme kabiliyetinin etkisine işaret edilmektedir.

### **The History of Humanity Written Around the Eastern Mediterranean**

When evaluated in terms of the seas around the world and the lands they encircle, the Mediterranean (referring to an inland sea here) surprisingly represents a very small percentage: with an area of 2,500,000 km<sup>2</sup>, the Mediterranean represents less than 1% of the world's seas, but it is the largest inland sea in the world. However, the areas close to the Mediterranean are

considered to be suitable for human life due to the presence of favourable conditions and resources, and the development of social organizations and practices among the cultures that were established there. Since a large majority of the events that shaped human history took place in the Mediterranean, in the past just as they do today, it is believed that the depth and continuity of its history causes individuals to perceive the Mediterranean as being larger than it actually is (Broodbank, 2016).

Proportionally, the Mediterranean may appear small, but the complexity of its geography attributes a microcosm-like quality to the Mediterranean, implying that it contains different geographical and biological characteristics, as well as history and culture, in one place (Broodbank, 2016). As a result, the interpretation and understanding of its geography become more challenging. In this context, Anatolia stands out among other countries and regions, as it embodies characteristics that are complex and vary even over short distances. Nevertheless, one of the reasons why the perception of the Mediterranean is so large in our minds is due to the Roman Empire. The Roman Empire was an empire with a complex strategy and organizational mechanism, which enabled it to rule an area of ~4,400,000 km<sup>2</sup> in the Mediterranean region over a long period of time. Knowledge of the geography of the terrain and the planning capabilities were among the factors that contributed to the success of the Roman Empire in the Mediterranean (and Anatolia).

### **How Did the Roman Empire Organize the Geographies Under Its Dominion?**

What role did rural (and urban) organizational practices play in the successful domination of the Roman Empire over such a large area? Many cities under the dominion of the Roman Empire were already established during earlier periods, but with their incorporation into the Roman Empire certain structures/organizations gave these cities a "Roman" quality. How different is Seleukeia Sidera compared to other cities in the Roman Empire? What advantages or disadvantages did the area where the city was founded in the Hellenistic period offer to the city? When examined from the perspective of natural sciences, during the Roman Empire period, the areas under its control in Anatolia ensured the development of road networks, unlike the Hellenistic period, and accelerated the transformation of natural environment into cultural landscape through commercial and economic activities.

### Location of Cities: Distance to the Coast and Elevation

At least 179 cities were located in Anatolia during the Roman Empire period - the number of urban settlements is known to be much higher, but this figure is based on data published by Hanson in 2016. When these Roman cities in Anatolia are examined in terms of altitude, 60% of them proved to be built in the altitude range of 1-400 m a.s.l. (Fig. 1 and 2). The city located at the lowest altitude (3 m) is Iasos in Kıyı Kışlacık (Muğla/Milas), while the city built at the highest altitude is located at Sagalassos (Burdur/Ağlasun) at an altitude of ~1500 m (Hanson, 2016). Considering that the average altitude of Turkey is ~1141 m, it can be seen that the majority of Roman cities were located in coastal areas or in transition zones from plain basins to mountainous areas (Fig. 1). Indeed, the average altitude of Roman Empire Anatolian cities is 436 m (Fig. 2).



Fig. 1

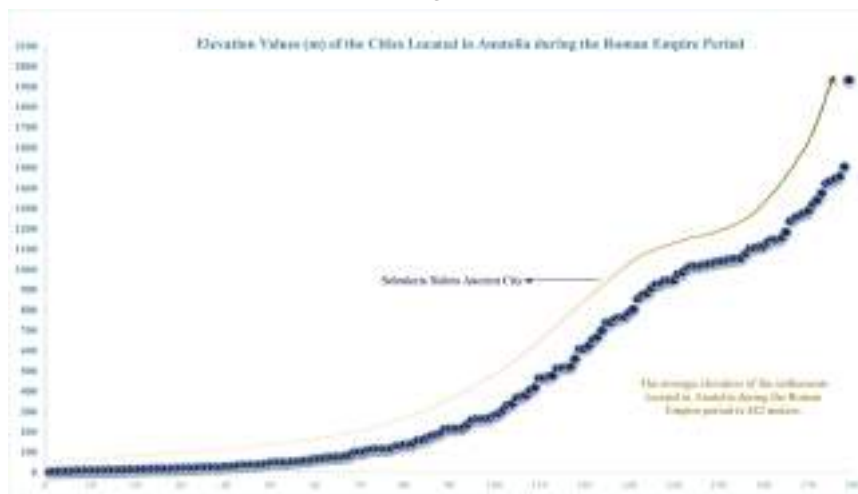


Fig. 2

According to the results obtained from the distance bands to the shore, 96 out of 179 cities (53%) are located approximately 0-25 km away from the shore (Fig. 1 and 3). When the elevation and distance values of Pisidia – the ancient region in which Seleukeia Sidera is located – are examined, it is noteworthy that the elevation of the Pisidian cities ranges from 500 to 1500 m, and their distance from the shore between 50 and 175 km (Fig. 2). Seleukeia Sidera, on its part, was founded in an elevation zone of 900-1000 m (Fig. 2). It is one of 11 urban settlements in Anatolia located at a distance of 100-125 km from the shore (Fig. 1 and 3). However, the Aksu-Kovada Graben, which extends inward from the Mediterranean, enables the Pisidian cities to connect easily with the coast.

In the area where Seleukeia Sidera is located, the elevation varies between 900 and 2800 m. The elevation of Barla Mountain, which rises behind the city, is 2783 meters, and the elevation differences can vary by ~1883 m over a relatively short distance. These abrupt changes in elevation causes difficulties in human life, but it also brings with it many advantages and diversity<sup>7</sup>.

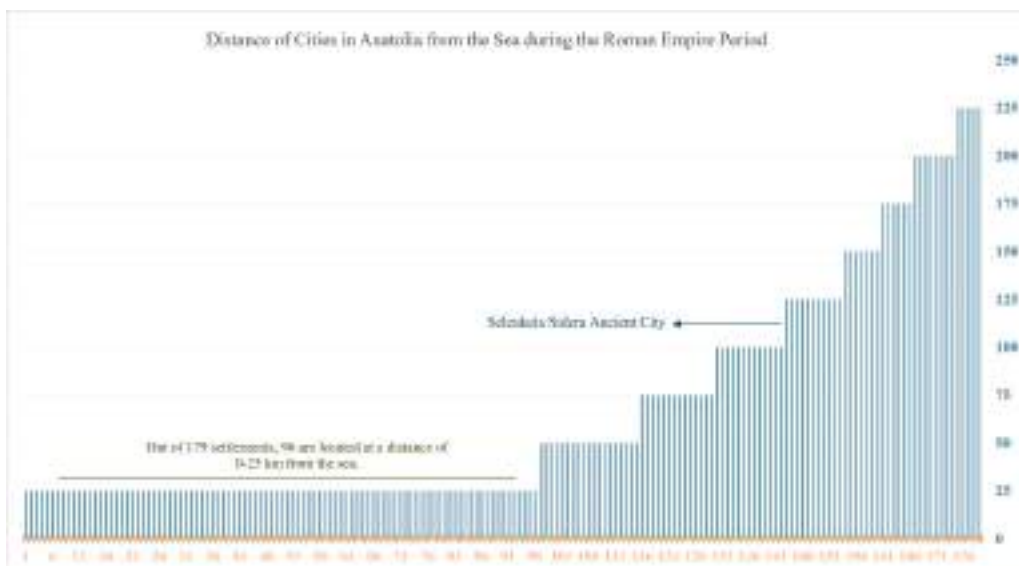


Fig. 3

### **The Roman Empire and the Mediterranean Climate**

The Mediterranean climate is commonly characterized by hot and dry summers, and cool and rainy winters. The annual average temperature is around 18 °C, but the average temperature in the hottest months (July and August) ranges from 26 to 28 °C. The cities of the Roman Empire were concentrated in areas where the Mediterranean climate was predominant. Many settlements established in Anatolia were also located in the transition areas between the Mediterranean and Continental climates. The borders of the regions of Lykia,

---

7 For more detailed information on this topic, see Kaya Köse et al., 2022; Köse et al., 2022.

Pamphylia, Kilicia in the south and Ionia and Aeolis in the west extended along the coasts of the Mediterranean and Aegean. The ancient regions of Pisidia, Karia, Lydia, Phrygia, LyKaonia, and Galatia, on the other hand, were mostly located in the transition areas between the Mediterranean and Continental climates or in areas where the Continental climate was predominant. Climatic differences have influenced many factors from land use to lifestyle. The topographic conditions of Anatolia have allowed the influence of the Mediterranean climate to penetrate inland in some areas, while causing diversity by changing the conditions over short distances due to a strong barrier effect in some areas. The Eğirdir-Kovada Graben and Aksu River Valley, situated in the west part of the Mediterranean zone of Anatolia, connect Antalya with Isparta, allowing the Mediterranean climate to penetrate inland. The developed graben structure and the river system established upon it have had a positive effect on the mobility between the coastal cities and those of Pisidia.

According to Thornthwaite's precipitation effectiveness index, there are three different climate types in and around Seleukeia based on current temperature and precipitation values. These are Dry-Semi Humid, Semi Humid, and Humid climate classes<sup>8</sup>. Most of the region, including the city, has precipitation values ranging between 500-600 mm. The Barla Mountain, to the north of Seleukeia Sidera, is one of the region's important areas in terms of precipitation levels (650-703 mm). A similar situation applies to Akdağ, the mountain on the southern slopes of which Sagalassos was founded and developed, a city which is rich in natural water resources and took advantage of the opportunities offered by the topography.

When current temperature values are examined, the average annual temperature of Seleukeia and its surroundings ranges between 3 and 15.1°C (Doğan, 2022a). During the Roman Imperial period, the temperature was higher (Easterbrook, 2016)<sup>9</sup>. During the existence of Seleukeia Sidera as a city, the temperatures between the Kuleönü-Bozanönü Plain, which was a lake area at that time (Şenkul & Ünlü, 2022) and the summit of Barla Mountain will have varied by 12°C. The fact that temperature and precipitation conditions show such significant variations for a small area are due to elevation differences. This allows for the coexistence of plants and organisms with different ecological requirements and phenological periods. Climate conditions and other ecological factors related to climate (vegetation, soil, morphology, water systems, agriculture, settlement, economic activities, etc.) have influenced Seleukeia Sidera in many ways, just as they do today.

---

8 For more detailed information about the climate of the region, please see Doğan, 2022a.

9 According to global climate records, temperatures during the Roman Climatic Optimum were 2 °C higher than current annual average temperature values), so much so that this period is called the Roman Climatic Optimum in the global climate chronology (250 BC-AD 400 / cal. BP 2200-1550.

## **Water and Water Structures in Anatolia During the Roman Empire Period**

In general, the Mediterranean geography is thought to be rich in terms of water resources. However, the presence of the characteristic karst topography in the Mediterranean, causes surface water resources to be weak: compared to other types of terrain, surface water infiltration rates are higher in karst landscapes (Erinç, 2012; Huggett, 2015). Another factor affecting the presence of water in the Mediterranean is the high rate of evaporation that develops along with summer temperatures. While this situation affects the variability and decrease of surface water resources in Mediterranean geographies, the ancient societies of the Mediterranean obtained their primary water needs from underground water resources and by managing continuous and temporary surface water resources. The Roman Empire transformed the variable balance of water resources in the Mediterranean into an effective and manageable state with creative systems (Mithen, 2017).

When examining a city of the Roman Imperial period in the Mediterranean, it is striking that many of the city's stunning architectural structures are connected to water. Roman baths, which were symbols of prosperity and wealth in the Roman Empire, are among the most remarkable Roman structures. Aqueducts, cisterns, and the systems they developed to manage underground water are equally impressive structures. The distribution of water sources in Anatolia is largely irregular, with some settlements located near the shores of important rivers and lakes, while other cities had to obtain the water, they needed from very distant locations by building aqueducts. For example, while the ancient city of Ephesos originally used the water of the Kaystros (Küçük Menderes) River (later supplemented by the water brought by a Roman aqueduct), Byzantion – later known as Constantinople, the capital of the Eastern Roman Empire – was established in a geography where it had to obtain water from very distant locations. Constantinople has one of the optimal examples of the Roman Empire's concern for and success in managing water, with the longest network of the Roman aqueducts, the Kurşunlugerme Aqueduct, extending from Bizye (Vize) to Constantinople for ~ 551 km (Mithen, 2017, p. 158). As seen from the examples given above, while some cities of the Roman Empire made great efforts to access water, others took advantage of the opportunities of the geography by establishing themselves on the shores of important wetlands. Sagalassos, which is located close to our research area and built on a high mountain slope, also has a long history of effectively managing underground water sources. The Antonine Nymphaeum on the city's Upper Agora is one of the few Roman Imperial period fountains still in use today.

Seleukeia Sidera stands out from many other cities, both in its surroundings and in the inland regions of Anatolia, with its proximity to water. The city was fed by surface and karstic water sources: it was founded on the shore of Kuleönü Lake, a paleo-lake with freshwater characteristics located in the area known

today as Kuleönü-Bozanönü Plain until the 1950s (Şenkul & Ünlü, 2022) as well as important water sources (seasonal and continuous stream sources, e.g. the Vaindos River) on the slopes of Barla Mountain. The changes in the water sources in and around Seleukeia Sidera over time are actually one of the areas where the story of water in the Mediterranean can be understood. Kuleönü Lake, which would have been visible from the residences of the inhabitants of Seleukeia Sidera, is a lake that dates back more than 50.000 years according to paleoecology studies (Şenkul & Ünlü, 2022). Kuleönü Lake was dried up by drainage works in the 1950s and then turned into a plain area continuously available for agriculture.

### **The Flora and Fauna Shaping Land Use**

In terms of biodiversity, Anatolia is a microcosmos area. There are over 12,000 plant species in Anatolia alone, and over 3,600 of these plant species are considered endemic species that only grow in our country (Güner et al., 2012; Şenkul & Kaya, 2017). On average, one out of every three plant species found in Anatolia is an endemic plant (Şenkul & Kaya, 2017). Although there are many environmental parameters that shape the plant diversity and rarity of Anatolia, the most important one is the significant variability of topographic conditions, even over very short distances. The complexity of the topography creates barrier effects that form isolation areas necessary for speciation and affect the distribution and endemism of plant and animal species (Cox et al., 2016).

The fauna of Anatolia, just like its flora, displays diversity and richness (Demirsoy, 1996). However, the active mobility of animals, except for reptiles, reduces the rate of endemism in other animal species compared to plants, as most animal species can move over long distances between regions. Nevertheless, it is known that Anatolian steppes have hosted animal species that are suitable for hunting and domestication from the past to the present day. This biological diversity of Anatolia has been used by societies from the Neolithic period until today, and over time, humans have become an important factor that affects biological diversity by creating and destroying it (Siddiq, 2019). Similarly, during the Roman Imperial period, the biological diversity of regions was utilized, and natural areas were evaluated as a source of resources. During this period, Anatolian cities developed in hotspots of biodiversity where optimum conditions existed, and the opportunities offered by the environmental conditions were maximally utilized. Societies have used plant species found in their living areas for various purposes, as in the present day. Woodlands were heavily exploited, especially during the Roman Imperial period, due to their high calorie content and their use as building materials in many areas (Özdemir, 2007). State incentives deeply influenced land organization and use, shaping agricultural activities and causing the development of labour-intensive agricultural practices. The spread area of the olive tree species, for example, can be shown to have expanded during the Roman Imperial period due to state

incentives and taxation (Doğan, 2022b). During this period, it is remarkable that different agricultural products with very different ecological requirements spread over large areas. On the other hand, it is confirmed by different datasets that in the Mediterranean region the most important agricultural products are olive, grape and wheat, representing the mainstay of the Mediterranean diet (Şenkul & Bozkurt, 2022; Şenkul et al., 2021)<sup>10</sup>.

Considering the flora and fauna diversity of the geography that includes Pisidia and Seleukeia Sidera, it is noteworthy that the cities in the region were established in areas with high biological and ecological diversity<sup>11</sup>. The mountain slopes surrounding settlements such as Seleukeia and Sagalassos, i.e. Barla Mountain, Akdağ, and Davras Mountain, appear as areas with high plant diversity. Among these mountainous areas, Barla Mountain rising behind Seleukeia Sidera is one of the rare areas in Turkey with 127 endemic plant species, 27 of which are under threat (Özhatay et al., 2005; Kaya Köse et al., 2022). Currently, in the province of Isparta, where Seleukeia Sidera is located, there are 1816 plant species, of which 416 are endemic<sup>12</sup>. In addition to being rich in terms of biological diversity, the city and its surroundings are located near forested areas consisting of high-calorie wood species such as *Quercus* (oak), *Pinus* (pine), *Juniperus* (juniper), and *Cedrus* (cedar). The fact that the city is particularly known for ironworking suggests that these species were used to meet their energy needs<sup>13</sup>.

Archaeological data indicate that plant species were used not only to meet energy and building material needs in the region, but also for various aspects of daily life such as health, cleanliness, and animal feed (Kaya Köse et al., 2022)<sup>14</sup>. The use of different plant species in this way continues to this day. Examples of plants grown in the Kuleönü-Bozanönü plain and its surroundings, and used for various purposes in daily life include sumac (*Rhus coriaria* L.), terebinth (*Pistacia terebinthus* L.), fennel (*Foeniculum vulgare* Mill.), various chamomile species (*Anthemis* spp.), various yarrow species (*Achillea* spp.), cornelian cherry (*Cornus mas* L.), common daisy (*Bellis perennis* L.), and carob (*Ceratonia siliqua* L.) (Kaya Köse et al., 2022). During the Roman Imperial period, trade was a significant source of income, leading to the commercialization of some plant species and the products derived from them. According to archaeological and written sources, resin (storax-styrax), a liquid/jelly-like substance obtained from trees in Kilicia, Pamphylia, Pisidia, and Syria, was produced and exported to various parts of the ancient world (Mavridis & Vatalis, 2013). The main export

---

10 Şenkul & Bozkurt, 2022; Şenkul et al., 2021 and references therein.

11 For more detailed information, see Kaya Köse et al., 2022; Köse et al., 2022.

12 Kaya Köse et al., 2022; Environmental Status Report of Isparta Province for the year 2018, 2019.

13 See, in this volume, Hürmüzlü et al., Production and Economy in Seleukeia Sidera in the Roman Imperial Period Blacksmithing Practices.

14 Kaya Köse et al., 2022 and references therein.

harbours for these products from inland areas was the port of Perge, Side and Attaleia (Mavridis & Vatalis, 2013).

When examining the land use and the species that are intensively cultivated in the region, it is noteworthy that, as in the Mediterranean in general, the trio of *Olea-Vitis-Cereal* is prominent here as well (van Zeist et al., 1975; Bottema & Woldring, 1984; Eastwood et al., 1998; Vermoere et al., 2002). However, these species were not cultivated in every area of the region: Sagalassos is a good example of olive cultivation in a high-altitude city, thanks to the Roman state incentives (Poblome & Cleymans, 2019; Vermoere et al., 2002), while Seleukeia Sidera is known for its grape cultivation (Mörel, 2020). As a result of excavation work carried out at Seleukeia in 2018, a total of 25 wine presses were found (Mörel, 2020). In addition, various data show that horticulture/fruit farming was also intensively carried out in the past in the Pisidia region, as it is today. For example, many fruits were found among the macro-botanical remains from the excavations at Sagalassos: grapes, almonds, figs, plums, walnuts, pomegranates, etc. (Poblome & Cleymans, 2019). In addition, it is thought that the people of Sagalassos also consumed fruit juice in various ways (Poblome & Cleymans, 2019). In this context, it would not be wrong to say that the cities of Pisidia benefited from the plants around them in all aspects of life, and that the region's current land use practices date back to very ancient times.

When evaluated in terms of animal diversity, the Pisidia region is known from archaeological data to have had a high concentration of large and small livestock such as cows, sheep, goats, pigs, as well as small game animals such as wild rabbits, storks, and sandgrouse that were also consumed as food (De Cupere & Van Neer, 2019). In addition, the region's richness in wetlands has played a role in the intensive consumption of fish species by humans. It is believed that the Barla Mountain provided opportunities for intensive animal husbandry in the past, as it does today. The pasture areas located on the northern and southern slopes of the mountain are of great importance for livestock activities<sup>15</sup>. Consequently, it is fair to assert that Seleukeia Sidera was located in an important area in terms of flora and fauna diversity and abundance.

### **The Capillaries of Trade and the Army: Road Networks**

It is a well-known fact that the Roman Empire placed great importance on transportation due to its military and commercial needs. The Empire primarily built roads to gain control over a region during the process of provincialization, connecting the different cities to each other (Mörel & Kılınç, 2022; French & Mitchell, 1977, p. 214; Köker, 2022, p. 20). As trade was also an important source of income for the Roman Empire, this too required easy

---

15 See, in this volume, Gündem et al., The Preliminary Archaeozoological Report of Seleukeia Sidera Ancient City. for archaeozoological findings obtained from excavation works carried out in Seleukeia Sidera ancient city.

access to resources and movement of goods. To ensure this necessary mobility, the development of road networks connecting the different cities was crucial. It is estimated that during the Roman Imperial period, a total of 75,000 km of main roads and 200,000 km of secondary roads were built, stretching from the Atlantic to Arabia, although some researchers argue that these figures should be even higher (Adak, 2022, p. 349). After the decline of the Roman Empire, the communication-transportation capability and density of the road network mentioned here could only be reached again in the 18th century (Adak, 2022, p. 349). During the Roman Imperial period, there were uninterrupted road networks in Anatolia that extended from the port of Ephesos in the West to Syria in the East; along the major routes that passed through the region, such as the Via Sebaste, were the key cities of Apameia, Apollonia, and Pisidia Antiokhia. It should be noted that road networks were of significant importance for every state established before and after the Roman Empire. However, the technical equipment, systematic organization, and disciplined approach of the Roman Empire in road construction distinguished it from other states and made it an empire that is still remembered today for its roads in Mediterranean societies.

Due to the significant budget allocated to road construction by the Roman Empire, the roads were generally built in a straight line over a long distance in order to minimize costs and construction time (Adak, 2022). However, the variable topographic conditions of Anatolia do not always allow roads to be constructed in this way. Specifically in Anatolia, the transition from flat and wide roads in coastal plains to stepped forms in mountainous areas can be seen as practical approaches in accordance with the topography. It is noted that the main roads were used particularly for military and commercial activities, while the secondary roads were used for transportation between settlements (Adak, 2022). Road networks enabled long-distance trade and facilitated the transport from inland cities in the Aegean and Mediterranean regions to harbour cities (Mörel & Kılınç, 2022; Tütüncü & Köker, 2022).

It is known that rivers and lakes were also used as part of the road networks in Anatolia. Examples of these rivers include the Küçük and Büyük Menderes in the Aegean region, the Kızılırmak and Yeşilirmak in the inland regions, and the Aksu and Köprüçay Rivers in Pisidia. The Aksu River is particularly important in connecting the inland Pisidian cities to the coastal cities of Pamphylia. As seen on the map (Fig. 1), the road networks largely conform to the topography. The faults on the topography are not only areas preferred by rivers for their beds, but also suitable areas for the road networks to pass through. In the construction of land roads, which are both costly to use and construct compared to sea routes, the Roman Empire took into account the geographical conditions, prioritizing time and cost efficiency.

## Conclusion

When considering past, present, and future perspectives, ecology emerges as an important variable that affects settlement and social life. One of the factors that enabled the Roman Empire to organize the territories under its control in Anatolia was an awareness of carrying capacity and the potential of ecological conditions to transform natural resources into economically valuable products. The presence of resources in the geographies conquered by the Roman Empire, the economic values of existing resources, the accessibility of central administration, the importance given to water sources on which the existence of all living things depends, and the management of these sources are verified by an increasing number of studies every day. Especially for cities located in inland areas, the presence of water sources is of great importance, and it is noteworthy that cities with weak surface water resources tend to effectively use groundwater. It can be said that the Empire tried to maximize income from every region under its control by evaluating every city on the coast and in the interior. Every example presented here indicates the impact of the ability to manage geography on the success of the Roman Empire. As a result, a paleo-ecological perspective is taken by making an analogy with current ecological characteristics.

## Figure List

Fig. 1. Locations of important cities during the Roman Imperial period in Anatolia, their distances to the sea, and known road networks of the period (created according to Talbert & Roger, 2000 and Hanson, 2016) (Distances to the shore data were generated by buffer analysis using the ArcGIS software).

Fig. 2. Representation of the elevation values of Roman settlements in Anatolia.

Fig. 3. Representation of the distances of Roman cities from the sea in Anatolia.

## Bibliography

Adak, M. (2022). Küçük Asya'da Roma İmparatorluğu Dönemi'nde Ulaşım, İletişim ve Taşımacılık. In Tekin, O. (Ed.), *Helenistik ve Roma Dönemlerinde Anadolu* (pp. 349-363). Yapı Kredi Yayınları.

Bottema, S. & Woldring, H. (1984). Late Quaternary Vegetation and Climate of Southwestern Turkey Part II. *Palaeohistoria*, 26, 123-149.

Broodbank, C. (2016). *Orta Deniz'in Yapımı*. Koç Üniversitesi Yayınları.

Cox, C. B., Moore, P. D. & Ladle, R. J. (2016). *Biogeography An Ecological and Evolutionary Approach*. Wiley Blackwell.

De Cupere, B. & Van Neer, W. (2019). Sagalassos'ta İnsanlar ve Hayvanlar. In Poblome, J. (2019). *Bir Zamanlar Toroslar'da Sagalassos* (pp. 267-275). Yapı Kredi Yayınları.

- Demirsoy, A. (1996). *Genel ve Türkiye Zoocoğrafyası*. Meteksan Yayınevi.
- Doğan, M. (2022a). İklim Koşulları. In Şenkul, Ç. & Hürmüzlü, B. (Eds.) *Doğal ve Kültürel Mirasın Paleo-Kuleönü Gölü'ndeki İzleri: 50 Bin Yılın Öyküsü* (pp. 29-57). Süleyman Demirel Üniversitesi Yayınları.
- Doğan, M. (2022b). *Son Buzul Maksimumu'ndan Günümüze Yayla Gölü (Büyük Menderes-Denizli) ve Çevresinin Paleoekolojisi* [Unpublished doctoral dissertation]. Süleyman Demirel Üniversitesi.
- Easterbrook, D.J. (2016). *Evidence-based climate science: Data opposing CO2 emissions as the primary source of global warming*. Elsevier.
- Eastwood, W., Roberts, N. & Lamb, H. F. (1998). Palaeoecological and Archaeological Evidence for Human Occupation in Southwest Turkey: The Beyşehir Occupation Phase. *AnatSt*, 48, 69-86. <https://doi.org/10.2307/3643048>
- Erinç, S. (2012). *Jeomorfoloji II*. Der Yayınları.
- French, D. & Mitchell, S. (1977). Roma İmparatorluğu İlk Devirlerinde Pisidia'da Yollar ve Ulaşım. *Türk Arkeoloji Dergisi*, XXIV, 213-220.
- Gates, C. (2017). *Antik Kentler Antik Yakınoğu, Mısır, Yunan ve Roma'da Kentsel Yaşamın Arkeolojisi*. Koç Üniversitesi Yayınları.
- Güner, A., Aslan, S., Ekim, T., Vural, M. & Babaç, T. (2012). *Türkiye Bitkileri Listesi Damarlı Bitkiler*. Nezahat Gökyiğit Botanik Bahçesi ve Flora Araştırmaları Derneği Yayını.
- Hanson, J.W. (2016). *Cities Database (OXREP databases)*. University of Oxford. <https://doi.org/10.5287/bodleian:eqapevAn8>
- Huggett, R.J. (2015). *Jeomorfolojinin Temelleri*. Nobel Yayınları.
- Kaya Köse, S., Şenkul, Ç. & Kargıoğlu, M. (2022). Zengin Bitki Çeşitliliği. In Şenkul, Ç. & Hürmüzlü, B. (Eds.) *Doğal ve Kültürel Mirasın Paleo-Kuleönü Gölü'ndeki İzleri: 50 Bin Yılın Öyküsü* (pp. 47-71). Süleyman Demirel Üniversitesi Yayınları.
- Köse, A., Şenkul, Ç. & Güvenç, M. (2022). Geçmişin Mirası: Ekolojik Bölgeler ile Ortamsal Çeşitlilik. In Şenkul, Ç. & Hürmüzlü, B. (Eds.) *Doğal ve Kültürel Mirasın Paleo-Kuleönü Gölü'ndeki İzleri: 50 Bin Yılın Öyküsü* (pp. 71-93). Süleyman Demirel Üniversitesi Yayınları.
- Köker, H. (2022). *Komama Tarihi ve Sikkeleri*. Myrina Yayınları.
- Mavridis, D. G. & Vatalis, K. I. (2013). Entrepreneurial Aspects in East Roman Empire-The imperial Kommerkiarioi as quasi entrepreneurs, *Journal Procedia Economics and Finance*, 5, pp. 552-561. [https://doi.org/10.1016/S2212-5671\(13\)00065-8](https://doi.org/10.1016/S2212-5671(13)00065-8)

- Mithen, S. (2017). *Susuzluk: Antik Dünyada Su ve İktidar*. Koç Üniversitesi Yayınları.
- Mörel, A. (2020). Seleukeia Sidera'da Tarımsal Üretimin Arkeolojik Kanıtları. In A. Mörel, G. Kaşka, H. Köker, M. Kaşka, M. Fırat & S. O. Akgönül (Eds.), *Production, Trade and Economy in Pisidia and its Surrounding Areas. International Symposium Proceeding Pisidian Studies II, 31 October – 03 November 2018 Isparta, Turkey* (pp. 50-69). Süleyman Demirel University Press.
- Mörel, A. & Kılınç, G. (2022). Paleo-Kuleönü Bölgesinde Yol Ağları. In Şenkul, Ç. & Hürmüzlü, B. (Eds.) *Doğal ve Kültürel Mirasın Paleo-Kuleönü Gölü'ndeki İzleri: 50 Bin Yılın Öyküsü* (pp. 275-285). Süleyman Demirel Üniversitesi Yayınları.
- Özdemir, H.F. (2007). Demir Çağı: Başlangıcı ve Başlatanları, Anadolu'ya Etkileri Üzerine. *Ç.Ü. Sosyal Bilimler Enstitüsü Dergisi*, 16(1), 501–518.
- Özhatay, N., Byfield, A. & Atay, S. (2005). *Türkiye'nin 122 Önemli Bitki Alanı*. WWF-Türkiye (Doğal Hayatı Koruma Vakfı) Yayınları.
- Poblome, Y. & Cleymans, S. (2019). Ne Yiyorsak Oyuz. In Poblome, Y. (Ed.) *Bir Zamanlar Toroslar'da Sagalassos* (pp. 149-159). Yapı Kredi Yayınları.
- Siddiq, A. B. (2019). *Tarihöncesi Toplumlarında İnsan-Hayvan İlişkisi ve Orta Anadolu Çanak Çömleksiz Neolitik Dönem Faunası*. Çizgi Kitapevi Yayınları.
- Şenkul, Ç. & Bozkurt, Y. (2022). Paleo-Kuleönü Gölü ve Çevresinin Paleovejetasyonu ve Paleoarazi Kullanımı. In Şenkul, Ç., & Hürmüzlü, B. (Eds.), *Doğal ve Kültürel Mirasın Paleo-Kuleönü Gölü'ndeki İzleri: 50 Bin Yılın Öyküsü* (pp. 141-167). Süleyman Demirel Üniversitesi Yayınları.
- Şenkul, Ç. & Kaya, S. (2017). Türkiye Endemik Bitkilerinin Coğrafi Dağılımları. *Türk Coğrafya Dergisi*, 69, 225–248. <https://doi.org/10.17211/tcd.322515>
- Şenkul, Ç. & Ünlü, Y. (2022). Kuleönü'nde Hava Nasıldı; Elli Bir Bin Yıldan Günümüze Yaşanan İklim Değişimi. In Şenkul, Ç. & Hürmüzlü, B. (Eds.) *Doğal ve Kültürel Mirasın Paleo-Kuleönü Gölü'ndeki İzleri: 50 Bin Yılın Öyküsü* (pp. 105-125). Süleyman Demirel Üniversitesi Yayınları.
- Şenkul, Ç., Doğan, M., Ören, A., Köse, A., Kulakoğlu, F., Eastwood, W.J., Doğan, U. & Elton, H. (2021). Genesis of the Beyşehir Occupation Phase: Understanding the Socio Environmental Systems of Anatolia and Interactions from Kültepe-Kanesh and Paleoeological Records. *15th International ANAMED Annual Symposium, 29-30 April* (pp. 117-140). Koç University, Research Center for Anatolian Civilizations (ANAMED) İstanbul-Türkiye.
- Talbert, R. J. A. & Roger, S. B. (2000). *Barrington Atlas of the Greek and Roman World*. Princeton University Press.
- Tütüncü, E. & Köker, H. (2022). Sikkeler Işığında Klaudio Seleukeia 'Sidera'. In Şenkul, Ç. & Hürmüzlü, B. (Eds.) *Doğal ve Kültürel Mirasın Paleo-Kuleönü*

*Gölü'ndeki İzleri: 50 Bin Yılın Öyküsü* (pp. 249-265). Süleyman Demirel Üniversitesi Yayınları.

van Zeist, W., Woldring, H. & Stapert, D. (1975). Late Quaternary Vegetation and Climate of Southwestern Turkey. *Palaeohistoria*, 17, 55-143.

Vermoere, M., Thuynne, T. V., Six, S., Vanhecke, L., Waelkens, M., Paulissen, E. & Smets, E. (2002). Late Holocene Local Vegetation Dynamics in the Marsh of Gravgaz (southwest Turkey). *Journal of Paleolimnology*, 27, 429–451. <https://doi.org/10.1023/A:1020335712336>

## Preliminary Report on the Theatre of Seleukeia Sidera

### *Seleukeia Sidera Tiyatrosu Hakkında Ön Değerlendirmeler*

Ahmet Mörel\*

Seleukeia Sidera Tiyatrosu'nun *scaenae frons*'unda ilk çalışmalar Isparta Müzesi tarafından 1985-1987 yılları arasında ve 1993 yılında Prof. Dr. Orhan Bingöl'ün bilimsel danışmanlığında yürütülmüştür. 1985-1987 yıllarında *cavea*, güney *parodos* duvarı ve *scaenae* açığa çıkarılmıştır. *Scaenae frons*'un zemin katı olduğu anlaşılan bu alanın doğu-batı doğrultulu beş bölümden oluştuğu ve üzerinin beşik tonoz ile kapatıldığı anlaşılmaktadır. *Scaenae frons*'un doğu cephesinde yer alan ve 1985-1987 çalışmalarında açığa çıkarılan yarım daire planlı üç nişli yapı, bir *nymphaeum*dur. Özellikle Perge tiyatrosunda olduğu gibi Güney Anadolu'daki tiyatroların *scaenae frons*'larının *nymphaeum*lar ile desteklendikleri bilinir. Seleukeia Sidera antik kentinde de tiyatronun *scaenae frons*'u *nymphaeum* ile desteklenmektedir. Geç Antoninuslar-Erken Severuslar Dönemi'ne tarihlendirilen Perge Tiyatrosu ön cephesinde yer alan *nymphaeum* beş adet yarım daire planlı nişten oluşmakta, ortasında ise 2,75 m yüksekliğinde, *scaenae frons*'a geçiş sağlayan tonozlu bir geçit bulunmaktadır. Plan açısından değerlendirildiğinde Seleukeia Sidera Tiyatrosu *scaenae frons*'unun ön cephesinde yer alan *nymphaeum* binasının yarım daire planlı nişlere ve *scaenae frons*'a geçiş sağlayan bir kapı açıklığına sahip olması da göz önüne alındığında, her iki yapının benzer oldukları görülmektedir.

Tiyatronun *cavea*sına ait bugün günümüze ulaşan en iyi korunmuş bölümü güneydoğu *vomitorium*udur. *Vomitorium* kuzey-güney yönlü uzanmakta ve tiyatronun ima *cavea* ile *summa cavea* bölümlerini birbirinden ayıran *diazomaya* ulaşmaktadır. *Vomitorium*un güneydoğu girişinin dış cephesinde tonozun kilit taşı üzerinde ise bir Tykhe kabartması yer almaktadır. Tykhe elinde bir bereket boynuzu taşımaktadır ve başında kent suru şeklinde betimlenmiş tacı bulunmaktadır.

Seleukeia Sidera Tiyatrosu özellikle yamaca yaslanmış yapısı ile tipik bir Yunan tiyatrosu olsa da plan özellikleri açısından Roma İmparatorluk Dönemi tiyatrosu özelliklerini yansıtmaktadır. Anadolu'da Sagalassos ve Alinda tiyatroları ise *cavea* ve *orchestra* bölümleri açısından Seleukeia Sidera Tiyatrosu ile benzerdir. Anadolu örnekleri dışında benzer plan özellikleri gösteren örnekleri Roma İmparatorluğu'nun batı eyaletlerinde bulunur. İspanya'da MS erken 1. yüzyıla tarihlendirilen Italica Tiyatrosu ve MS 4. yüzyıla tarihlendirilen Regina Tiyatrosu *scaenae frons*'larının ön cephesinde yer alan *nymphaeum* ve *scaenae frons*'a geçişi sağlayan girişlerin benzerine Seleukeia Sidera Tiyatrosu'n-

\* Süleyman Demirel University, Faculty of Arts & Sciences, Department of Archaeology, 32260 Isparta/TR, ahmetmorel@sdu.edu.tr, ORCID: 0000-0002-3051-9626.

da da rastlanır.

İlk inşa evresi Hellenistik Dönem'e kadar geriye giden *scaenae*, MS 2. yüzyılın sonu veya 3. yüzyılın başlarında yeniden inşa edilmiştir. Söz konusu dönemde *nymphaeum* binasının inşası sırasında bazı onarımlar gerçekleştirilmiş ve bu evrede *scaenae* ile *nymphaeum* arasına bir geçiş eklenmiştir. 2021 yılı çalışmaları sırasında açığa çıkarılan iki niş ve *scaenae frons*'un doğu ve batı *proscenaium* duvarları, kuzey yönünde devam ettiğini ortaya çıkarmıştır. Ayrıca alandan ele geçen mimari bezemeli parçalar da *scaenae frons*'un inşa evrelerini ve *nymphaeum*'un yapım evresini destekler. Bu parçalar arasında ele geçen bazı bloklar üzerindeki mimari bezemeler daha detaylı bir tarihlendirme önerisinde bulunulmasını mümkün kılar. Bu parçalar arasında arşitrav-friz ve arşitrav bloğu üzerinde yer alan süslemeler iyi korunmuş olmaları açısından önemli veriler sağlamaktadır. Söz konusu bloklar *scaenae frons*'un hemen arka cephesini oluşturan *nymphaeum*'un ön cephesinin *columnatio*sunun entablaturüne ait olmalıdır. Söz konusu entablaturde bu arşitrav-friz bloğunun cephede dış köşe yapan kısımlardan birine ait olduğu ve yan yüzü oluşturduğu anlaşılmaktadır. Büyük ihtimalle *nymphaeum*'un *columnatio* entablaturünün duvara bağlandığı kısma ait olmalıdır. Daha önceki yıllarda O. Alp tarafından *scaenae frons*'a ait olduğu değerlendirilen kıvrık dal bezemeli arşitrav-friz ile arşitrav bezeme özellikleri açısından birebir benzer işçiliğe sahiptir. Ayrıca arşitrav-frizin ucuna yatay açığa sahip bir çentik ile O. Alp tarafından tiyatro *scaenae frons*'una ait olduğu değerlendirilen parça, *nymphaeum*un *columnatio* entablatur bütününe parçası olduğunu ortaya koymaktadır. Arşitrav-friz ve arşitrav bloğunun dekorasyonları Severuslar Dönemi'ne (MS 193-235) tarihlendirilebilir. *Anthemionlar* ve *Ion kymationlar*, arşitrav-friz üzerinde sıkça gözlemlenen açık ve kapalı palmetlerle birlikte Severuslar Dönemi'ne ait çeşitli mimari yapılarda ortak olarak görülür. Ayrıca makara-boncuk süslemeleri tutarlı bir desen ve form sergiler ve Severuslar Dönemi'nde yaygın olan diğer dekoratif unsurlar ile kullanılan önemli dekorasyon unsurları arasındadır. Bu tarz dekorasyonun birkaç örneği, Hierapolis Tiyatrosu'nda, Nysa Tiyatrosu'nda ve Sagalassos Tiyatrosu *scaenae frons*'unda, Perge'deki Suriye alınlığı, Aphrodisias *tetrapylon*'u ve Side G *nymphaeumu*'nda görülebilir. Bu örnekler MS 2. yüzyıl-3. yüzyılın sonu aralığına tarihlendirilmiştir. Ayrıca, kazı çalışmaları sırasında açığa çıkarılan ve MS 6. yüzyıldan öncesinde olmadığı buluntular neticesinde ortaya konan dolgu tabakası *scaenae frons*'un ve *nymphaeum* binasının işlevini bu dönemden itibaren kaybettiğini göstermektedir. Bu dönemde oluşturulan dolgu tabakanın üzerine sonraki bir evrede yoğun tahribata uğradığı için işlevi tespit edilemeyen bir yapı inşa edildiği ve bu yapının en geç 13. yüzyıla kadar kullanıldığı anlaşılmaktadır.



Fig. 1

## Introduction

The theatre of Seleukeia Sidera is located on east slope of Hisar Tepe (Pl. 2: 6). During the excavations from 1985-1987, parts of the *cavea*, south parodos wall, and *scaenae* were unearthed. The excavations determined that the *scaenae* frons extended in a north-south direction, and they exposed walls belonging to a façade consisting of three semi-circular niches on the east side of the building (Kaya, 1999, p. 166). This excavated area is believed to constitute the ground floor of the *scaenae* and comprises a series of five spaces with an east-west orientation, covered by a barrel vault. The excavations of the orchestra area revealed the presence of a *scaenae*, stairs of the *cavea*, and a retaining wall (Kaya, 1999, p. 169). Of particular significance was the identification of a burnt layer within the building, which could be dated to the 1st century BC based on the Hellenistic period pottery<sup>2</sup>. This initial construction phase of the building, which made of wooden materials, was subsequently destroyed by fire, and rebuilt during the Roman Imperial period as a stone construction. Two season of excavations of Seleukeia Sidera in 2021 and 2022 revealed new information to understand the buildings mentioned above<sup>3</sup>.

---

2 For the Hellenistic period ash layer and the details see Kaya, 1999, p. 168, Fig. 4.

3 I am thankful to Prof. Dr. Bilge Hürmüzlü for allowing me to publish this material and for the fruitful discussion on the stratigraphy of the scene building. The excavations were made possible by the permit and financial support of the General Directorate of Cultural Assets and Museums of the Ministry of Culture and Tourism. We also thankful to the Turkish Historical



Fig. 2

### Building Materials, Techniques and Plan

The theatre at Seleukeia Sidera, dating to the 2nd century AD, is a notable example of Roman Imperial period theatre architecture in Anatolia. Despite its structural resemblance to a typical Greek theatre, built into a hillside, it exhibits distinct plan features indicative of the Roman Imperial period (Fig. 1). The southeast *vomitorium* represents the best-preserved section of the *cavea*. This *vomitorium* (Fig. 2) extends in a north-south direction and reaches the *diazoma*, which separates the *ima cavea* and *summa cavea*. The *vomitorium* measures 14.55 m in length and has a width of 3.77 m at the southeast entrance, narrowing to 2.68 m at the northwest exit. A relief of the city-goddess Tyche<sup>4</sup> (Fig. 3) is present on the keystone of the vault on the exterior of the southeast entrance to the *vomitorium*, depicting the figure carrying a cornucopia and wearing a mural crown. Yet, the worn state of the Tyche relief does not permit a stylistic evaluation. The northwest façade of the *vomitorium* reveals that the seats of the theatre continued into the *vomitorium*. The height of the sitting steps (Fig. 4) identified, and their environs vary between 0.45 and 0.47 m. The total height of the *cavea* is approximately 15 m. The average height of the *diazoma*, separating the *ima cavea* and *summa cavea*, is estimated to be 1.50-1.60 m. Based on these measurements, it can be inferred that there are 30 to 32 steps in total in the *ima cavea* and *summa cavea*.

---

Society (TTK) for the conservation of the scene and the nymphaeon.

4 Bingöl, 1994, p. 156; Kaya, 1999, p. 40; Alp, 2006, p. 167.



Fig. 3

The *scaenae* was constructed in *opus caementicium*. The remaining traces of the east wall show layers of mortar in which traces of bricks can be observed. These traces continue in a northward direction. This wall, which extends to the north and is close to the eastern wall of the *proscenium*, is aligned with the supporting walls of the vault. Analysis of the masonry revealed the use of irregular stones and *opus caementicium* in the east, west, and south walls of the *scaenae*.



Fig. 4

During the early excavations, a *nymphaeum* with three semi-circular niches was discovered built against the eastern façade of the *scaenae*. In a later phase, a monumental fountain or *nymphaeum* was added to the east side of the *scaenae*, as evidenced by differences in masonry and the lack of integration between the south walls of the two structures (Fig. 5). The south wall of the *nymphaeum* extends 70 cm beyond the south wall of the *scaenae*.



Fig. 5



Fig. 6



Fig 7

A different building technique, utilizing 5 cm thick layers of mortar and bricks, was employed in the upper building courses of the *nymphaeum*, as well as in the three semi-circular parts of the *scaenae* to the east and in the load-bearing walls of the barrel vault that covered the five east-west oriented spaces of the first floor of the building. In this construction phase (3<sup>rd</sup> Phase) layers of 50 cm wide and 5 cm thick bricks were laid in mortar (Fig. 6). The construction technique of the walls of these niches, which were built using mortar and bricks, is consistent with that observed in the west wall of the *nymphaeum* (Fig 7). The diameter of the three southern niches of the building, as revealed by the earlier excavations, is 3.24 m, and the thickness of the wall separating these niches is 1.66 m. Studies carried out in 2021-2022 indicated that this series of niches continued in the northern part of the *scaenae* (Fig. 7) The preserved diameter of the southernmost of the northern niches of the *nymphaeum* is 3.14 m. An *in-situ* brick was discovered within the mortar used as a binder in the construction of the wall separating the two niches. This brick measures 22x30 cm and is significant as it shows that the bricks were placed on the mortar. The preserved diameter of the northern niche is 3.06 m.

There is also a door in the middle of the east façade of the *scaenae*. Two east-west oriented walls were discovered to the west of this door opening. The wall located to the north has a thickness of 1.27 m and a length of 4.73 m. The width of the southern wall is 1.40 m and its length is also 4.73 m. The distance between two walls is 2.80 m and there is a hardened floor between them. The find of marble floor slabs at this location indicates that marble was utilized for paving the cemented floor. The plan of the *scaenae*, consisting of five parts in the southern half, continues on the same axis towards the north. However, in a later phase, the addition of an entrance to both the *scaenae frons* and the *nymphaeum* led to the hardening of the floor and the alteration of the function of the east-west oriented walls.

### Finds from the Excavations

Among the pottery finds a Sagalassos Red Slip Ware (SRSW) bowl (Fig 8), and a fragment of a Late Roman Imperial period unguentarium (Fig. 9) belong to the 4th-7th century AD<sup>5</sup>. Additionally, a fragment of a SRSW Type 1B190 or 1B191 (Fig. 10) was identified, dating to the 1st-3rd century AD based on parallels from Sagalassos (Poblome, 1999, p. 306, Fig. 32-33)<sup>6</sup>. Another SRSW fragment is discussed in the chapter “Evaluation of the Theatre of Seleukeia Sidera” with relevant deposit.



Fig. 8

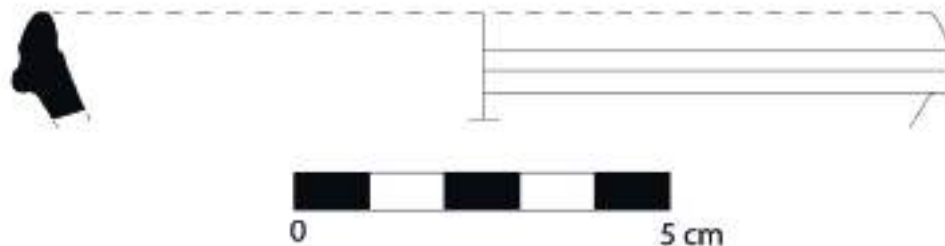


Fig. 10

---

5 For the parallels of the unguentarium, see: Harrison et al, 1968, p. 203; 212-214, No. 103-105, Fig. 19; Gassner, 1997, pp.171-172, Pl. 56, No. 709-711; Meriç, 2002, pp. 85-86, No. K505.

6 I am thankful to Dr. Burak Sönmez for the information about definition and dating of the pottery.



Fig. 9

During the excavation of the site, a foundation of a wall constructed of rubble stones was unearthed in the northern part of the *scaenae*. The wall in question extends for 3.06 in northeast-southwest. The thickness of the wall varies, with a maximum thickness of 92 cm. It is thought that this remnant is associated with a structure that was built during a phase when the theater was no longer in use.

Architectural decoration pieces, such as an Ionic *kymation* fragment, were found within the debris and it appears that these were repurposed from the *scaenae* or the *nymphaeum*. In addition, a terracotta figurine of Hermes<sup>7</sup> and a bronze button with a cross motif were found in this area<sup>8</sup>. A group of flakes, which is thought to belong to the same period, was found immediately northwest of this late period wall. The carving marks discovered on the stones of the wall suggest that the flakes from stone carving during the construction of the wall were used to compress the floor. The fact that the finds of the 13th century AD were present inside a deposit belonging to a collapsed building suggests that this building was constructed after the theatre had become derelict, and that it was used at least until the 13th century AD. However, due to the intense destruction of the building, its function remains uncertain.

---

7 See, in this volume, Talloen & Perçin, Terracotta Figurines of Seleukeia Sidera.

8 A coin from the Seljuk period, specifically from the reign of Alaaddin Keykubad (1220-1237 AD) was also found in this area, supporting a date for this debris in the 13th century AD. I am thankful to Dr. Ali Mıynat for sharing information about dating.

## Architectural Decoration of the *Scaenae Frons* and *Nymphaeum*

### Description

Six pieces of architectural decoration belonging to the theatre of Seleukeia Sidera were evaluated by O. Alp. These fragments include a frieze of curved tendrils<sup>9</sup>, a cornice block<sup>10</sup>, a cornice with console<sup>11</sup>, a *simas-geison*<sup>12</sup>, and a ceiling cassette<sup>13</sup>. O. Alp dated these pieces between the last quarter of the 2nd century and the first quarter of the 3rd century AD<sup>14</sup>.

The architectural decoration of blocks found in 2021 and 2022 allow for a more accurate dating. Among these pieces, the decorations of an architrave-frieze (Fig. 11a-b-c) and architrave block (Fig. 12a-b-c) provide important information, as they are well preserved. These blocks belong to the entablature of the *columnnatio* of the *nymphaeum* façade. The entablature in question includes an architrave-frieze block that belongs to one of the outer corners of the façade, forming the side face. A clamp hole with a horizontal angle is present at the end of the architrave-frieze, indicating that it joins with another architrave-frieze that extends to the front from this point. At the backside of the block, which was largely left rough, a slot was created for the section where another architrave-frieze would join, while the rest was trimmed. This flat part is believed to belong to the part of the *nymphaeum* where the entablature of the *columnnatio* joins to the wall. The architrave-frieze with tendril decoration, which was previously believed to belong to the *scaenae frons* by O. ALP (Alp, 2006, pp. 114-115, Pl. 34, No. 63a) and the recently found architrave-frieze (Fig. 11a-b-c) are identical in terms of their decoration features. Furthermore, the clamp hole with a horizontal angle present on the end of the architrave frieze and the piece considered to belong to the *scaenae frons* by O. ALP are parts of the *columnnatio* entablature of the *nymphaeum*.



Fig. 11a



Fig. 11b

---

9 Alp, 2006, pp. 114-115, No 63; Kaya 1999: 171 Pl. 32.2.4.

10 Alp, 2006, pp. 147-148, No 80b.c; Kaya, 1999, p. 171 Pl. 32.1.

11 Alp, 2006, p. 148, No. 80a.

12 Alp, 2006, pp. 151-153, No. 83-84.

13 Alp, 2006, p. 160, No. 91.

14 Alp, 2006, pp. 115, 147-148, 152-153, 160.



Fig. 11c

A limited number of fragments of Ionic *kymatia* were identified from the frieze of the left outer face. The eggs and flanking frames are separated by a thin groove created by a drill. The flanking frames have a flat surface and are in the form of an arc (Fig. 12a-b-c). The framed eggs have oval shape with a pointed tip and are near the flanking frames with minimal drill marks. The dart-shaped intermediate leaves found between the flanking frames have a short, stocky, forked stem and their wings are heart-shaped spikes that are highly stretched and rounded. The wings of these dart-shaped intermediate leaf touch the flanking frames. The dart-shaped intermediate leaves are not symmetrical, and their forms vary. In addition, their surface is raised, and a light-shadow effect is created with deep grooves. On the other hand, the frieze of tendrils features curved branches composed of bunches of thorny acanthus leaves that cover the entire zone of the frieze.



Fig. 12a



Fig. 12b



Fig. 12c

The frieze zone is adorned with tendrils that curve in opposite directions and acanthus leaves that fill the main stem. Secondary leaves, which occupy the interior of the tendril, extend from the main branch, and a secondary tendril is nestled between the two side leaves, which are then twisted again around the main stem. The spaces between these tendrils and the parts where the acanthus bush splits into two, are filled with similar acanthus leaves. The leaves that cover the entire surface of the frieze are intricately carved in a filigree style, with numerous small eyelets created by the intensive use of drills. In this manner, a light-shadow effect was achieved. The open and closed palmettes on the crown emerge directly from the moulding to which they are attached, forming a series of alternating open and closed palmettes. The open palmettes have a pointed central stem that tapers from thick to thin and two pointed leaves. The leaves do not touch each other, and a small protrusion is intricately carved on the undersides of the leaves. The outermost leaves are curled with a drill groove

to form a volute. The leaves of the open palmettes are all flat-topped and all side leaves have a drill groove aligned in a diagonal line. The closed palmettes, similar to the open palmettes, consist of a central stem and two leaves that taper from thick to thin. The leaves are curled with a drill groove to form volutes. The leaves are long and pointed and touch each other at the tips. The closed palmettes have a flat surface like the open palmettes, but do not have drill grooves on their leaves. The Ionic *kymation* on the crown, on the other hand, emerge over the moulding under the open and closed palmettes, where the eggs of the Ionic *kymation* are found (Fig. 11a). The egg and the frame are separated by a deep and horizontal groove created by a drill. The frames have a sharp and almost oval-shaped surface. The preserved eggs, which stand independent from the frame, are oval and plump. The dart-shaped intermediate leaves found between the frames possess a short, thin, and chunky forked stem, as well as pointed wings, similar to those depicted on the frieze. The pointed wings of these elements again touch the frame.

The astragals, which can be identified as the Pamphylian Bead-Reel type (Vandeput, 1997, p. 150), consist of one elliptical reel and two rhomboidal beads at the beginning of the fascia (Fig. 12a). The string, to which the aforementioned elements are attached, is embroidered in a thin line and runs along the middle of the arrangement. The reels have an oval and cylindrical shape while the beads possess a sharp surface. The soffit is depicted as a thick and short strip, ending in a pointed semi-circle. On the right side of the soffit, a meander motif is depicted, which forms two belts as it bends. On the right side of the soffit, there is a meander motif that bends by making two belts, and on the left side, which forms the other half of the soffit, there is a stylized dovetail shape combined with the meander motif, only the part where the tail curves and a small part of the mane are preserved within the frame. The soffit belt is surrounded by Lesbian *kymation* in a stirrup form (so-called *Bügelkymation*). The stirrup frames of the *kymation* have a flat surface and an arc form, depicted separately from one another. The middle leaf veins, which narrow towards the lower moulding and end with a flat finish, have flat surface and are made in a higher relief compared to the stirrup frames. Between the stirrup frames, heart-shaped intermediate flowers separated by drill holes are depicted. In the corners where Lesbian *kymation* continue, reed leaves that narrow and taper towards the four-segmented tip have been added; their leaves have been given filigree features with a drill. Both the meander and triton motifs have a flat surface, deep grooves and are made in high relief. The Lesbian *kymation* and the soffit exhibit a light-shadow effect, as seen in other ornaments.

## Evaluation of the Architectural Decoration

### Tendrils (Ranke)

During the Severan period (193 - 235 AD), architectural decoration featuring intricate designs created using drill holes to create curvilinear motifs on architrave-friezes was prevalent. These designs were characterized by a convex profile and the utilization of light and shadow to create an aesthetically pleasing effect (İnan et al., 2000, pp. 321-322; Can, 2005, p. 102). Several examples of this style of decoration can be observed in various architectural remains from the Severan period, including the third floor friezes of the Hierapolis Theater (Ismaelli, 2017, p. 403 Fig. 550 ), and the city gate friezes at Side (Gliwitzky, 2010, pp. 129-130, Fig. 193-194) both of which date to the end of the second and the beginning of the third century AD. Similar decorative styles can also be observed in other contemporaneous structures, such as the *scaenae frons* of the theatre at Nysa ad Meandrum (Kadioğlu, 2006, Pl. 18-19) and the theater *scaenae frons* at Sagalassos (Vandeput, 1992, Pl. XXVIb, XXVIIa; Vandeput, 1997, p. 107), both of which were dated to 180-200 AD.

### *Anthemia* and Ionic *Kymation*

During the Severan period, architectural decoration featuring the use of ornamental forms of *anthemion* with open and closed palmettes on crowns and Ionic *kymatia* on architraves was prevalent. The open and closed palmettes have flat surfaces, use light-shadow effect, and lack symmetry. These designs are further characterized by the presence of drill holes, which are considered to be filigree features. The Ionic *kymation* are characterized by the presence of oval-shaped eggs, deep and sharp frames, dart-shaped intermediate leaves with a forked stem and wings in the form of a heart. These features are commonly observed in conjunction with the aforementioned open and closed palmettes on various architectural remains from the Severan period. Such decorative styles can be observed on the architraves of the Great Roman Bath of Ancyra<sup>15</sup>, the first floor of the *scaenae frons* of the Hierapolis Theatre<sup>16</sup>, on the architrave-friezes of the Triton *nymphaeum*<sup>17</sup>, on the architrave-friezes of the Kremna Theater<sup>18</sup>, on the lintel of the gate next to the Roman Baths at Sagalassos<sup>19</sup>, on the architrave-friezes of the *scaenae frons* of the theatre at Nysa ad Meandrum<sup>20</sup>, on the monumental gate with Syrian pediment of Perge<sup>21</sup>, on *nymphaeum* F2 at

---

15 Karaosmanoğlu, 1996, Pl. 47a; Gökay, 2011, p. 179.

16 Ismaelli, 2017, p. 265 Fig. 511.

17 D'Andria & Caggia, 2007, p. 313 Fig. 2.

18 Mitchell, 1995, pp. 75-76; Karaosmanoğlu, 1996, Pl. 28b.

19 Vandeput, 1997, p. 113, Pl. 60.1.

20 Kadioğlu, 2006, Pl. 16-19.

21 Türkmen, 2007, Pl. 12, 1-2; Gliwitzky, 2010, Fig. 287.

Perge<sup>22</sup>, the *nymphaeum* of Side<sup>23</sup>, the Side City Gate<sup>24</sup>, the Porticos of Laodicea Temple A<sup>25</sup>, the North Gate of Miletus<sup>26</sup>, the Tetrapylon of Aphrodisias<sup>27</sup> and G *nymphaeum* at Side<sup>28</sup>.

### Astragal (Pamphylian Bead and Reel Type)

The use of bead and reel decorations, which first appear in the N1 Temple at Side, was a common architectural feature during the Severan period (193-235 AD). This decorative style quickly spread to other regions and was used extensively in various buildings<sup>29</sup>. Bead and reel decorations tend to exhibit a consistent pattern and form, suggesting that they were likely utilized in conjunction with other decorative styles that were prevalent during the Severan period.

### Soffits

The presence of meander motifs, in conjunction with the frequent occurrence of Lesbian *kymation* encircling the examples, is commonly encountered on soffits. Lesbian *kymation* on soffits can also be observed at the gate near the Roman Baths in Sagalassos (Vandeput, 1997, p. 113, Pl. 61.4) and on the soffits of the stage building of the theatre in Perge, dated to the Severan period (Abbasoğlu, 1994, pp. 127-145). However, the decorative type utilized on the soffit itself has yet to be found in any other examples. As such, it is believed to be specific to this structure.

### Evaluation of the Theater at Seleukeia Sidera

The excavations carried out in 2021 and 2022 at the Theater of Seleukeia Sidera as well as the analysis of the architectural decoration of the building revealed that the *scaenae frons* was rebuilt at the end of the 2nd - the beginning of the 3rd century AD (Fig. 7: 3rd Phase). The *nymphaeum* was constructed during this phase and some repair work was carried out in the *scaenae frons*. The eastern and western *proscenaium* walls of the *scaenae frons* and two additional niches, which were uncovered during the works, indicate that both the *scaenae frons* and the *nymphaeum* continued towards the north. The excavations also revealed an infill containing finds belong to 6th century AD, which suggest that the *scaenae frons* and the *nymphaeum* were no longer in use from this period

---

22 Gliwitzky, 2010, Fig. 21-26.

23 Gliwitzky, 2010, Fig. 313, 315, 318.

24 Gliwitzky, 2010, Fig. 193-205.

25 Yener, 2019, 197.

26 Köster, 2004, 124, Pl. 125.2.

27 Outschar, 1987, pp. 218-222, Fig. 18-19; Can, 2005, p. 99, No. 12a-b, Pl. 37c, 38a.

28 Gliwitzky, 2010, Fig. 146-154.

29 Karaosmanoğlu, 1996, p. 57; Vandeput, 1997, p. 150; Türkmen-Peker, 2013, p. 153; Kökmen-Seyirci, 2016, p. 306.

onward. Among the pottery finds which have been found in this fill, one SRSW fragment was identified as a bowl of Type 1B180, which was heavily covered with mortar (Fig. 13). Parallels found in Sagalassos are dated to the 6th century AD (Poblome, 1999, p. 306, Fig. 31). Building material fragments (Fig. 14), as well as the SRSW fragment of bowl type 1B180 were all covered with mortar, suggest that they were deliberately added to the wall fill. These finds can be accepted as *terminus post quem* for the fill. It is likely that there was a structure built on this fill deposit, that was used until the 13th century at the latest and destroyed afterwards. The function of this structure remains unknown.



Fig. 13



Fig. 14

The Roman Imperial period saw a proliferation of theater construction in Anatolia, with numerous examples still extant today. These structures provide valuable insight into the cultural and architectural practices of the time. Archaeological evidence suggests that the Romans adapted pre-existing Hellenistic theater models to suit their own purposes. For example, the theater at Aspendos, built in the 2nd century AD, demonstrates a fusion of Roman and Hellenistic architectural techniques, with its *cavea* displaying the characteristic semi-circular form of the Romans and its stage building exhibiting the ornate decoration typical of the Hellenistic tradition (Hodge, 2002). The foundation of *scaenae* of the theater of Seleukeia Sidera can be dated to the 1st century BC based on the presence of Hellenistic period pottery sherds (Kaya, 1999 p. 169).

The theaters of Sagalassos and Alinda share similarities with the theatre of Seleukeia Sidera in terms of their *cavea* and orchestra sections (Vandeput, 1992, pp. 99–117; Vandeput, 1997, pp. 107–112). The Alinda theatre, in particular, features two opposite *vomitoria* leading to the *diazoma*, a feature also presents in the Seleukeia Sidera theatre, with one to the north and one to the south, and both passages radiate from the *diazoma*, parallel to the *parodos* walls, underneath the *cavea* (Johannowsky, 1969–70, pp. 456–458; De Bernardi Ferrero, 1969, pp. 181–198). This architectural feature is likely a result of the slope upon which the theater was built, as seen also in the case of the Alinda theatre. The presence of these architectural similarities suggests a continuity of design and construction practices across these theatres in Anatolia during the Roman Imperial period.

It has been proposed that the three semi-circular structures located to the east of the theater *scaenae* are the likely remains of a *nymphaeum*. *Nymphaea* are architectural elements that are known to have provided a façade for *scaenae* of theatres in southern Anatolia, particularly in the case of the theatre of Perge<sup>30</sup>. The *nymphaeum* situated against the east façade of the Perge theater has been dated to the Late Antonine - Early Severan period, and consists of five semi-circular niches, standing 2.75 m tall. A vaulted passage providing access to the *scaenae* is also present (Özdizbay, 2008, p. 127) similar to the doorway providing passage to the *scaenae* at Seleukeia Sidera. Examples of theatres with a plan similar to that of Seleukeia Sidera can also be found in the western provinces of the Roman Empire. In Spain, for instance, the theater of Italica, which dates to the early 1st century AD (Sear, 2006, p. 272) and that of Regina, dating to the 4th century AD (Sear, 2006, p. 273) share similarities with the building of Seleukeia Sidera in terms of their semi-circular plan, the presence of niches, a passageway to the *scaenae*, as well as a *nymphaeum* located on the façade of the *scaenae*.

The decorations of architrave-frieze (Fig. 10) and architrave block (Fig. 11) of *nymphaeum* can be dated to the Severan period (193 AD to 235 AD). Anthemion and Ionic *Kymation* on the architrave-frieze commonly observed in conjunction with the aforementioned open and closed palmettes on various architectural

---

30 İnan, 1986, 154, Fig. 11; İnan, 1987, p. 193, Fig. 2; İnan, 1988, 216, Fig. 2.

remains from the Severan period. Furthermore, bead and reel decorations tend to exhibit a consistent pattern and form, suggesting that they were likely utilized in conjunction with other decorative styles that were prevalent during the Severan period. Several examples of this decoration style can be observed in Hierapolis Theater<sup>31</sup>, Side<sup>32</sup>, Nysa Theater<sup>33</sup> and the *scaenae frons* at Sagalassos<sup>34</sup>, Syrian pediment of Perge<sup>35</sup>, Tetrapylon of Aphrodisias<sup>36</sup> and the Side G *nymphaeum*<sup>37</sup>. These examples were dated to end of the second and the beginning of the third century AD.

Overall, the theatre of Seleukeia Sidera offers a distinctive perspective on the architectural and cultural practices of the Roman Imperial period in Anatolia. Its use of local materials, impressive size, and role as a central gathering place for the community, sets it apart from other theaters in the region and provides valuable insights into the social and cultural practices of the city. The construction of a theater of such a large scale would have required significant investment, indicating the importance placed on cultural and entertainment centers by the Roman authorities and local elites. The theater would have been a central gathering place for the community, providing a space for entertainment, socialization, and the articulation of political and social ideologies (Gurval, 1995). When compared to other theaters in Anatolia from the Roman Imperial period, such as the ones at Aspendos, Perge, and Hierapolis, the theater of Seleukeia Sidera stands out because of its predominant use of local materials. The theaters of Aspendos and Hierapolis, for example, were built using marble, a material that had to be imported from distant quarries (Yegül, 1992; Hodge, 2002). The use of local materials at Seleukeia Sidera may indicate a desire to create a distinct architectural identity that reflected the unique character of the city and its surroundings. Furthermore, the use of local materials would have been more cost-effective and sustainable, allowing for the construction of such a large-scale theatre.

---

31 Ismaelli, 2017, p. 403, Fig. 550.

32 Gliwitzky, 2010, pp. 129-130, Fig. 193-194.

33 Kadioğlu, 2006, Pl. 18-19.

34 Vandeput, 1992, Pl. XXVIb, XXVIIa; Vandeput, 1997, p. 107.

35 Türkmen, 2007, Pl. 12, 1-2; Gliwitzky, 2010, Fig. 287.

36 Outschar, 1987, pp. 218-222, Fig. 18-19; Can, 2005, p. 99, No. 12a-b, Pl. 37c, 38a.

37 Gliwitzky, 2010, Fig. 146-154.

### Figure List

Fig. 1. General View of Seleukeia Sidera Theatre (Seleukeia Sidera Excavation Archive).

Fig. 2. General View of Seleukeia Sidera Theater - Vomitorium and Scaenae Building (Seleukeia Sidera Excavation Archive).

Fig. 3. General View of Seleukeia Sidera Theater – Vomitorium (Seleukeia Sidera Excavation Archive).

Fig. 4. Seating Row (Seleukeia Sidera Excavation Archive).

Fig. 5. *Scaenae* Building and Nymphaeum of Seleukeia Sidera Theater (Seleukeia Sidera Excavation Archive).

Fig. 6. *Scaenae* Building of Seleukeia Sidera Theater - Constructed with Mortar and Bricks (Seleukeia Sidera Excavation Archive).

Fig. 7. Plan of the *Scene* (Drawing by Gurbet Kılınç and Hilal Uslu, Seleukeia Sidera Excavation Archive).

Fig. 8. Fragment of a Sagalassos Red Slip Ware Bowl (Drawing by Burak Sönmez, Seleukeia Sidera Excavation Archive).

Fig. 9. Fragment of a Unguanterium Bowl (Drawing by Burak Sönmez, Seleukeia Sidera Excavation Archive).

Fig. 10. Fragment of a Sagalassos Red Slip Ware Bowl (Drawing by Burak Sönmez, Seleukeia Sidera Excavation Archive).

Fig. 11. Architrave-frieze Block (Seleukeia Sidera Excavation Archive).

Fig. 12. Architrave Block (Lidar Scanning by Semih Togan, Seleukeia Sidera Excavation Archive).

Fig. 13. Fragment of a Sagalassos Red Slip Ware Bowl (Seleukeia Sidera Excavation Archive).

Fig. 14. Fragments of roof tiles (Seleukeia Sidera Excavation Archive).

## Bibliography

- Abbasoğlu, H. (1994). *Perge Roma Devri Mimarisinde Arşitraoların Soffit Bezemeleri*. Türk Tarih Kurumu.
- Alp, O. (2006). *Pisidia Bölgesi Roma Dönemi Bezemeli Mimari Elemanları* [Unpublished doctoral dissertation]. Ankara Üniversitesi.
- Bingöl, O. (1994). Seleukeia Sidera (Bayat) 1993 Yılı Arkeolojik Kazıları. *Göller Bölgesi Arkeolojik Kültürel-Turistik Araştırma ve Değerlendirme Projesi*, 43-76.
- Bingöl, O. (2012). Seleukeia Sidera. In O. Bingöl, A. Öztan & H. Taşkiran (Eds.), *Anatolia (Anadolu) DTCF 75. Yıl Armağanı* (pp. 457-470). Ankara Üniversitesi Dil Tarih ve Coğrafya Fakültesi.
- Can, B. (2005). *Roma Çağı Anadolu Mimarisinde Kıvrıklal (Ranke) Bezemeleri* [Unpublished doctoral dissertation]. Atatürk Üniversitesi.
- D'Andria F. & Caggia, M. P. (2007). *Hierapolis di Frigia I: Le Attività delle Campagne di Scavo e Restauro 2000-2003*. Ege Yayınları.
- De Bernardi Ferrero, D. (1969). *Bernardi Ferrero, Teatri classici in Asia Minore. Città di Pisidia, Licia e Caria (Vol. 2)*. L'Erma di Bretschneider
- Gassner, V. (1997). *Das Südtor der Tetragonos Agora Keramik und Kleinfunde*. Verlag der Österreichischen Akademie der Wissenschaften. <https://doi.org/10.11588/diglit.52037>
- Gliwitzky, C. (2010). *Spaete Blüte in Side und Perge. Die Pamphyllische Bauornamentik des 3. Jahrhunderts n. Chr.* Peter Lang AG.
- Görkay, K. (2011). Büyük Hamam (Caracalla Hamamı). In M. Kadioğlu, K. Görkay & S. Mitchell (Eds.), *Roma Döneminde Ancyra* (pp. 179-190). Yapı Kredi Yayınları.
- Gurval R. A. (1995). *Actium and Augustus: The Politics and Emotions of Civil War*. University of Michigan Press.
- Harrison, R. M., Fıratlı, N. & Hayes, J. W. (1968). Excavations at Saraçhane in Istanbul: Fifth Preliminary Report, With a Contribution on A Seventh-Century Pottery Group. *Dumbarton Oaks Papers* 22, 195-216. <https://doi.org/10.2307/1291282>
- Hodge, A. T. (2002). *Roman Aqueducts & Water Supply*. Bristol Classical Press.
- Ismaelli, T. (2017). *Il Tempio a Nel Santuario Di Apollo Architettura, Decorazione E Contesto*. Ege Yayınları.
- İnan, J., Atik N., Öztürk A., Alanyalı H. S. & Ateş, G. (2000). Vorbericht über die Untersuchungen an der Fassade des Theaters von Perge. *AA*, 2, 285-340.

- İnan, J. (1986). Perge Kazısı 1985 Yılı Çalışmaları. *Kazı Sonuçları Toplantısı*, 8(2), 137-176.
- İnan, J. (1987). Perge Kazısı 1986 Yılı Çalışmaları. *Kazı Sonuçları Toplantısı*, 9(2), 173-186.
- İnan, J. (1988). Perge Kazısı 1987 Yılı Çalışmaları. *Kazı Sonuçları Toplantısı*, 10(2), 197-246.
- Johannowsky, W. (1969). Osservazioni sul teatro di Iasos su altri teatri in Caria. *ASAtene*, 47/48, 456. 458.
- Kadioğlu, M. (2006). *Die scanae frons des Theaters von Nysa am Mäander, Forschungen in Nysa am Mäander 1*. Philipp von Zabern in Wissenschaftliche Buchgesellschaft.
- Karaosmanoğlu, M. (1996). *Anadolu Mimari Bezemeleri, Roma Çağı Yumurta Dizisi*. Atatürk Üniversitesi.
- Kaya, D. (1999). Die Theaterausgrabung von Seleuceia Sidera (Klaudioseleukeia). *Asia Minor Studien* 34, 163-174.
- Kökmen-Seyirci, H. (2016). *Rhodiapolis Antik Kenti Mimari Bezemeleri* [Unpublished doctoral dissertation]. Akdeniz Üniversitesi.
- Köster, R. (2004). *Die Bauornamentik der frühen und mittleren Kaiserzeit*. De Gruyter.
- Meriç, R. (2002). *Späthellenistisch-römische Keramik und Kleinfunde aus einem Schachtbrunnen am Staatsmarkt in Ephesos*. Verlag der österreichischen Akademie der Wissenschaften.
- Mitchell, S. (1995). *Cremna in Pisidia: An Ancient City in Peace and War*. Classical Press of Wales. <https://doi.org/10.2307/j.ctv1n357w3>
- Otschar, O. (1987). Betrachtungen zur kunstgeschichtlichen Stellung des Sebasteions in Aphrodisias. In J. de la Genière, K. Erim (Eds.), *Aphrodisias de Carie. Colloque du Centre de recherches archéologiques de l'Université de Lille III* (pp. 107-122).
- Özdizbay, A. (2008). *Perge'nin M.S. 1-2. Yüzyillardaki Gelişimi* [Unpublished doctoral dissertation]. İstanbul Üniversitesi.
- Poblome, J. (1999). *Sagalassos Red Slip Ware*. Brepols Publishers
- Sear, F. (2006). *Roman Theatres: An Architectural Study*. Oxford University Press.
- Türkmen-Peker, M. (2013). A Note on The Architectural Decoration of The Severan Period in Pamphylia and Cilicia. T. Corey Brennan & E. C. De Sena (Eds.), *The Roman Empire during the Severan Dynasty Case Studies in History, Art, Architecture, Economy and Literature* (pp. 151-172). Gorgias Press.

Türkmen, M. (2007). *Pamphylia ve Kilikia'da Severuslar Dönemi Mimari Bezemesi* [Unpublished doctoral dissertation]. İstanbul Üniversitesi

Vandeput, L. (1992). The Theatre-Façade at Sagalassos. *AnatSt*, 42, 99-117. <https://doi.org/10.2307/3642954>

Vandeput, L. (1997). *The Architectural Decoration in Roman Asia Minor*. Brepols Publishers

Yener, B. (2019). *Laodikeia Roma Dönemi Mimari Bezemeleri* [Unpublished doctoral dissertation]. Pamukkale Üniversitesi.

Yegül, F. K. (1992). *Baths and Bathing in Classical Antiquity*. The Architectural History Foundation and the Massachusetts Institute of Technology.

## Production and Economy in Seleukeia Sidera in the Roman Imperial Period: Blacksmithing Practices

*Seleukeia Sidera’da Roma İmparatorluk Dönemi’nde Üretim ve Ekonomi:  
Demircilik Pratikleri*

Bilge Hürmüzlü\* – Ünsal Yalçın\*\* – Semih Togan\*\*\*

Roma İmparatorluğu’nun geniş coğrafyasında MS 3. yüzyılda yaşanan ekonomik krizin ardından önemli değişikliklerin olduğu bilinmektedir. Bununla birlikte epigrafik kanıtlar, Pisidia Bölgesi’nin kriz döneminin olumsuz etkilerinden kurtulduğunu ortaya koyar. Nitekim arkeolojik buluntular, bu dönemin hemen ardından, MS 4. ve 6. yüzyıllar arasında Seleukeia Sidera’da birçok alanda ekonomik faaliyetlerin yürütüldüğünü göstermiştir. Bu makalede Hisar Tepe’nin kuzeydoğusunda yer alan bir demirci atölyesine (Pl. 2: 21) ilişkin ön veriler değerlendirilecektir. Seleukeia Sidera’da 2016 yılından itibaren yürütülen jeofizik ölçümlerin odak noktalarından biri, kent ekonomisine katkıda bulunan üretim alanlarının konumunun tespit edilmesi olmuştur. Hisar Tepe’nin doğu yamaçlarında bir sanayi bölgesinin varlığı, bölgede yapılan jeofizik yüzey araştırmaları ve arkeolojik çalışmalardan anlaşılmıştır. Özellikle kuzey kısımda tespit edilen alanlar MS 5. – 6. yüzyıllarda üretime yönelik atölyelerin varlığını ortaya koymuştur. Kazı çalışmalarında ve jeofizik ölçümlerde açığa çıkan yollar dar geçitlerle birbirine bağlanan işlik alanlarının adeta bir sanayi mahallesi kompleksi içerisindeki varlığını da gösterir. Bu üretim faaliyetleri içerisinde demirciliğin önemli bir paya sahip olduğu anlaşılmıştır. Nitekim Seleukeia Sidera, Pisidia’da demir üretiminin gerçekleştiği önemli bir merkez olarak karşımıza çıkar.

MS 6. yüzyılda Hierokles kentin adını Σελεύκεια ἡ σιδηρᾶ (Seleukeia Sidera) şeklinde “demir” anlamına gelen “Sidera” epitheti ile anmıştır (Hie. Syn. 673, 8). Kentin ne zamandan itibaren bu ön ad ile anıldığı hakkında sağlıklı bir bilgi bulunmamakla birlikte bu epithet, kente demircilik faaliyetleri ile tanınmış olmasından dolayı verilmiş olmalıdır. Kentten ele geçtiğini bildiğimiz MS 3. yüzyıla ait iki sikkenin arka yüzünde demircilerin tanrısı Hephaistos’a rastlanması, demircilik faaliyetlerinin yoğun olduğu ve kentin önemli bir gelir kaynağı olduğuna dikkat çekmektedir. Seleukeia Sidera’nın kapsamlı ve yoğun yüzey araştırmaları, yerleşmenin demir metalurjisi hakkında önemli bilgiler sağlamıştır. Bu yüzey araştırmaları, metalürjik buluntuların Hisar

\* Süleyman Demirel University, Faculty of Arts & Sciences, Department of Archaeology, 32260 Isparta/TR, bilgehurmuzlu@gmail.com, ORCID: 0000-0002-3676-7436.

\*\* Süleyman Demirel University, Faculty of Arts & Sciences, Department of Archaeology, 32260 Isparta/TR, Uensal.Yalcin@bergbaumuseum.de, ORCID: 0000-0001-8626-1065.

\*\*\* Süleyman Demirel University, Faculty of Arts & Sciences, Department of Archaeology, 32260 Isparta/TR, semihtogan@gmail.com, ORCID: 0000-0001-6767-0939.

Tepe'nin kuzeydoğusunda yoğunlaştığını, batı kesimindeki kapsamlı yüzey araştırmalarında ise demir cüruflarına pek rastlanmadığını ortaya koymuştur. Hisar Tepe'nin kuzeydoğusunda ele geçen buluntular genel olarak Geç Roma İmparatorluk Dönemi'ne, MS 4. – 6. yüzyıllar arasına tarihlendirilmektedir. Bu alanlarda yapılan intensive yüzey araştırmalarında ele geçen metalürjik buluntular demir ergitme cürufu, demir izabe cürufları ve fırın kaplamaları ile cevher zenginleştirme taşı kentteki demir faaliyetlerine yönelik önemli veriler sunması bakımından önemlidir.

Jeofizik surveyler ve saha araştırmalarından elde edilen gözlemlere dayanarak atölye kompleksleri tanımlanmış ve yoğun yüzey araştırma yöntemleri uygulanarak demircilik faaliyetlerinin yürütüldüğü alanlar belirlenmiştir. Bu atölyeler alanında günümüzde tüm sınırları ile en iyi bilinen atölye, bir demirci işliğidir. Yapılan kazı çalışmalarında 6.4 m x 5.2 m ölçülerine sahip bu mekân içerisinde yer alan ocaklar, demir kıymıklarının yoğunluğu sayesinde tespit edilen örs yeri, odun kömürü deposu ve demir cüruflarının incelenmesi sonucunda bir demirci işliği olduğu açıkça anlaşılmıştır. Bu buluntular dışında içerisinde demir katmanı bulunan, muhtemelen ısıtılmış demirin soğutulduğu havuz olarak kullanılmış *ostothek* parçası ve aynı şekilde demir katmanı barındıran mortar parçaları da bir demirci işliğinde bulunması beklenen malzemeler arasındadır. Ayrıca, atölye kazısı sırasında tamamlanmış ürünler (bıçak ucu, çivi ve benzeri), yarı mamuller (at nalı, külçe parçaları) ve tamamlayıcı malzemeler de (sap veya kulp olarak kullanılan boynuzlar) ele geçmiştir. Bütün bu buluntular, araştırılan işlikte günlük yaşamda ihtiyaç duyulan bıçak, orak, çivi ve at nalı gibi alet ve gereçlerin üretildiğine işaret etmektedir.

Yüzey araştırmaları ve kazılarda ele geçen, analogik ve tipolojik incelemelerle sınıflandırılan çok sayıda demir cürufu ele geçmiştir. Yapılan ilk gözlemler cürufların hemen hemen hepsinin demirci cürufu olduğuna işaret etmektedir. Çoğunlukla çöreğimsi yapıdaki bu cüruflar bilindiği gibi demirci ocağında renn fırınından elde edilen ilk ürün luppenin içindeki cüruf, odun kömürü, ergimemiş cevher kalıntılarının mekanik yolla, yani ısıtılıp dövülerek arınması esnasında veya demir külçelerden muhtelif ürünlerin üretim aşamasında oluşur. Demirci, yapmak istediği ürünü örs ve çekiç aracılığıyla mekanik olarak şekillendirir. Odun kömürü ateşinde akkor haline gelen demir, ocaktan alındığında hemen havadaki oksijenle tepkimeye girerek üzerinde bir demiroksit kabuk (tufal) oluşur. Demir dövülürken bunlar her çekiç vuruşunda örsün etrafına sıçrayarak yayılır. Bir kısmı ise ocakta kalarak kül, cüruf kalıntıları (damlacıkları) ve ocak sıvası döküntüleri ile birlikte ocağın tabanındaki çöreğimsi cürufu oluşturur. Bu nedenle demirci cürufları yüksek miktarda demir içerir. Nitekim yapılan analizler bu tür cürufların %60 – 80 oranında FeO içerdiklerini göstermiştir.

Kazı çalışmalarında bu atölyenin kuzeyinde üç mekânın daha bulunduğu ortaya konmuştur. Bu durum, demirci atölyesinin daha büyük bir komplek-

se ait olduğunu düşündürmekle birlikte yapıların işlevini ortaya koymak, için mekânların boyutlarının ve iç yapılarının anlaşılmasına ihtiyaç vardır. Bununla birlikte, genel anlamda buluntuların MS 4. – 6. yüzyıllar arasına tarihlendirildiğini ve ön verilerin birden fazla kullanım evresi olan MS 5. yüzyıla ait bir atölye olduğunu ortaya koyduğunu belirtmek gerekir. Figür 2 ve 3, ayrıntılı ve tam bir plan elde etmek amacı ile lidar taraması ile yapılmıştır<sup>4</sup>.

Çeşitli merkezlerden bilinen demirci işliklerinin planlarında zamansal ya da bölgesel bir standart yoktur. İşlikler içerisinde ocak, örs, soğutma havuzu gibi arkeolojik yapı ve aletler demirci ustasının mekân içerisinde fazla hareket etmeden, sabit kalarak çalışmasına olanak sağlayacak şekilde konumlandırılır. İşlik içerisinde arkeolojik yapılar basit bir şekilde düzenlenir. Örneğin ocaklar toprak ya da anakayaya çukur açılarak veya taş sıralarıyla sınırlandırılarak oluşturulur. İşlik içerisinde odun kömürünün depolandığı kısımlar da açığa çıkarılmıştır. Demir cüruflarının işlik içerisinde özel bir konumu yoktur. Bu durum antik dönemlerde geçerli olduğu gibi günümüz demirci işlikleri için de geçerlidir. Fakat günümüzde teknik ve teknolojik gelişmelere bağlı olarak modern demirci işliklerinin sayısı oldukça azalmıştır.

Demirci işliğinin üretim faaliyetinin anlaşılmasına dönük olarak Seleukeia Sidera ve çevresinde somut olmayan kültürel miras çalışmaları kapsamında geleneksel yöntemlerle, sıcak demirci olarak üretim yapmaya devam eden atölyeler araştırılmıştır. Antik kentin çok yakınında Atabey'de, ikincisi ise Isparta/Merkez'de iki atölye tespit edilmiştir. Her iki atölye de etnoarkeolojik ve somut olmayan kültürel miras (SOKÜM) araştırmaları açısından önemlidir. Bahsi geçen önem, geleneksel yöntemlerin uygulandığı bu atölyelerde antik dönemin etkilerinin görülmesidir.

---

4 Süleyman Demirel Üniversitesi Bilimsel Araştırma Projeleri Koordinasyon Birimi'ne (BAP) (Proje no. SBG-2022-8741) teşekkür ederiz.

## Introduction

It is clear that there were important changes in the vast geography of the Roman Empire after the economic crisis of the 3<sup>rd</sup> century AD. However, epigraphic evidence shows that the region of Pisidia recovered from the negative effects of the crisis period (Mitchell, 1999, p. 421)<sup>5</sup>. Increasing production volume at Sagalassos during the crisis<sup>6</sup>, and the increase in the volume of coin production during the 3<sup>rd</sup> century AD at Seleukeia Sidera, emerge as important indicators of this situation<sup>7</sup>. Consequently, it would not be wrong to suggest that there was production activity at Seleukeia Sidera during this crisis. In fact, archaeological finds have revealed that economic activities were carried out in various areas of the city immediately after this period, between the 4<sup>th</sup> and 6<sup>th</sup> centuries AD<sup>8</sup>. For example, numerous wine presses discovered on the southern, western and eastern slopes of Hisar Tepe show the importance of agricultural production in the city's economy<sup>9</sup>. Apart from this, bone tool workshops, pointing to small-scale production in the aforementioned periods (Hürmüzlü, 2020; Hürmüzlü et al., 2020a, p. 144) and evidence of pottery production provides information about the economic activities of Seleukeia Sidera. The latter, which is understood to constitute an important part of the local economy<sup>10</sup>, and ongoing research regarding its place in the regional *koiné* of tableware are the subject of another study (Sönmez, 2022). In this article, preliminary data on a blacksmith's workshop located to the northeast of Hisar Tepe will be evaluated.

## The Workshops' Quarter on the Northeastern Slope of Hisar Tepe

A geophysical survey of Seleukeia Sidera has been carried out since 2016. One of its foci was the location of production areas that contributed to the urban economy<sup>11</sup>.

- 
- 5 For discussion on the economic crises and its effect in Pisidia See, in this volume, Köker, History of Seleukeia 'Sidera'.
  - 6 Poblome, 2006, pp. 189–212; Poblome et al., 2008, pp. 1001–1012; Waelkens & Jacobs, 2014; Poblome, 2015, p. 113.
  - 7 On the traces of the 3rd century AD economic crisis in the Roman world, see: Tütüncü & Köker, 2022, p. 253.
  - 8 Hürmüzlü et al., 2020a, pp. 140 – 145. The abundance of winemaking workshops in Seleukeia Sidera in the 4th and 5th centuries AD is known from surveys and two excavated examples, see: Mörel, 2020.
  - 9 Archaeological finds suggest that wine production first gained importance in Seleukeia in the 4th century AD, and most likely continued in the following centuries. See: Mörel, 2020.
  - 10 Hürmüzlü et al., 2020a, pp. 142 – 143; Hürmüzlü & Sönmez, 2021; Sönmez, 2022, pp. 197–202. For unguentarium production in the Late Roman Imperial period, see: Hürmüzlü et al., 2021b, pp. 344 – 346; Sönmez, 2022, pp. 202 – 204. Among pottery production activities, roof tile production is another one that stands out. Often encountered misfired fragments indicate the intensity of the production activities. See: Hürmüzlü et al., 2020a.
  - 11 Schenk et al., 2018; Hürmüzlü et al., 2020a; Hürmüzlü et al., 2020b; Hürmüzlü et al., 2021a.

The existence of an industrial district on the eastern slopes of Hisar Tepe is understood from the results of the archaeological and geophysical surveys, and the excavations carried out in the area<sup>12</sup>. (Fig. 1) The wine press visible on the surface in the western part of the area also proves the existence of installations devoted to other types of production. All these studies carried out in the area show that the north-eastern slope of Hisar Tepe (especially the northern part) was reserved for workshops during the 5<sup>th</sup> – 6<sup>th</sup> centuries AD. The street pattern in the area shows the existence of several workshop areas, connected to each other by narrow passages, in what looks like a veritable industrial district.

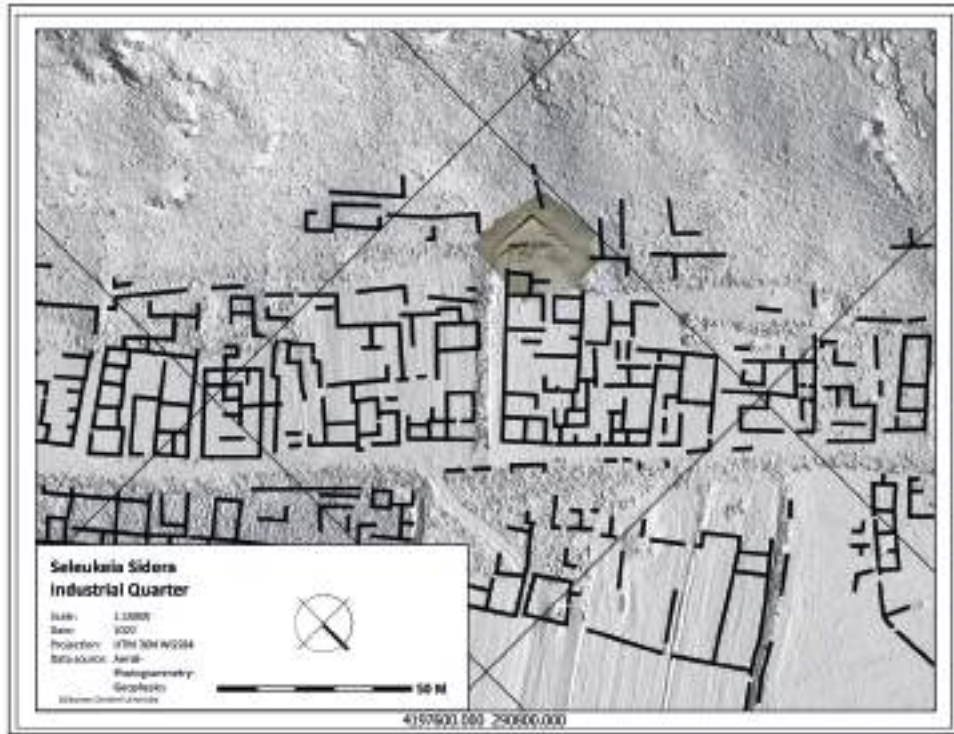


Fig. 1

### Iron metallurgy in Pisidia and the Blacksmith's Workshop at Seleukeia Sidera

Seleukeia Sidera was an important centre in Pisidia in terms of iron production. Hierokles (Hie. Syn. 673, 8), in the 6<sup>th</sup> century AD, mentions the name of the city with the "sidera" epithet as Σελεύκεια ἢ σιδηρᾶ (Seleukeia Sidera). Although it is not clear how long the city has been called by this epithet, it must have been given to the city because it was known for its iron metallurgy activities (Hürmüzlü et al., 2020a, p. 143; Hürmüzlü et al., 2021b, 344-345). Similarly, in the city of Ankyra Sidera, with the same epithet, there was an

12 See, in this volume, Balkaya et al., Archaeo-geophysical Investigations at Seleukeia Sidera.

intense iron metallurgy<sup>13</sup>. The fact that the city received this epithet can also be related to the fact that there was an important local iron production that even met the Roman army's need for weapons<sup>14</sup>. A second option that comes to mind in this context is the possibility that the city was deemed worthy of this epithet because of the quality of its iron products. The fact that Hephaistos, the god of blacksmiths, features on the reverse of two civic coins from the 3<sup>rd</sup> century AD, equally draws attention to the importance of blacksmithing in the city<sup>15</sup>.

Signs of iron metallurgy can be found in many centres in and around Pisidia. Ancient sources like Strabon<sup>16</sup> mention the rich iron workshops of Kibyra; indeed, the findings of the archaeological research conducted in the area support this information<sup>17</sup>. Evidence for blacksmith workshops is also found in the city of Pisidian Antioch, one of the important Roman colonies in Anatolia<sup>18</sup>. Evidence from Sagalassos shows that iron production and blacksmithing were carried out in the territory of the city between the 1<sup>st</sup> and 7<sup>th</sup> centuries AD<sup>19</sup>. Iron slags found in the surveys carried out in Pisidian cities such as Kapıkaya, Mallos, Bindaïos, Prostanna and Sandalion in recent years show that iron smelting was common in the region<sup>20</sup>.

The surveys of Seleukeia Sidera revealed that production waste such as slag, furnace and furnace plasters, and bloom crumbs was concentrated in the northeastern part of Hisar Tepe, while in the western part such finds were rare. The finds from the northeast part could be generally dated to the Late Roman Imperial period, the 4<sup>th</sup> – 6<sup>th</sup> centuries AD. The metallurgical finds uncovered during the intensive surveys in these areas provide important data on iron activities in the city, such as iron smelting slag, blacksmith slag and furnace linings, and ore enrichment stone<sup>21</sup>. The overwhelming majority of slags

---

13 Pitarakis, 1998, p. 156; Talloen et al., 2015, p. 337, fn. 46.

14 Tütüncü & Köker 2022, p. 253.

15 1. SNG Aulock, no. 5228 = Aul. Pisidien II, no. 1919; 2. Aul. Pisidien II, no. 1922; 3. SNG Cop., no. 226 = Aul. Pisidien II, no. 1920; 4. SNG France 3, no. 1888 = Aul. Pisidien II, no. 1921; Nollé, 1995, pp. 61 – 63; Talloen et al., 2015, p. 329; Aul. Pisidien II, no. 2013; Talloen et al., 2015, p. 330.

16 Strab. XIII, 4, 17: *“Another peculiarity that distinguishes the inhabitants of Kibyra is their skill in working and embossing iron”*.

17 For details see Ekinci et al., 2009, p. 33; Demirer, 2013, p. 18, Plate L Drawing 1.

18 For details of the blacksmithing workshops discovered along the street in Pisidia Antiokheia, see: Gültekin, 2012, p. 46.

19 Among the finds there are tap slag from smelting as well as bloom and smithing hearths. On the other hand, iron was produced at several locations on the Bey Dağları massif, 5 km south of the ancient city centre. Tap slag, bloom, oven hearths, crucibles and kiln fragments are presented by Degryse et al., 2003. For archaeometric analyses see Eekelers et al., 2016, p. 1072.

20 Özcan et al., 2017; Özcan et al., 2018; Özcan et al., 2019; Özcan et al., 2022, p. 443; Kızılyalçın & Özcan, 2016.

21 Hürmüzlü et al., 2017, p. 240, Fig. 7; Schenk et al., 2018, pp. 68 – 69; Hürmüzlü et al., 2020a, pp. 143 – 144; Hürmüzlü et al., 2022a, p. 215.

belong to blacksmith activities. This indicates that blacksmiths were active in workshops in the area. As is known, the bloom obtained in *renn* furnaces does not consist of pure iron but contains a large amount of impurities such as slag and charcoal. This intermediate product needs to be purified from these foreign substances, that is to be refined, by repeatedly heating and hammering in the blacksmith's furnaces. Slag is also formed during this process. In addition, by obtaining the product from refined iron, sponge-like slags are formed. The sponge-like structure of the slags uncovered during the survey indicates the existence of iron smithing workshops.

Based on the results obtained from the geophysical and archaeological surveys, workshop complexes and the areas where iron smithing activities were carried out could be determined, resulting in the discovery of a blacksmith's workshop (Pl. 2: 21; Fig. 1)<sup>22</sup>. The latter could be identified on the basis of furnaces, charcoal storage, blacksmith's slags, and an anvil suggested by the density of hammer scale, within a space of 6.4 meters x 5.2 meters during the excavations (Fig. 2 and 3). Apart from these finds, an *ostotheke* fragment (Fig. 4) containing accumulated layers of hammer scale was possibly used as a pool in which heated iron was cooled, as well as stone mortar fragments containing layers of iron splinters were excavated in the blacksmith's workshop. Finally, several finished products (knife blade, nails, etc.), semi-finished products (horseshoes, ingot pieces), complementary materials (f.i. horns used as handles) were also found during the workshop excavation (Fig. 5 and 6). All these finds indicate that metal tools and equipment used in daily life such as knives, sickles, nails, and horseshoes were produced in this workshop.

---

22 Surveys, excavations, geophysical measurements and archaeometric analyses carried out to understand the iron smelting and blacksmithing activities at Seleukeia Sidera were supported by the General Directorate of Cultural Heritage and Museums, Süleyman Demirel University (SDU BAP Project: SBG-2022-8741), the Gerda Henkel Foundation, and the Turkish Historical Society. For preliminary reports on these studies, see Schenk et al., 2018; Hürmüzlü et al., 2020b.

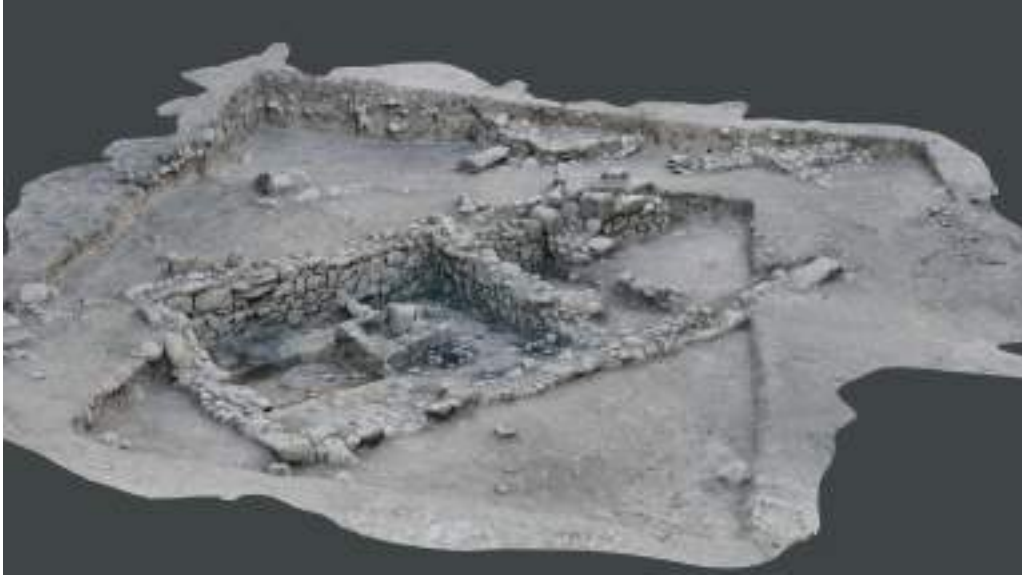


Fig. 2

Few examples of iron workshops are known in Anatolia. Four smelting furnaces as well as many blacksmith furnaces were revealed during the excavations at Nif Mountain Karamattepe, one of the early blacksmith workshops in Anatolia (Baykan, 2013; Baykan, 2017). The finds give us a good idea of the *chaîne opératoire* of the iron production process: the steps that needed to be taken before the smelting (procurement of ores from the mine, purification of the ore, supply of fuel); the actual firing stage (smelting); and the post-firing processes (such as ingot formation, shaping, forging and object making). They all took place in this area. In addition, kilns and an anvil made of stone were found in situ (Baykan, 2013, p. 161). In Klazomenai, a blacksmith's workshop, with water basin and anvil, all carved into the bedrock, could be dated to the Late Archaic period. The cavities carved into the bedrock on the sides of the anvil were simple hearths (Cevizoğlu & Yalçın, 2012, pp. 76 – 77). Another example from the region of Ionia is the blacksmith's workshop at Phokaia. In addition to the fact that much iron slag was found in the area of the workshop, several horseshoe-shaped hearths were placed on a semi-circular terrace. Blacksmith hearths were also unearthed at lower levels, to the north of the terrace (Özyiğit, 2005, p. 43). Although the early dates of these workshops have been the subject of debate in the archaeological community, they are important as the possibly earliest known blacksmith workshop (Yalçın & Özyiğit, 2013).



Fig. 3

Contemporary with the Late Antique workshop at Seleukeia Sidera, there are two examples. In the ancient city of Tralleis, a production unit consisting of several spaces, dated to the 5<sup>th</sup> - 6<sup>th</sup> centuries AD, has been identified. The mentioned spaces were separated according to their functions including production, storage and retail areas (Dinç, 2019, pp. 18 – 21). The blacksmith workshop, unearthed in Kibyra and dated between the 5<sup>th</sup> and 6<sup>th</sup> centuries AD, consists of two rooms, a place where blacksmithing activities were carried out and the place where the iron was cooled (Ekinici, et al., 2009, p. 33; Demirer, 2013, p. 20; Özüdoğru, 2018, pp. 23, 48; Özüdoğru, 2020, p. 116).

Many examples of iron workshops have also been unearthed in Europe<sup>23</sup>. A blacksmith's workshop with a square plan, dating to the 1<sup>st</sup> - 2<sup>nd</sup> century AD, was unearthed at the Pont Croix-Kervenennec farm villa in France. A square

---

23 In Europe, where blacksmith's workshops are better explored, the first examples are dated to the 4<sup>th</sup> - 3<sup>rd</sup> centuries BC, see: Pleiner, 2006, p. 136, Fig. 56. For examples from the Middle Ages, see also: Pleiner, 2006, p. 170, Fig. 61.

hearth surrounded by stone in the middle of the workshop and also lead pipes used to store the water coming from the roof were found inside the building (Plenier, 2006, p. 150). Two sites identified as blacksmith workshops dating to the 3rd century AD were also unearthed in Autun, France. There, a circular hearth was found in the centre of the first room and a rectangular stone anvil was present to the southeast. A second space was used for the storage of iron slag and charcoal (Pleiner, 2006, p. 141, Fig. 57).



Fig. 4



Fig. 5

In light of the information above, it is clear that there was no temporal or regional standard in the layout of a blacksmith workshop. The related structures and tools, such as the furnace, anvil, and cooling pool, are positioned in a way that allows the blacksmith to work in the space without moving too much, remaining for the most part stationary. The structures are generally arranged in a straightforward way. For example, quarries are created by simply digging holes in the soil or bedrock, which are delimited with rows of stones. Charcoal was conveniently stored in one of the spaces of the workshop, and also iron slag did not have a special location. These situations are still valid in today's blacksmith workshops. However, as a result of technical and technological developments, the number of modern blacksmith workshops has decreased considerably compared to ancient times<sup>24</sup>.



Fig. 6



Fig. 7

---

<sup>24</sup> Within the scope of Intangible Cultural Heritage Project, two blacksmith's workshops in Isparta Centre and Atabey districts were visited in 2021.

## **Metallurgical Finds and Preliminary Results**

A large amount of iron slag was recovered from surveys and excavations at Seleukeia Sidera and divided into groups on the basis of analogical and typological examinations (Fig. 7)<sup>25</sup>. The first observations indicate that almost all the slag is blacksmith's slag. This slag, which mostly has a sponge-like structure, is formed during the mechanical purification of slag, charcoal, and unsmelted ore residues in the bloom, the first product obtained from the *renn* furnace in the blacksmith's workshop, or during the production of various objects from iron ingots<sup>26</sup>. Blacksmiths use an anvil and a hammer to mechanically shape the product they want to make. When the iron, which becomes incandescent in the fire, is taken from the furnace, it immediately reacts with the oxygen in the air and forms an iron oxide crust on it. While the iron is forged, this crust is spread around the anvil with each hammer stroke. Some of them stay in the furnace and together with the ash, slag residues (droplets) and furnace plaster debris, form a sponge-like slag at the bottom of the furnace. Therefore, blacksmith's slags contain high amounts of iron. In fact, the analyses show that this type of slag contains 60-80% FeO<sup>27</sup>.

Analyses of 27 samples taken from slag samples collected on the surface and slag, hammer scale, iron and furnace plasters taken from the blacksmith's workshop are still ongoing and will therefore not be discussed in this article. In previous slag analyses, some unsmelted ore residues in the microstructure of the slag indicate that they are predominantly haematite. This suggests that the haematite ores formed as a result of karstification near the karstified limestones in the region were extracted and subjected to the smelting process. For this reason, the geological structure of the region and the haematite-limonite enrichment in the possible karstic spaces will be investigated, and potential sources will be determined in the coming years. Preliminary surveys have identified and sampled limonite formations in the region of Tynada, east of Seleukeia Sidera. In addition, magnetite sands, formed as a result of the alteration of ultrabasic rocks such as peridotite, were found around the village of Kapıcak, to the north of Seleukeia.

---

25 As a result of intensive surveys carried out in 41 grids measuring 10x10 meters in 2018, a total of 236,332 kg of archaeometallurgical finds were recovered from the areas. The finds were separated analogically and typologically, density maps were created for each area according to their weight, see Schenk et al., 2018, p. 68.

26 See: Yalçın, 2000 for detailed information.

27 The analyses were carried out in Ankara University YEBİM laboratory with the support of Süleyman Demirel University Scientific Research Projects Coordination Unit (SBG-2022-8741). We are thankful to Prof. Dr. Yusuf Kaan Kadioğlu and Dr. Kıymet Deniz for their support.

## **Conclusion**

As the investigation of the blacksmith workshop is still ongoing, only preliminary results were presented here, already shedding important light at the iron production activities at Seleukeia Sidera during the Late Antique period. The excavations that took place during the 2021 and 2022 campaigns at Seleukeia indicate that the unearthed workshop had several phases of use. We understand this from the different floor levels and from the hearth and anvil traces on each of these levels. The small finds recovered from these different levels provide information about the production process at the workshop and the products that were made there. These finds can be dated generally to the 4<sup>th</sup> - 6<sup>th</sup> centuries AD.

Ongoing excavations show that there are three more rooms present to the north of the workshop. Although this already suggests that the blacksmith workshop belonged to a larger complex, it is necessary to determine the dimensions of those spaces and their internal structures in order to understand their function.

Finally, within the scope of intangible cultural heritage studies at Seleukeia Sidera and its surroundings, present-day blacksmith workshops that continue to produce with traditional methods were investigated in order to understand the production activities of the blacksmith from an ethno-archaeological perspective. Such a workshop was found at Atabey, very close to the ancient city, and a second one in the centre of Isparta<sup>28</sup>. The methods appear almost the same as the ones documented at the ancient workshop at Seleukeia Sidera, except that modern technology has entered the present-day workshops. Furthermore, as the pine and juniper coals used in the past are no longer available today, high-calorie coal has replaced them as fuel. Analysis of the workspace provided important information about the mechanism and duration of the blacksmithing (?) processes in the Roman Imperial period. During the visits to the workshops, it was established that only a furnace, anvil, a simple cooling pool and various tools used for shaping the iron are sufficient for processing iron.

---

28 Both persons, who started to work in iron smithing workshop in 1968, continue their profession as masters in their own workshops today.

## Figure List

Fig. 1. Industrial Quarter of Seleukeia Sidera (by Semih Togan, Seleukeia Sidera Excavation Archive).

Fig. 2. The Iron Workshop (Lidar Scanning by Semih Togan, Seleukeia Sidera Excavation Archive).

Fig. 3. The Iron Workshop (Lidar Scanning by Semih Togan, Seleukeia Sidera Excavation Archive).

Fig. 4. Ostotheke fragment used as a pool (Seleukeia Sidera Excavation Archive).

Fig. 5. Remaining Pieces of Bloom Found in the Workshop (Seleukeia Sidera Excavation Archive).

Fig. 6. Knife Blade Found in the Workshop (Seleukeia Sidera Excavation Archive).

Fig. 7. Smithing Slags Found in the Workshop (Seleukeia Sidera Excavation Archive).

## Bibliography

### Ancient Sources

Hie. *Syn.*

Hierocles. *Synekdemos*. A. Burckhardt, (Ed.). 1893.

Strb. *Geog.*

Strabon. *Geographika: XII-XIII-XIV, Antik Anadolu Coğrafyası*. A. Pekman, (Trans.). İstanbul, 1993.

### Abbreviations

SNG Cop Pisidia (1956). *Sylloge Nummorum Graecorum, Pisidia. The Royal Collection of Coins and Medals National Museum.*

SNG Aulock Pisidiens (1964). *Sylloge Nummorum Graecorum, Deutschland, Pisidia Lycaonia, Isaura, Part 12.*

SNG France 3. (1994). *Sylloge Nummorum Graecorum. France 3. Cabinet des Médailles, Pamphylia, Pisidie, Lykaonie, Galatie.* Numismattica Ars Classica.

### Modern Sources

Baykan, D. (2013). M.Ö.1 Bin Batı Anadolu Demirciliğine Ait Yeni Veriler. In P. Ayter, Ş. Demirci, A. M. Özer (Eds.), *III.ODTÜ Arkeometri Çalıştayı: Türkiye Arkeolojisi'nde Metal: Arkeolojik ve Arkeometrik Çalışmalar*. Prof. Dr. Halet Çambel Onuruna (pp. 157-165). Odtü Yayıncılık.

- Baykan, D. (2017). Metal Buluntular ve Arkeometalürji Verileri. In M. Peker, C. Baykan & D. Baykan (Eds.), *Nif Dağı: Balıcaoluk (2008-2016) Prof. Dr. Elif Tül Tulunay Onuruna* (pp. 119-160). Homer Kitabevi.
- Cevizoğlu H., Yalçın Ü. (2012). A Blacksmith's Workshop at Klazomenia. In A. Çilingiroğlu & A. Sagona (Eds.), *Anatolian Iron Ages 7. The Proceedings of the Seventh Anatolian Iron Ages Colloquium Held at Edirne, 19-24 April 2010* (pp. 73-97). Peeters.
- Degryse, P., Muchez, P., Naud, J. & Waelkens, M. (2003). Iron production at the Roman to Byzantine city of Sagalassos: an archaeometrical case study. In *Proceedings of the International Conference on Archaeometallurgy in Europe, 24-26 September 2003 Milan, Italy* (pp. 133-42).
- Demirer, Ü. (2013). *Kibrya Metal Buluntuları* [Unpublished doctoral dissertation]. Akdeniz Üniversitesi.
- Diñç, E. Y. (2019). *Tralles Aşağı Kent Metal Üretim Atölyeleri*. [Unpublished master thesis]. Dokuz Eylül Üniversitesi.
- Eekelers, K., Degryse, P. & Muchez P. (2016). Petrographic Investigation of Smithing Slag of The Hellenistic to Byzantine City of Sagalassos (SW-Turkey). *American Mineralogist*, 101, 1072-1083.
- Ekinci H. A., Özüdoğru Ş., Dökü, F. E. (2009). Kibrya 2008 Yılı Kazıları. *Anadolu Akdenizi Arkeoloji Haberleri*, 7, 32-39.
- Gültekin, A. (2012). *Pisidia Antiokheia Antik Kenti Metal Buluntuları* [Unpublished master thesis]. Süleyman Demirel Üniversitesi.
- Hürmüzlü, B., Ayaşan, M., Hecebil, U., Sönmez, B., Köker, H., Schenk, T. & Köker-Atav, İ. (2017). Seleukeia Sidera Antik Kenti YüzeY Araştırması Sonuçları. *Anadolu Akdenizi Arkeoloji Haberleri*, 15, 233-241.
- Hürmüzlü, B., (2020). Preliminary Report on a Bone Workshop in Seleukeia Sidera. G. Yalçın & O. Stegemeier (Eds.), *Metallurgica Anatolia Ünsal Yalçın 65. Yaşgünü Armağan Kitabı* (pp. 271-274). Ege Yayınları.
- Hürmüzlü, B., Sönmez, B. & Köker-Atav, İ. (2020a). Seleukeia Sidera Antik Kenti Üretim Faaliyetleri Hakkında Ön Değerlendirmeler. In A. Mörel, G. Kaşka, H. Köker, M. Kaşka, M. Fırat & S. O. Akgönül (Eds.), *Production, Trade and Economy in Pisidia and its Surrounding Areas. International Symposium Proceeding Pisidian Studies II, 31 October – 03 November 2018 Isparta, Turkey* (pp. 140-153). Süleyman Demirel University Press.
- Hürmüzlü, B., Sönmez, B., Ergin, B. & Kai-Browne, A. (2020b). Isparta İli ve İlçeleri YüzeY Araştırması 2018 Yılı Çalışmaları. *Araştırma Sonuçları Toplantısı*, 37(1), 315-320.

- Hürmüzlü B. & Sönmez B., (2021). A New Member of the Late Roman Koiné? A New Red-Slipped Pottery Group Found at Seleukeia Sidera. *Olba*, XXIX, 349-362.
- Hürmüzlü, B., Sönmez, B., Mörel, A. & Kaşka, G. (2021). Seleukeia Sidera'da Geç Antik Dönem Hakkında Ön Sonuçlar. *Süleyman Demirel Üniversitesi Fen Edebiyat Fakültesi Sosyal Bilimler Dergisi*, 54, 339-361.
- Hürmüzlü, B., Sönmez, B., Mörel, A., Kılınç, G., & Uslu, H. (2022a). Paleo-Kuleönü Gölü Çevresi Antik Dönem Yerleşimleri. In Ç. Şenkul & B. Hürmüzlü (Eds.), *Doğal ve Kültürel Mirasın Paleo-Kuleönü Gölü'ndeki İzleri 50 Bin Yılın Öyküsü* (pp. 208-247). Süleyman Demirel Üniversitesi Yayınları.
- Hürmüzlü, B., Mörel, A., Sönmez, B., Schenk, T., Kai-Browne, A. & De Jong, L. (2022b). Seleukeia Sidera Antik Kenti 2019-2020 Yılları Kazı, Temizlik ve Jeofizik Çalışmaları. 2019-2020 Yılı Kazı Çalışmaları, 1, 343-354.
- Kızıyalçın, F. & Özcan, F. (2016). Prostanna Antik Kenti. *Süleyman Demirel Üniversitesi Sosyal Bilimler Enstitüsü Dergisi*, 23, 135-162.
- Mitchell, S. (1999). Greek Epigraphy and Social Change. A Study of the Romanization in South-West Asia Minor in the third Century A.D, *Atti del XI Congresso Internazionale di Epigrafia Greca e Latina, Roma, 18-23 Settembre 1997* (pp. 419-433). Edizioni Quasar.
- Mörel, A. (2020). Seleukeia Sidera'da Tarımsal Üretim Arkeolojik Kanıtları. In A. Mörel, G. Kaşka, H. Köker, M. Kaşka, M. Fırat & S. O. Akgönül (Eds.), *Production, Trade and Economy in Pisidia and its Surrounding Areas. International Symposium Proceeding Pisidian Studies II, 31 October – 03 November 2018 Isparta, Turkey* (pp. 50-69). Süleyman Demirel University Press.
- Nollé, J. (1995). Athena in der Shimide des Hephaistos. Militär-, wirtschafts- und socialgeschichtliche Implikationen von Münzbilder. *JNG*, 45, 51-77.
- Özcan, F., Yayan, E. & Çevik, N. (2017). Kuzey Pisidia Yüzey Araştırması 2016. *Araştırma Sonuçları Toplantısı*, 35(1), 457-470.
- Özcan, F., Çevik, N. & Yayan, E. (2018). Kuzey Pisidia Yüzey Araştırması 2017. *Araştırma Sonuçları Toplantısı*, 36(2), 73-88.
- Özcan, F., Çevik, N., Yayan, E. & Acuce, İ. (2019). Kuzey Pisidia Yüzey Araştırması 2018. *Araştırma Sonuçları Toplantısı*, 37(2), 99-124.
- Özcan, F., Şimşek, M., Yiğiteli, Ö., Acuce, İ., Topal, M. & Süzmen, A. (2022). Kuzey Pisidia Yüzey Araştırması. 2019-2020 Yılı Yüzey Araştırmaları, 437- 450.
- Özüdoğru, Ş. (2018). Geç Antik Çağ'da Kibyra. *Cedrus*, VI, 13-64.
- Özüdoğru, Ş. (2020). *Kibyra Kazı ve Araştırmaları Monografi Serisi I: Kibyra*. Arkeoloji ve Sanat.
- Özyiğit, Ö. (2005). Phokaia Çalışmaları. *Kazı Sonuçları Toplantısı*, 26(2), 43-50.

- Pitarakis, B. (1998). Mines anatoliennes exploitées par les Byzantins: recherches récentes. In *Revue numismatique, 6e série- Tome 153* (pp. 141-185). <https://doi.org/10.3406/numi.1998.2196>
- Pleiner, R. (2006). *Iron in Archaeology, Early European Blacksmiths*. Archeologický ústav.
- Poblome, J. (2006). Mixed Feelings on Greece and Asia Minor in the Third Century AD in D. In D. Malfitana, J. Poblome & J. Lund (Eds.), *Old Pottery in a New Century. Innovating Perspectives on Roman Pottery Studies, Atti del Covegno Internazionale di Studi Catania, 22-24 Aprile 2004* (pp. 189-212).
- Poblome, J., Corremans, M., Bes, P., Romanus, K. & Degryse, P. (2008). It Is Never Too Late... the Late Roman Initiation of Amphora Production in the Territory of Sagalassos. In İ. Delemen, S. Çokay-Kepçe, A. Özdizbay & Ö. Turak, (Eds.), *Euergetes. Festschrift für Prof. Dr. Haluk Abbasoğlu zum 65. Geburtstag* (pp. 1001-1012). Suna- İnan Kıraç Akdeniz Medeniyetleri Araştırma Enstitüsü.
- Poblome, J. (2015). *The Economy of the Roman World as a Complex Adaptive System. Testing the Case in Second to Fifth Century CE Sagalassos*. Éditions Latomus.
- Schenk, T., Köker-Atav, İ., Sönmez, B., Hürmüzlü, B., Tütünsatar, E., & Akaslan, M. (2018). Seleukeia Sidera Antik Kenti Yüzey Araştırmaları- 2018 Demircilik Faaliyetlerine İlişkin Veriler. *Türk Eskiçağ Bilimleri Enstitüsü Haberler*, 44, 66–72.
- Sönmez, B. (2022). *Seleukeia Sidera Antik Kenti'nde Roma İmparatorluk Dönemi Seramik Üretimi ve Ticari İlişkiler* [Unpublished doctoral dissertation]. Süleyman Demirel Üniversitesi.
- Talloe, P., Stroobants, F. & Degryse, P. (2015). Hephaistos in Pisidia: Establishing the importance of a coin type. *RBN*, 161, 325–342.
- Tütüncü, E. & Köker, H. (2022). Sikkeler Işığında Klaudio Seleukeia 'Sidera'. In Ç. Şenkul & B. Hürmüzlü (Eds.), *Doğal ve Kültürel Mirasın Paleo- Kuleönü Gölü'ndeki İzleri: 50 Bin Yıllık Öyküsü* (pp. 249 – 262). Süleyman Demirel Üniversitesi.
- Waelkens, M. & Jacobs, I. (2014). Sagalassos in the Theodosian Period. In Jacobs, I. (Ed.), *Production and Prosperity in the Theodosian Age*. Peeters Publishers.
- Waelkens, M., Paulissen, E., Vanhaverbeke, H., Öztürk, İ., De Cupere, B., Ekinci, H. A., Vermeersch, P. M., Poblome, J. & Degeest, R. (1997). The 1994 and 1995 Surveys in the Territory of Sagalassos. In M. Waelkens and J. Poblome (Eds.), *Sagalassos IV: Report on the Survey and Excavation Campaigns of 1994 and 1995* (pp. 11–102). Leuven University Press.
- Yalçın, Ü. & Özyiğit, Ö. (2013). Die Schmiedewerkstatt aus Phokaia: Ein Kurzbericht. In Ü. Yalçın (Ed.) *Anatolian Metal VI, Der Anschnitt, Beiheft 25* (pp. 239-246).
- Yalçın, Ü. (2000). *Zur Technologie der frühen Eisenverhüttung. Arbeits- und Forschungsberichte zur sächsischen Bodendenkmalpflege* 42, 307–316.

## Tracing Early Christianity with Ground Penetrating Radar: The Case of The Transept Basilica at Seleukeia Sidera

*Erken Hristiyanlığın İzini Yer Radarı ile Sürmek:  
Seleukeia Sidera'dan Bir Transept Bazilika Örneği*

Hatice Evrim Tütünsatar\* – Peter Talloen\*\* – Bilge Hürmüzlü\*\*\*

Aziz Paulus'un misyonerlik gezileri sırasında Seleukeia Sidera'ya ilk defa bir piskoposun atanması, kentte Hristiyanlığın ve dolayısı ile de kilise faaliyetlerinin başladığına işaret eden önemli bir kanıt olarak karşımıza çıkmaktadır. Konsillerde şehri temsil eden piskoposlar tarafından tasdik edildiği ve çeşitli Hristiyan yazıtlarında bahsedildiği gibi, Pisidia'nın Geç Antik Dönemde Hristiyanlaşması göz önüne alındığında, Seleukeia Sidera'da bir veya daha fazla Erken Hristiyanlık Dönemi kilisesinin olması beklenebilir. Ancak kentin Hristiyanlık Dönemi'ne ve kiliselerin varlığına dair arkeolojik buluntular yetersiz olmakla birlikte, bu durum, kentte yapılan jeofizik prospeksiyonların sağladığı kanıtlar sayesinde değişmiştir. 2017 yılından beri kentte gerçekleştirilen jeofizik ölçümler, toprak altında kalmış ve izleri gözle görülmeyen birçok yapıyı ortaya çıkardığı gibi kilise kalıntılarının varlığını da ortaya çıkarmıştır. Bu bölüm, Seleukeia Sidera'daki 2017 ve 2018 yıllarında gerçekleştirilen jeofizik ölçümleri ile tespit edilen (Schenk, 2020) bir bazilikanın sonuçlarını sunmaktadır. Çalışma kapsamında, kentte ilk yerleşim yeri olan Hisar Tepe'nin güneydoğusunda yer alan tarım arazisinde, arkeolojik alanlarda en sık tercih edilen Jeofizik yöntemlerden biri olan Yer Radarı (GPR) yöntemi ile 219 profil ölçüm gerçekleştirilmiştir.

Araştırmada kullanılan GPR yöntemi, toprak altında saklı kalmış antik yapıların mimari detaylarını tahribatsız bir şekilde yüksek çözünürlüklü olarak belirlemek mümkün olmaktadır. Bu amaçla, veri işlem aşamalarının doğru uygulanması önemlidir. Çalışmada araziden elde edilen ham verilere bir gürültü giderme işlemi olan bant geçişli süzgeç uygulaması; gerekli enerji penetrasyon derinliği ve istenen çözünürlük gibi veri toplama parametreleri için hiperbol çakıştırma (0,08-0,15 m/ns arasındaki hızlar) kullanılarak hız hesaplanmıştır. Kaydedilen radar izlerinin doğru konumlandırılması, arka plan gürültüsünün giderilmesi ve istenen frekansların filtrelenmesi için gerekli olan bu veri işlemlerinden sonra, zaman-derinlik dönüşümü uygulanarak verilerin daha anlam-

\* Isparta University of Applied Sciences, Gönen Vocational School, Cultural Heritage and Tourism Program, 32090 Isparta/TR, evrimtutunsatar@isparta.edu.tr, ORCID: 0000-0002-0712-3164.

\*\* Bilkent University, Faculty of Humanities and Letters, Department of Archaeology, 06800 Ankara/TR, petertalloen@gmail.com, ORCID: 0000-0001-9644-3073.

\*\*\* Süleyman Demirel University, Faculty of Arts & Sciences, Department of Archaeology, 32600 Isparta/TR, bilgehurmuzlu@gmail.com, ORCID: 0000-0002-3676-7436.

lı bir şekilde görselleştirilmesi sağlanmıştır. Sonuç olarak, elde edilen verilere veri işlem teknikleri uygulanarak bir transept bazilika mimari planı ortaya çıkarılmıştır. Çalışmada, GPR izlerinden elde edilen plan kullanılarak Transept bazilikanın örnek bir 3D rekonstrüksiyonu üretilmiştir.

GPR sonuçlarına göre kilisenin planı incelendiğinde, doğuda yarım daire biçimli bir apsis ile doğu-batı eksenli, üç nefli; kuzey ve güney neften biraz daha geniş olan kuzeye ve güneye uzanan kolları ile Erken Hristiyanlık Dönemi kilise mimarisindeki transept bazilika planına uygun olduğu tespit edilmiştir. 2021 yılı çalışmaları sırasında içerisine bazilikayı da alan ve tarım için kullanılarak düzenli olarak sürülen arazide 1800 m<sup>2</sup>'lik bir alanda yoğun bir arkeolojik yüzey araştırması gerçekleştirilmiştir. Araştırma alanında yoğun miktarda seramik parçaları, mermer, harç, tuğla ve kiremit parçaları ele geçmiş ve tarlanın sınırları boyunca mevcut olan birkaç kireçtaşı kesme taş bloğu saptanmıştır. Yoğun yüzey araştırmasının amacı, jeofizik prospeksiyon ile tespit edilen bazilikanın yapı malzeme ve tekniklerine, süslemelerine ve kronolojisine ışık tutabilecek kalıntıları belgelemek ve incelemektir. Yoğun yüzey araştırması alanı, olası transept bazilika yapısını da içine alan, her biri 2 x 10 metre boyutlarında 90 alt gridden oluşan 30 x 60 metrelik bir plankare şeklinde düzenlenmiştir. Yüzeydeki tüm görünür arkeolojik buluntuların belirli bir zaman çerçevesi içinde ve birbirinden eşit aralıklar ile sistematik olarak toplanmasını içeren araştırma sırasında alanda seramikler dışında mimari terrakottalar, harç, cam, tessera, opus sectile parçaları, taş mimari parçalar, kemikler ve az miktarda demir çürüfleri de tespit edilmiştir.

Araziden toplanan tarihlendirilebilir seramik parçaları arasında en baskın grubu Geç Roma İmparatorluk Dönemine ait örnekler oluşturmaktadır. Seramik malzemelerin yanı sıra bema parçaları, bir sütun kaidesinin bir kısmı ve mermer bir sütun gibi öğelerden oluşan mimari parçalar tespit edilmiştir. Yapıda kullanılan mermerin Dokymaion'dan ithal edildiği düşünülmektedir. Alandan beş adet opus sectile parçası da ele geçmiştir. Bunlardan biri sekizgen, biri altı köşeli yıldız ve üçü altıgen şeklindedir. Alanın çevresinde çiftçiler tarafından tarla sınırı olarak konulmuş olan kireçtaşı yapı blokları da incelenmiştir. Bunların, bir eksedranın bir kısmı, bir kapı eşiği, bir korniş bloğu ve bir plaster sütun kaidesinin parçaları olduğu tespit edilmiştir. Bu büyük boyutlu yapı bloklarının bazilika yapısına ait oldukları düşünülmektedir.

Sonuç olarak çalışma kapsamında GPR sonuçlarını temel alan değerlendirilmede, yoğun yüzey araştırması ile toplanan arkeolojik buluntular da göz önünde tutularak Seleukeia Sidera'daki transept bazilika, Pisidia ve çevresindeki diğer bazilika planlı kiliseler ile karşılaştırılmıştır. Bu bağlamda kentin Hristiyanlaşması Dönemine ilişkin veriler de arkeolojik araştırmalar çerçevesinde değerlendirilmiştir. Çalışma neticesinde, Seleukeia Sidera'da toprak altında transept planlı bir Erken Hristiyanlık Dönemi kilisesinin varlığı tespit edilmiştir. Ayrıca, MS 5. yüzyılın sonlarından 6. yüzyılın başlarına kadar güneybatı

Anadolu'da yaygın olan yapılar ile benzer olduğu sonucuna varılmıştır. Bu bulgu, Seleukeia Sidera'nın Pisidia Bölgesi'nin Hristiyanlık tarihindeki önemini ve bölgenin dini faaliyetlerine katkısını vurgulamaktadır. Jeofizik yöntemler, arkeologların ve tarihçilerin toprak altındaki yapıları, yapıya hasar vermeden ortaya çıkarmada, etkin bir şekilde incelemelerinde ve daha geniş bir alanda araştırma yapmalarında avantaj sağlamaktadır. Bu araştırma, toprak altında yer alan bir kilisenin tespitinde arkeolojik yüzey araştırmalarının yanı sıra, jeofizik prospeksiyonun da katkısını gösterir vurgulamayı amaçlamaktadır.

## Introduction

It is known from both literary and epigraphic sources that Seleukeia Sidera was an important Christian episcopal centre in Antiquity (Kaşka, 2019). Christianity in the region of Pisidia began with Saint Paul's journey from Pamphylian Perge to Pisidian Antioch during his first missionary trip in 45-49 AD (Talloen, 2015, p. 200). According to the acts of Saint Paul, he must have passed through many Pisidian cities on this journey (Taşlıalan, 1991; Talloen, 2015). What is more, the saint is held to have appointed Artemon as the first bishop of Seleukeia Sidera on this trip<sup>4</sup>. In view of the Late Antique Christianization of the city, as attested by the bishops representing the city at the Ecumenical councils and mentioned in several Christian inscriptions, one or more Early Christian churches are to be expected at Seleukeia Sidera. Yet, no traces of churches could be documented through archaeological survey. This situation has now changed through the geophysical prospection of the lower city.

The survey area discussed in this paper is located in the southeast part of the lower city of Seleukeia Sidera at Bayat (Pl. 2: 10; Fig. 1). As part of the Isparta Archaeological Survey (IAS) archaeological extensive and intensive surveys were conducted in 2008, 2014, 2016-2018 at Seleukeia Sidera and in its surroundings under the direction of Bilge Hürmüzlü (Süleyman Demirel University). Geophysical research, commencing with a geomagnetic prospection of the urban area, has been conducted as the part of a scientific cooperation between SDU and Hochschule für Technik und Wirtschaft Berlin (HTW) since 2016<sup>5</sup>. This geomagnetic prospection covered an area of approx. 37.86 hectares between the years 2016 and 2020<sup>6</sup>. In 2017, the geophysical research also came to include ground-penetrating radar (GPR) measurements, which have continued ever since<sup>7</sup>. This geophysical research revealed that the original settlement on

---

4 Le Quien vol. I, col. 1053; Talloen & Prodanova, 2021.

5 See, in this volume, Schenk, Results of Geomagnetic Surveys and Evidence for Forging Activities in Seleukeia Sidera.

6 Schenk et al., 2019: 106; Hürmüzlü et al., 2019, p. 67; Schenk, 2020, pp. 155-156; Tütünsatar et al., 2020.

7 In 2017, the first GPR measurements for the research area were performed under by the team of HTW Berlin (Thomas Schenk, Jona Schlegel) and Hatice Evrim Tütünsatar (SDU). In 2018, some additional and repeated profiles were measured by Tütünsatar with the same

top of Hisar Tepe expanded into the plain below during the Roman Imperial period and continued as a flourishing urban centre into Late Antiquity<sup>8</sup>. Among the remnants of several public buildings to the south and east of Hisar Tepe, they revealed the presence of a church (Pl. 2: 10) near the former *Macellum* (Pl. 2: 7; Fig. 2; Schenk et al., 2019; Hürmüzlü et al., 2022, p. 214). It is very similar in plan to that of a transept basilica in Early Christian church architecture, with its extending arms - barely wider than the nave - to the north and south, and a semi-circular apse to the east of the main building (Krautheimer, 1969). The approximate dimensions of the basilica obtained by this geomagnetic survey are 39 m long (east-west) and 28-30 m wide (north-south) (Schenk et al., 2019, p. 111; Schenk, 2020, p. 157).

---

device. The GPR survey has been continued by the SDU Earthquake and Geotechnical Research Center since 2020. The team of SDU has performed a combined geophysical and archaeological survey of the site. For this study, GPR radargrams collected in 2017 and 2018 campaigns were re-analysed with new filter properties. The authors are thankful to Thomas Schenk and his team for his generous data share and fruitful discussions in 2017 and 2018. We are also thankful Prof. Dr. Thomas Schenk and his team for providing the GPR device, as well as sharing the valuable interpretations of the magnetic and GPR results and the fruitful discussions. All GPR data were processed by using GPR- Slice Software; for this we would like to thank the Earthquake and Geotechnical Research Center of the Süleyman Demirel University (Prof. Dr. Çağlayan Balkaya and Dr. Olcay Çakmak).

- 8 Earlier research revealed that the city was originally built on the hill of Hisar Tepe, surrounded by a fortification wall (Pl. 2: 1) (Hürmüzlü, 2015, p. 170). The settlement was expanded during the Roman Imperial period, encompassing the plains around the hill (Bingöl, 2012; Hürmüzlü et al., 2016a, p. 206; Hürmüzlü et al., 2017, p. 233; Hürmüzlü et al., 2019, p. 83; Hürmüzlü et al., 2022) (Fig. 2). Since the territory of the ancient city was inhabited since the Early Bronze Age (Özsait, 1986, p. 326; Hürmüzlü et al., 2020), it is possible that some structures in the area overlap or that the centres of the settlement period may have shifted. Currently, the majority of the site consists of small-scale plots of arable land, including poorly ploughed or neglected areas covered by grass. Some standing remnants of ancient buildings (Pl. 2: 1, 2 and 6).



Fig. 1

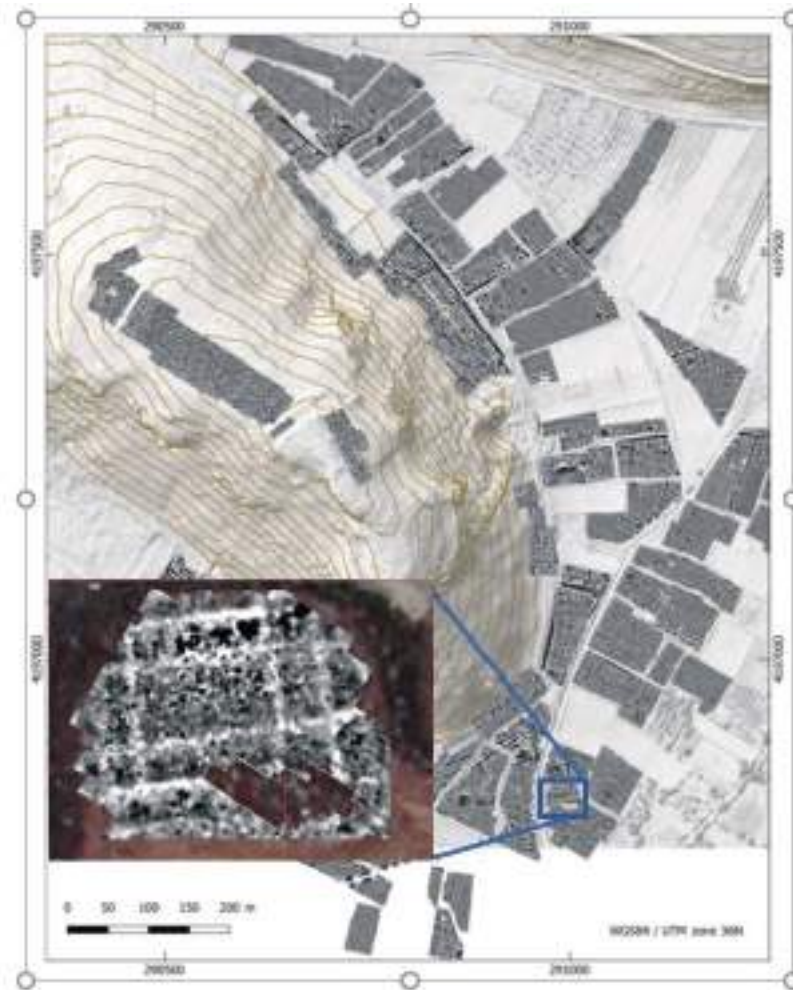


Fig. 2

Basilica planned structures had been built for at least five centuries before they were used as churches (Yegül, 1992, pp. 373 – 375). The Early Christian Basilica<sup>9</sup>, both in function and design, started to be built in the early 4<sup>th</sup> century (Krautheimer, 1984, pp. 21 – 26). With the growth of the Christian community, the former houses churches could no longer accommodate the faithful and a new form of cult building was needed for Eucharistic celebrations and other rites; thus, the Early Christian Basilica arose. It is essentially an east-west oriented rectangular hall with two (occasionally four) longitudinal internal colonnades dividing the space into a central nave and two (or four) side aisles. The Early Christian Basilica focuses on its apse as the holiest part of the church, located at the eastern end of the central nave. Additionally, there were some basilicas with transepts or transverse aisles between the nave and the apse

---

9 For details on the Christian Basilica see: Sear, 1998; Krautheimer, 1984; White, 1990; Marconi, 2014; Yegül & Favro, 2019.

(Ward-Perkins, 1954, p. 78). The transept is located in front of the apse in the north-south direction and includes the bema and altar where the rituals of the Eucharist and sometimes sermons are performed. It is common for transept arms to extend beyond the north and south borders of the main hall. Transept basilicas appeared around the middle of the 4th century and started to be more common in Early Christian architecture in the 6th century<sup>10</sup>. According to Richard Krautheimer (1942, pp. 4 – 5, Fig. 3), there are three main types of transept structures. The first type is an undivided transept where the transept between the apse and the nave is not divided by any architectural element. The second is a three-part transept where the rows of the transept are divided into units by colonnades, which might carry either an architrave or a series of arches. The last one is the cross transept where the lateral aisles verge on transept arms.

In order to get more detailed information on this transept basilica, as a more exceptional type of Early Christian church architecture, in terms of its architectural plan, construction materials and techniques, and chronology, an additional survey with Ground Penetration Radar was conducted in 2017 and 2018 (Schenk, 2020), followed by an intensive archaeological survey of the site in 2021. After shortly introducing the different methods, this paper will present the results of these surveys in order to reconstruct the plan, construction materials and chronology of the basilica and then try to situate it in the late antique church architecture of southwestern Anatolia.

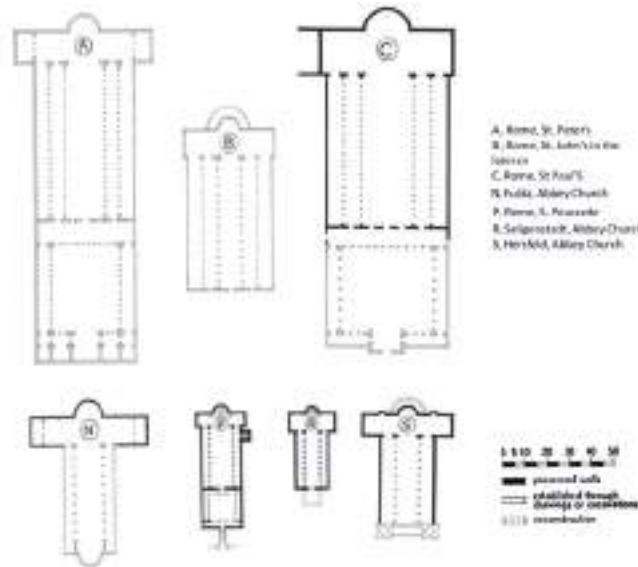


Fig. 3

10 For the history of the transept basilicas see Ward-Perkins, 1954; Krautheimer, 1969 and 1984; Balderstone, 2004 and 2007; Ceylan & Erdoğan, 2015, p. 353.

## Results of the Surveys

### GPR survey of the Transept Basilica

Archaeological structures produce different reflections of radar waves depending on the structure type and its contrast with surrounding sediments<sup>11</sup>. The aim of the GPR survey was to evaluate the unknown depth and level of preservation of the remains thought to belong to a transept basilica, based on the results of the aforementioned magnetic prospection. Previous GPR surveys of structures and churches with a basilica plan were considered in detail, together with the plans of (excavated) remains of basilicas in order to obtain an accurate interpretation of the GPR results<sup>12</sup>. Before starting the measurements, plants and small stones were removed. However, some parts of the area, where large amounts of stone were piled up, could not be measured (Fig. 4).

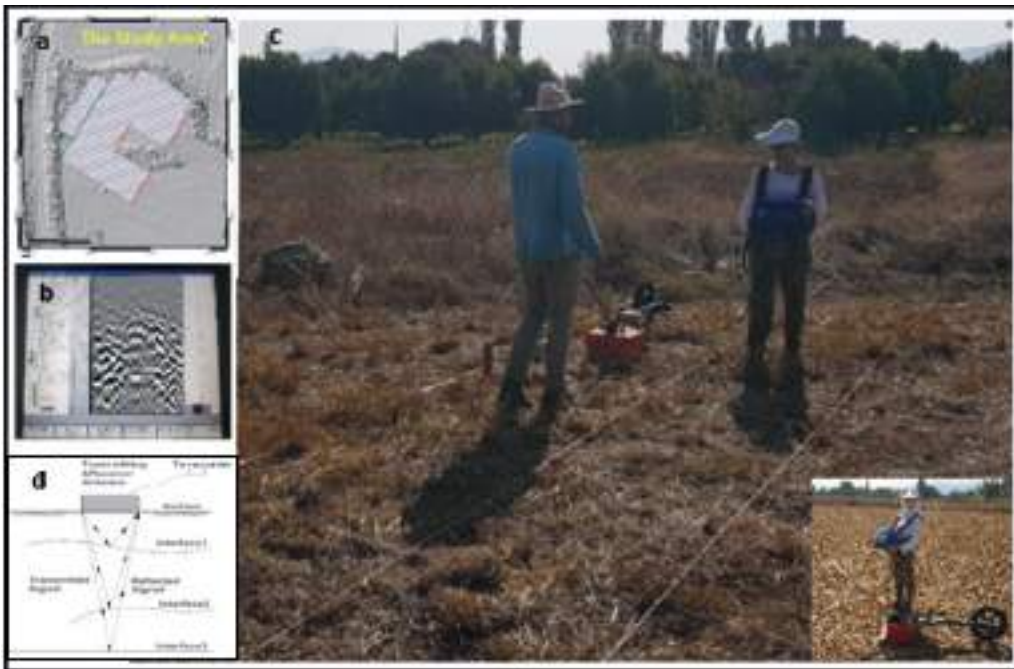


Fig. 4

The design and geo-referencing of measurement grids in the field were made with the differential GPS Leica 900 in the WGS84 / UTM36 coordinate system. Firstly, a small area in the field was measured for the calibration of the device in order to test the method, the dielectric constant and the signal. Secondly, the field was staked out with the DGPS system, after which the profiles were

---

11 See, in this volume, Balkaya et al., *Archaeo-geophysical Investigations at Seleukeia Sidera*.  
12 For some previous GPR surveys for churches: Chávez et al., 2005; Becker, 2009; Cardarelli & Filippo 2009; Imposa et al., 2009; Boschi, 2011; Sala et al., 2012; Haynes et al., 2013; Hulin et al., 2017; Balkaya et al., 2018; Fauchard et al., 2018.

marked with tapes and ropes at a distance of 25 cm, and then the odometer was calibrated to adapt it to the field and the topographical movement. Finally, traces and square grids, which consisted of many reflective profiles, were recorded as data. GPR measurements were conducted through 219 profiles, along parallel lines spaced by 25 cm, in a total of 8 sub-areas in 2017 and 2018. The last 52 profiles consisted of some re-measurement and a little addition to the northeast of the survey area. Reflection profiles are sliced, formed parallel to the floor surface. For the initial observation, only gain processing was applied to the radargrams; then, data processing analysis was applied for a detailed interpretation. GPR data were processed and depth slice amplitude maps were produced via GPR-SLICE software. Fig. 5 represents an example of a radargram of 20 slices with 20% overlapping (GPR section) delineated by a series of vertical GPR traces of reflected signals along with the profiles according to discontinuities through the subsoil. Time slices consisting of radargrams are generated to visualize the amplitudes of GPR traces at several depths and the anomalies, marked with yellow lines, represent the points with a contrast in the dielectric constants.

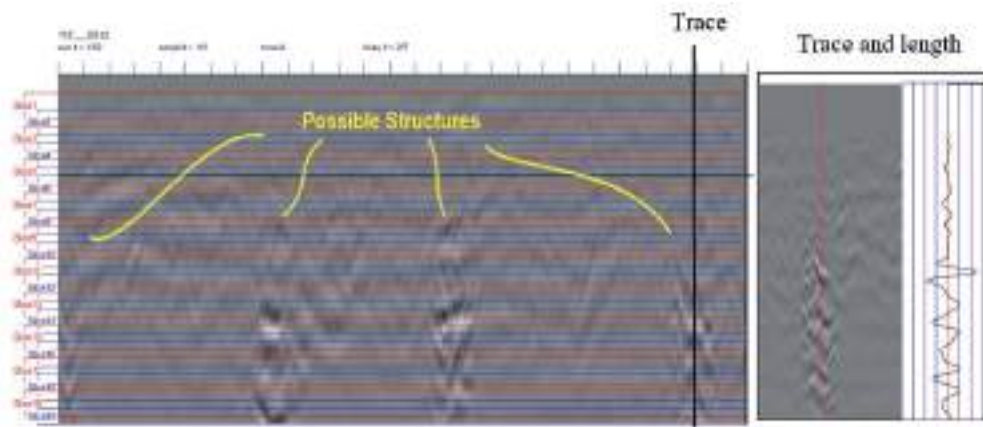


Fig. 5

After this survey, several data process stages were applied to the data. For the first step, the raw data was edited line by line and the velocity was calculated using hyperbola fitting (i.e., the velocities between 0.08-0.15 m/ns) for data acquisition parameters such as the depth of energy penetration necessary and resolution desired. The tabular velocity value for limestone has a range between 0.09 m/ns to 0.15 m/ns (OYO 1988; Reynolds, 1997; Annan, 2001; Mount & Comas, 2014; Zieliński, et al., 2016). Secondly, time-zero correction to place recorded radar pulse samples in their correct vertical position, background removal to remove banding noises seen across the radargrams, bandpass filter (Vertical High Pass Filter:200 MHz and Vertical Low Pass Filter: 800 MHz) were applied to the data so that the selected frequencies are removed from the radar waves. In the third step, the gain parameters were chosen for the radargrams. The selection of gain parameters that are numerical values changes the intensity or amplitude of the recorded waves. Migration, which is a geophysical signal

processing filter to remove hyperbolas in the data, was applied. Migration is an important process to obtain the most correct estimation of depth as it moves the radar reflections to a more correct place in a radargram by using the information of the velocity value. The proper migration is applied to the data (Fig. 6). For the last step, the time-depth conversion was applied. Fig. 7 shows the 2D- and 3D- solid volume images at the depth of 80 cm with the radargram of profiles as examples for the field. The traces of possible structures are coloured in black. Reflection profiles were placed on the grid at intervals of 25 cm. The x-axis represents the distance of profiles with the antenna on the surface, whereas the y-axis represents the time range for the measurement. The depth of the structure is estimated from an average velocity of the signals' reflections into the subsoil. The profiles are sliced into 4 ns slices, about 20 cm in thickness, formed parallel to the surface. Time-sections were created from the obtained radargrams for each profile and visualized. The amplitude time slices created parallel to the surface show the outline of the basilica in the top 40-60 cm of the subsurface (Fig. 8).

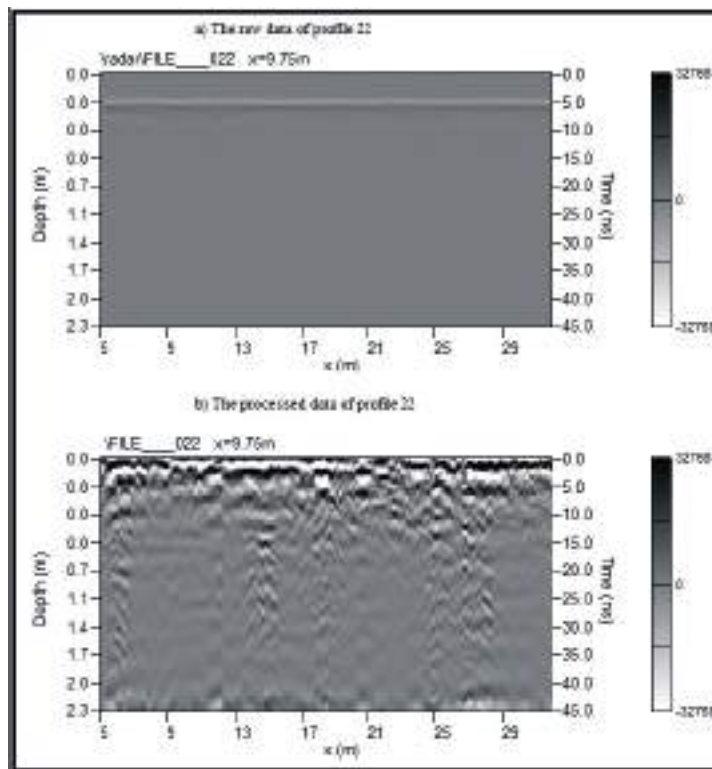


Fig. 6

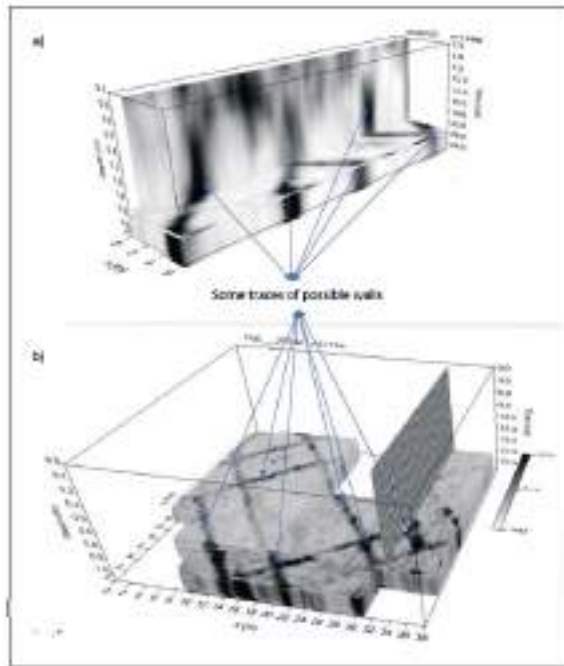


Fig. 7

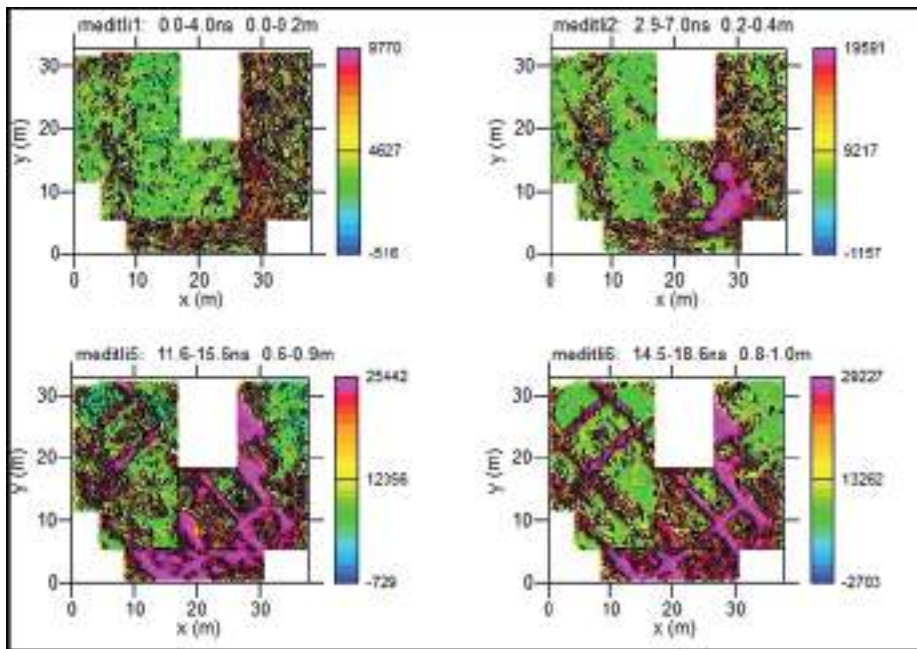


Fig. 8

Fig. 9 shows the 60 cm – 1 m depth layer, in which the structure can be identified easily; the relatively shallow depth suggests that we're dealing with the foundations of the building. The lengths and widths of the presumable

foundation walls, as well as the whole structure, can be measured from the obtained plan. The overall structure, with exterior walls approximately 1.00 m thick, has a rectangular form (39 m x 32 m) with an east-west orientation and is composed of five components. The central hall (n° 1) has three internal divisions, seemingly divided by a continuous wall (0.80 m wide) carrying round elements – perhaps columns (0.70 m in diameter); these three parts measure 19.2 m x 4.4 m for the north part, 19.3 m x 10.4 m for the central part, and ca. 19.2 m x 4.4 m for the south part. On the east side of the central hall is a transverse hall (n° 2) with a width of 5.6 m and an estimated length of 25.8 m, again with three internal divisions along the same lines as those of the central hall: the central part measures 5.6 m x 10.4 m and the northern part 5.6 m x 7 m, thus extending ca. 1.8 m beyond the line of the north wall of central hall; the length of the south part (with the width of 6 m) could not be determined due to the presence of a large pile of rubble on the surface. There is a semi-circular extension (n° 3) on the east side of the central part of this transverse hall, with a diameter (north-south) of 10.4 m and a length (east-west) of 6 m. To the west of the central hall, there is a rectangular space (n° 4) with a width of 4.1 m and a length that appears to correspond to the width of the hall (ca. 21.2 m). It is internally divided into three parts, corresponding to the divisions of the central hall, with which they appear to be connected through three door openings in the west wall of the hall. The central door opening measures ca. 2.5 m, while the side doors have a width of ca. 1.2 m. Finally, traces of unclear structure (n° 5) measuring 16 m x 5 m, can be seen at the southwestern end of the building.

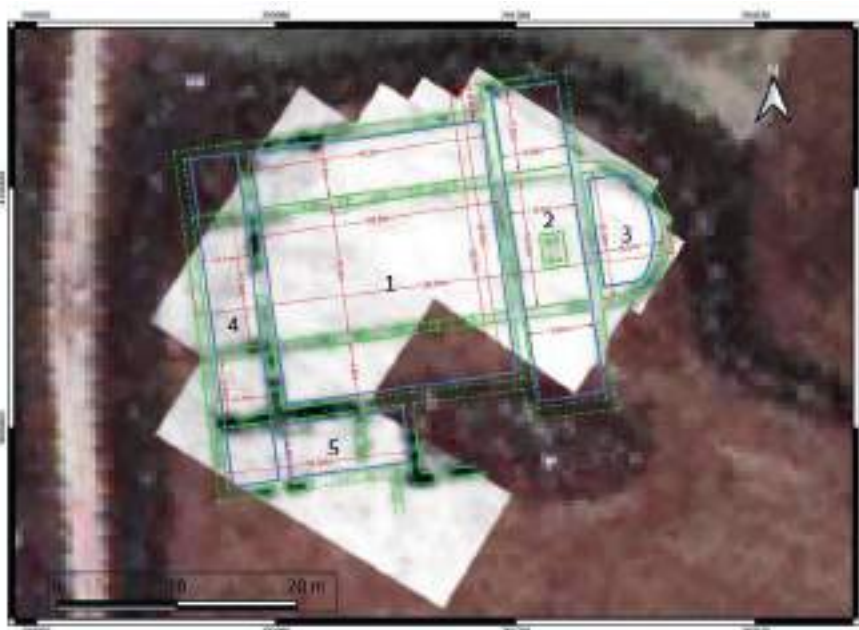


Fig. 9

These building traces revealed by the GPR survey are compatible with the plan of a tripartite basilica, with a transept (n° 2) located between the central hall or *naos* (n° 1) and the apse (n° 3) at the east end, and preceded by a vestibule or *narthex* (n° 4) to the west; the structures (n° 5) in the southwest part of the complex can perhaps be identified as an annex (Fig. 9 and 10). The side aisles of the *naos* (4.4 - 5 m) are typically narrower than the nave (9.8 m), with each part accessible from the *narthex* through its own entrance. Judging by the circular signals on the line between the central and southern part of *naos*, the aisles are separated from the nave not by walls but by a series of five columns (or pillars) set ca. 3 m apart between the west and east wall of the hall where engaged columns (or pillars) formed the extremities of the colonnade; the (slightly lighter coloured) line itself would then represent the stylobate of this colonnade. The plan of the transept is seemingly tripartite which would suggest that we are dealing with here type 2 of Krautheimer's typology, the tripartite transept. Yet, the exact nature of the superstructure, such as the presence of columns and arches, is not clear. Therefore, also a continuous transept cannot be excluded; the tripartite plan would then simply be due to the presence of an enclosed *bema* in the central part of the transept (see below) rather than reflecting any division of the transept itself. The limited extension of the transept arms (only 1.8 m) beyond the line of the north (and south) wall, together with the relatively narrow width of the transept, rules out a continuation of the side aisle in the arms of the transept, which is the defining characteristic of the cross transept. In the central part of the transept, traces of a rectangular structure (2.7 m long and 2.0 m wide) can be observed; it can most probably be identified as the substructure of an altar. The more articulate corners of the structure could perhaps indicate the presence of columns carrying a baldachin, as they are too thick to represent the normally slim supports of an altar table itself. This would identify the central area as the altar platform or *bema*, located between the south and north arms of the transept. The latter appear to be separated from the *bema*, although the visible dividing lines may simply represent the steps of the altar platform, not actual dividing walls. The apse to the east of the *bema* is semi-circular and extends 6 m beyond the line of the east wall of the church. The semi-circular wall of the apse has an exceptional thickness of 1.6 m compared to the rest of the exterior walls; perhaps this was in order to carry the substantial weight of a semi-dome covering the apse. The three door arrangement in the west wall of the central hall, connecting the *narthex* to the *naos*, is also clearly visible in the GPR signals. With a width of 2.5 m, the central access to the nave is typically larger than the 1.2 m wide entrances to the side aisles. The tripartite division of the *narthex*, on the other hand, is remarkable and may hint at different functions for the spaces to the north and south of the central vestibule, perhaps housing stairwells to the galleries above the *narthex* and side aisles<sup>13</sup>. The absence of clear GPR signals of a continuous wall on the west side of the vestibule suggests that the west wall of the *narthex* may have been open, for the central part at least. The

---

13 For the presence of staircases leading to galleries see Mathews, 1971.

traces of an annex consisting of several spaces on the south side of the basilica are not part of a standard plan and therefore difficult to interpret. While the western part of the annex, with a width of 5 m and a length of 16 m, can still be made out from the GPR signals, debris on the surface prevented a survey of its east side, making a plausible reconstruction of the walls in that part impossible. Against the north wall of this western annex, GPR signals indicate a 2.5 m long and 1.0 m wide structure, measurements that recall those of a tomb similar to the basilica of Tlos (Korkut, 2020, pp. 157 – 166; Fig. 11). If this assumption is correct, it would identify the annex as a funerary chapel.

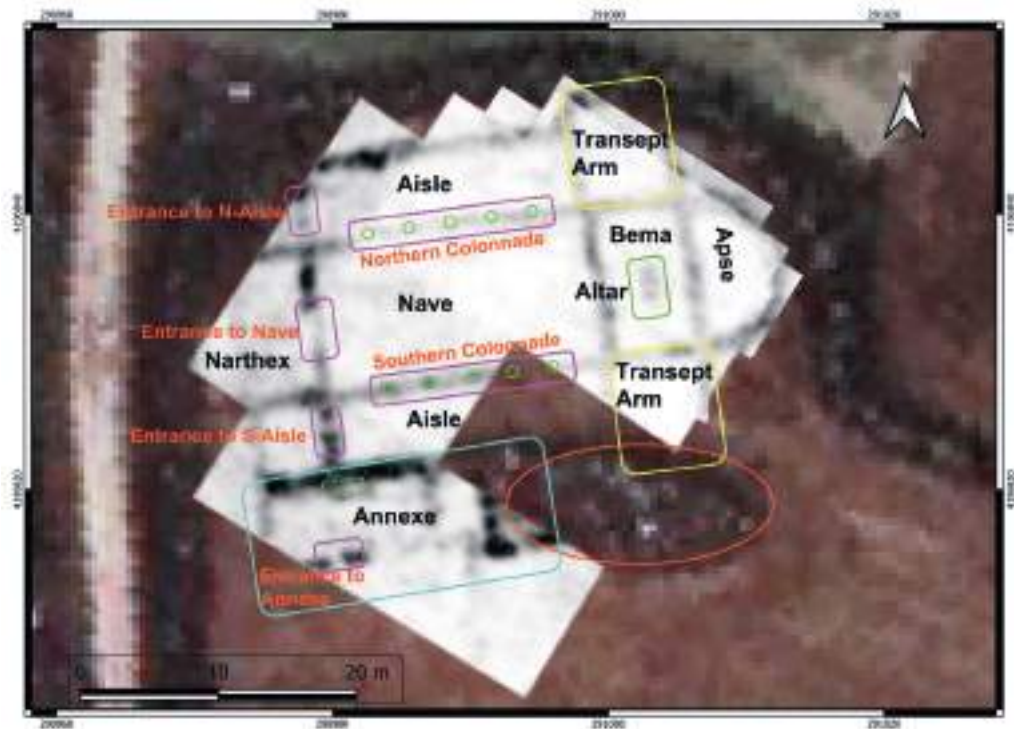


Fig. 10

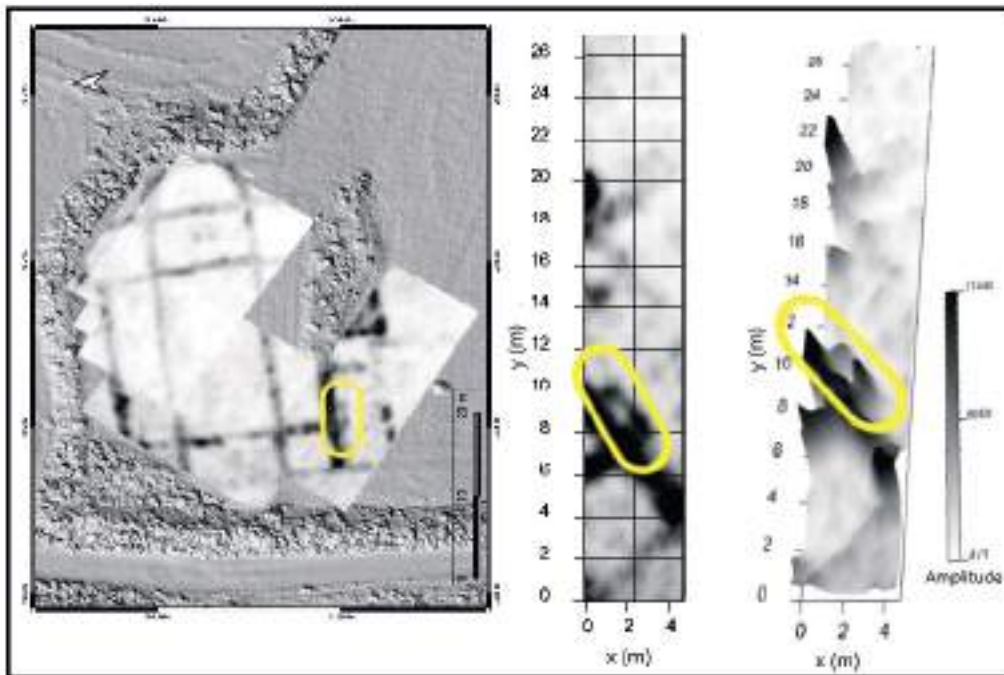


Fig. 11

### The Intensive Survey of the Basilica

An intensive archaeological survey was undertaken in the 1800 m<sup>2</sup> area covered by the GPR survey in 2021. The area is currently used for agriculture and regularly ploughed. Ploughing has littered the surface with fragments of pottery, marble, mortar, bricks, and tile fragments, as well as a couple of limestone ashlar blocks present along the borders of the field. The purpose of the survey was to document and collect remains belonging to the buried basilica that could shed light on its construction materials and techniques, its decoration, and its chronology.

The survey area was organised as a 30 by 60 m grid, consisting of 90 sub-grids measuring 2 by 10 m, without utilizing the architecture of the transept basilica revealed through geophysical results as a reference (Fig. 12). The survey methodology involved the systematic collection of all visible archaeological objects on the surface within a specific time frame and at equal intervals from one another. Other than pottery, also architectural ceramics, mortar, glass, *tesserae*, *opus sectile* pieces, stone architectural fragments, bone and a low quantity of iron slag were found.

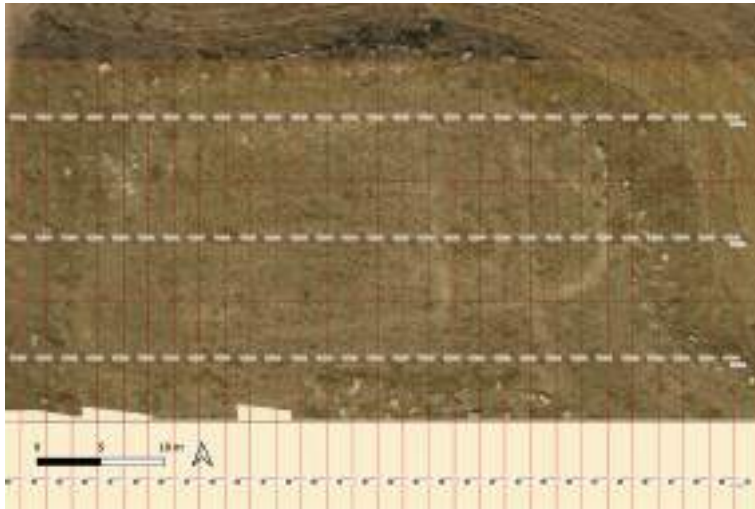


Fig. 12

The ceramic finds (#15.452 finds) included ceramic building materials (CBM) as well as pottery. The collected CBM consisted of brick (10% of all terracotta finds), roof tiles (86 %) and cover tiles (1 %). The relatively rich presence of roof and cover tiles indicate that the church was covered with a tiled roof. The bricks, on the other hand, may have been used in the walls of the basilica, but given the presence of tuff on the site and the building techniques utilized in church construction in the region<sup>14</sup>, a combined use of bricks and tuff blocks in pillars and/or arches seems more likely.

A total of 205 coarse pottery fragments (1% of the finds) were collected, along with 85 fragments of Sagalassos Red Slip Ware (SRSW)<sup>15</sup>. Additionally, four sherds of locally or regionally produced red slipped pottery, 12 fine ware fragments of non-diagnostic group, 114 sherds of cooking pots, 13 clay water pipes, and four oil lamp fragments were also collected. Among the pottery finds, 15 pieces could be dated. The majority (seven fragments) of the pottery finds belong to the Late Antique period. To be sure, the pottery cannot necessarily be connected to the use of the church given that we are dealing with surface material that has been exposed to post-depositional processes. Having said that, it can be used to indicate the chronological phases in the use of this part of the urban area. Therefore, the finds point towards Late Antiquity as the period of most intense usage of the area.

Some 28 stone *tesserae* were also found on the surface of the church. This number suggests the presence of a mosaic floor inside the basilica. Among the few glass finds (# 9) collected from the area of the basilica, seven glass tesserae

---

14 For the use of tuff in the construction of churches in the region see Talloen & Beaujean, 2015.

15 Assist. Prof. Dr. Burak Sönmez documented, classified and dated the pottery and small finds recovered during the survey. We thank him for the valuable information on the evaluation of this material.

were present, indicating the possible decoration of surfaces such as walls and/or semi-dome above the apse with glass mosaics.

The 101 architectural fragments found on the field include pieces of decoration and furniture such as parts of the *bema* screen, part of a column base and of a marble column that were probably part of a colonnade, and flooring or covering slabs in marble, some of which were imported from Dokymaion. Five pieces of *opus sectile* were found on the field (Fig. 13). One of them had an octagonal shape, one is a six-pointed star, and three of them were hexagonal. The pieces were found scattered throughout the building and can therefore not be related to any specific part of the basilica, although the *bema* floor seems likely, as was the case in the City Basilicas at Patara (Ceylan & Erdoğan, 2016) and Tlos (Korkut & Urano, 2020, p. 43), and the Bouleuterion Basilica at Sagalassos (Talloen et al., 2016, p. 125). The decorative floor patterns of these churches were dated between the second half of the 5<sup>th</sup> and the early 6<sup>th</sup> century AD. The limestone building blocks lying around the field comprise a part of the seat of an exedra, a door threshold, a corniche block, and the base of a pilaster column (Fig. 14)<sup>16</sup>. For this large-sized building material a relationship with the buried structure is likely. Figure 15 showcases an illustrative instance of a virtual 3D reconstruction of the transept basilica, derived from the plan acquired from the GPR traces. A concise demonstration of a virtual 3D reconstruction of the transept basilica has been successfully produced, utilizing the plan derived from the GPR traces (Fig. 15).

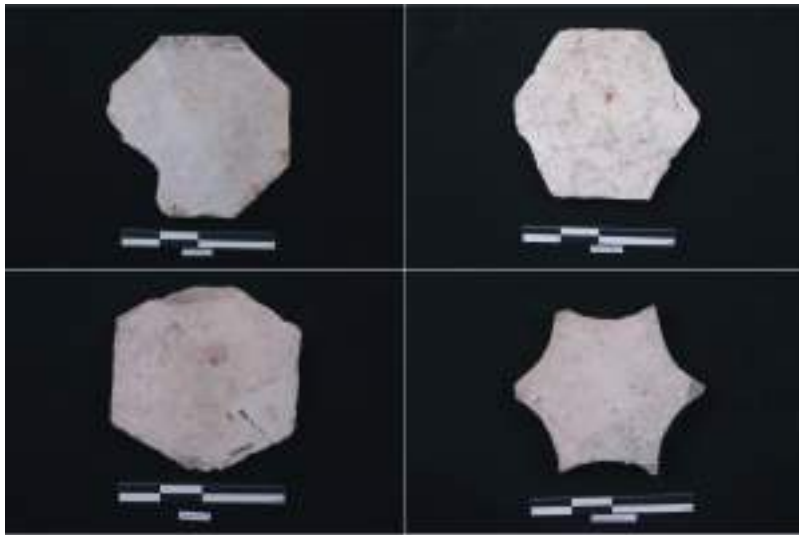


Fig. 13

---

16 Assoc. Prof. Ahmet Mörel kindly helped with the survey and interpretation of the architectural fragments.



Fig. 14



Fig. 15

## Discussion: Transept Basilicas in Southwestern Anatolia

Although it is a more exceptional form of basilica, the transept basilica appears to have been quite popular in southwestern Anatolia, with several known examples in Pisidia, Pamphylia and Lykia. Most of these, however, belong to the (abbreviated) cross transept type, with an internal division. This is the case for the transept Basilica E1 at Sagalassos, Basilica A at Perge, the Episcopal church at Olympos, the City Basilica at Patara, and the City Basilica at Tlos<sup>17</sup>.

In Sagalassos, however, there is a second transept basilica – designated Basilica E – built in the former sanctuary of Apollo Klarios, which is the result of the *in situ* conversion of the 1<sup>st</sup> century AD peripteral Ionic temple into an early Christian transept basilica (Talloen & Vercauteren, 2011, pp. 368 – 370; Talloen, 2019, p. 190). Measuring 17 m x 6 m, its transept too only extended slightly (1.4 m) beyond the northern and southern borders of the tripartite *naos* and was inserted near the eastern end of the basilica that was formed by a polygonal apse (Talloen & Vercauteren, 2011, p. 369). The *bema* again occupied the complete central part of the transept, creating a ‘tripartite’ transverse hall, exactly like the transept basilica at Seleukeia Sidera. Basilica E at Sagalassos thus provides the closest parallel for the transept basilica at Seleukeia Sidera, and given the close ties between these neighbouring cities, it seems plausible that these building projects were somehow related. The excavations in several parts of Basilica E indicate a date in the second half of the 5<sup>th</sup> or early 6<sup>th</sup> century AD for its construction, a date that would also fit the chronological indications for the transept basilica at Seleukeia Sidera.

## Conclusion

Thanks to the clear results of the GPR survey, as a follow-up of an earlier geomagnetic prospection of the area, it is obvious that the foundations of an Early Christian Basilica lay buried below the surface in the southeast part of the lower city of Seleukeia Sidera. On the basis of its plan, the large church could be identified as a transept basilica, a type that was particularly common in southwestern Anatolia, especially during the late 5<sup>th</sup> – early 6<sup>th</sup> century AD. The short transept arms, extending barely beyond the outer walls of the aisles, are a feature shared with Basilica E at the neighbouring city of Sagalassos.

The intensive archaeological survey of the site provided additional information, especially on the construction materials and techniques used in

---

17 For Basilica E1 at Sagalassos, dated to the second half of the 5<sup>th</sup> or early 6<sup>th</sup> century AD see: Talloen & Vercauteren, 2011, p. 366; Talloen, 2019, pp. 190 – 192; for Basilica A at Perge see: Grossmann, 2008, p. 102 and Ceylan & Erdoğan, 2015; for the Episcopal Church at Olympos see Evcim & Öztaşkın, 2019, pp. 134 – 136; for the City Basilica at Patara, dated to the second half of the 5<sup>th</sup> century, see: Ceylan & Erdoğan, 2016; for the City Basilica at Tlos see: Korkut & Urano, 2020.

the building: we see a monumental basilica built with (reused) limestone blocks, interior colonnades carrying arcades of bricks and tuff blocks, a roof covered with terracotta tiles, floors and walls clad with marble slabs, *opus sectile* and mosaics, and liturgical furniture made of marble. This opulent architecture and decoration befit a church in the monumental centre of the city and demonstrates the economic capabilities of the community responsible for its creation.

### **Acknowledgments**

The Seleukeia Sidera excavations and surveys financial support was generously provided by the Süleyman Demirel University, the Turkish Historical Society, the Gerda Henkel Foundation (Germany), and HTW. We would also like to thank Prof. Dr. Thomas Schenk and his team for providing the GPR device, as well as sharing the valuable interpretations of the magnetic and GPR results. Assoc. Prof. Ahmet Mörel and Assist. Prof. Burak Sönmez and other team members (Hilal Uslu, Gurbet Kılınç, Fatma Nur Güner, Berke Çilbir, Mustafa Sarışahin and students of SDÜ Faculty of Architecture) kindly helped us with the archaeological survey and the interpretation of the finds. All GPR data were processed by using GPR- Slice Software; for this we would like to thank the Earthquake and Geotechnical Research Center of the Süleyman Demirel University (Prof. Dr. Çağlayan Balkaya and Dr. Olcay Çakmak).

### **Figure List**

Fig. 1. Aerial view of Seleukeia Sidera with the Location of the Survey Area (inside the blue rectangle) to the Southeast of Hisar Tepe. (Seleukeia Sidera Excavation Archive).

Fig. 2. Map of Seleukeia Sidera with the Results of the Geomagnetic Measurements in 2017-2018 (Schenk, 2020, p. 162). The Blue Rectangle Represents the Study Area.

Fig. 3. Comparative Chart with Different Types of Transept Basilicas (Krautheimer, 1942, Chart).

Fig. 4. a) The Area Covered by the GPR Survey; b) Temporary Gained Traces of GPR During Measurement on the Screen; c) GPR Profiles During Measurement with a GSSI SIR-3000 Control System and 400 MHz antennas; d) An Example of GPR Signal Travel Under the Surface During the Measurement. (by H. E. Tütünsatar).

Fig. 5. A Radargram with the Example of Time Slice Thickness (20 slices with 20% overlapping) and the Trace Example of a Possible Structure. The Most Distinctive Reflections of the Radargram Represent the Traces of Possible Structures. (by H. E. Tütünsatar).

Fig. 6. The Comparison of a Raw and a Processed Radargram: a) The Raw Radargram of Profile 22; b) The Processed Radargram of Profile 22. (by H. E. Tütünsatar).

Fig. 7. a) The Transparent 2D Image of Profile 22 with Solid Volume Images of 22 Profiles; b) The 2D Image 80 cm Beneath the Surface (z: 0.8 m). The x-axis Represents the Distance of Profiles with the Antenna on the Surface, Whereas the y-axis Represents the Time Range for the Measurement, and the z-axis Represents the Depth. (by H. E. Tütünsatar).

Fig. 8. 2D Time-depth Slice Maps Created with the Amplitude Values of Profiles from Zero to 18 ns (i.e. approximately 0-1 m). The Processes of Time Zero Correction and Migration were Applied with GPR-SLICE Software (v7.0), GPR-SLICE was Used for this Visualization of 177 Profiles for the Survey Area. (by H. E. Tütünsatar).

Fig. 9. Reconstructed Plan of the Transept Basilica on the Basis of the GPR Results. The Numbers within the Blue Rectangles Indicate the Components of the Basilica. (by H. E. Tütünsatar).

Fig. 10. Plan with the Different Components of the Transept Basilica as Reconstructed from the GPR Results. The Traces of Possible Structures are Coloured in Black. The Yellow Rectangles Represent the North and South Transept Arms of the Basilica. The Blue Rectangular Represents the Area of the Probable Annex. The Altar is Indicated by the Green Rectangle and the Entrances are Indicated with Purple Rectangles. The Debris on the Surface are Shown within the Orange Ellipse. (by H. E. Tütünsatar).

Fig. 11. GPR Image of the Basilica and Detail of the Possible Grave or Stone Structure in the Southern Annex (within the yellow oval). (by H. E. Tütünsatar).

Fig. 12. The Intensive Survey was Conducted within a Survey Area of 30 by 60 meter, Covered by a Grid Consisting of 90 sub-grids of 2 by 10 meters. (by H. E. Tütünsatar).

Fig. 13. Examples of Marble Opus Sectile Pieces Collected During by the Intensive Survey of the Field. (Seleukeia Sidera Excavation Archive).

Fig. 14. a) View of the Survey Area; b) Exedra Fragment; c) Door Threshold, d) Pedestal with Base; e) Piece of a Corniche Block; f) Epistyle Block; g) Pilaster Capital. (Seleukeia Sidera Excavation Archive).

Fig. 15. A Virtual 3D Reconstruction of the Transept Basilica on the Basis to the Plan Obtained from GPR Traces. (by H. E. Tütünsatar).

## **Bibliography**

- Annan, A.P. (2001). Ground Penetrating Radar. *Workshop Notes Sensors & Software*.
- Balderstone, S. (2004). Architectural expression of Liturgy and Doctrine in the Eastern Churches of the fourth to sixth centuries: Towards a Theologically Contextual Typology. *Buried History*, 40, 29-38.
- Balderstone, S. (2007). *Early Church Architectural Forms: A theologically contextual typology for the Eastern Churches of the 4<sup>th</sup> – 6<sup>th</sup> centuries*. *Buried History Monograph* 3, Australian Institute of Archaeology.
- Balkaya, Ç., Kalyoncuoğlu, Ü. Y., Özhanlı, M., Merter, G., Çakmak, O. & Güven, İ. T. (2018). Ground-penetrating radar and electrical resistivity tomography studies in the biblical Pisidian Antioch city southwest Anatolia. *Archaeological Prospection*, 25, 285-300.
- Becker, H. (2009). Caesium-magnetometry for landscape archaeology. In S. Campana & S. Piro (Eds), *Seeing the Unseen Geophysics and Landscape Archaeology* (pp. 129-165). Taylor & Francis.
- Bingöl, O. (2012). Seleukeia Sidera. *Dil Tarih Coğrafya Fakültesi Arkeoloji Bölümü Dergisi* 3(2), 457-471.
- Boschi, F. (2011). Geophysical Survey of The Burnum Archaeological Site, Croatia. *Archaeological Prospection*, 18(2), 117–126.
- Cardarelli, E. & Filippo, Di G. (2009). Integrated geophysical methods for the characterisation of an archaeological site (Massenzio Basilica-Roman forum, Rome, Italy). *Journal of Applied Geophysics* 68(4), 508–521. <https://doi.org/10.1016/j.jappgeo.2009.02.009>
- Ceylan, B. & Erdoğan, O. (2015). Transept-Litürji-Devinim-Kurgu: Patara Kent Bazilikası Örneği. In C. Ünal & C. Gürbıyık (Eds.), *Uluslararası 19. Ortaçağ ve Türk Dönemi Kazıları ve Sanat Tarihi Araştırmaları Sempozyumu 21-24 Ekim 2015, Manisa, Türkiye* (pp. 351-365). Türk Tarih Kurumu.
- Ceylan B. & Erdoğan O. (2016). The Architecture and History of the City Basilica of Patara: A Preliminary Report on Four Seasons of Excavations. In E. Dündar, Ş. Aktaş, M. Koçak & S. Erkoç (Eds.), *Havva İşkan'a Armağan Lykiarkhissa Festschrift Für Havva İşkan* (pp. 173-192). Ege Yayınları.
- Chávez, R. E., Cámara, M. E., Ponce, R. & Argote, D. (2005). Use of geophysical methods in urban archaeological prospection: The Basilica de Nuestra Señora de La Salud, Patzcuaro, Mexico. *Geoarchaeology*, 20(5), 505–519. <https://doi.org/10.1002/gea.20063>
- Evrim, S. & Öztaşkin, G. K. (2019). Early Byzantine Churches in Olympos. *Arkeoloji ve Sanat*, 161, 129-162.

- Fauchard, C., Saley, A. D., Camerlynck, C., Fargier, Y., Antoine, R. & Thérain, P.F. (2018). Discovery of The Romanesque Church of the Abbey of Our Lady of Bec (Le Bec-Hellouin, Normandy, France) by Means of Geophysical Methods. *Archaeological Prospection*, 25(4), 315-328. <https://doi.org/10.1002/arp.1711>
- Grossmann, P. (2008). Zur Typologie des Transepts im Frühchristlichen Kirchenbau. *JAC*, 51, 97-135.
- Haynes, I. P., Liverani, P., Piro, P. & Zamuner, D. (2013). Integrated Archaeological and Geophysical Investigations to Study the Area of S. Giovanni in Laterano Basilica (Rome, Italy). In W. Neubauer, I. Trinks, R. B. Salisbury & C. Einwögerer (Eds.), *Archaeological Prospection: Proceedings of the 10th International Conference - Vienna May 29th - June 2nd 2013* (1<sup>st</sup> ed., pp. 203–205). Austrian Academy of Sciences Press. <https://doi.org/10.2307/j.ctvjsf630.77>
- Hulin, G., Capron, F., Flageul, S., Simon, F.X. & Tabbagh A. (2017). Electrostatic and GPR Survey: Case Study of the Neuville-Aux-Bois Church (Loiret, France). In B. Jennings, C. Gaffney, T. Sparrow & S. Gaffney (Eds.) *Ap2017: 12<sup>th</sup> International Conference of Archaeological Prospection* (pp. 112-113). Archaeopress.
- Hürmüzlü, B. (2015). Pisidia Bölgesi'nde Seleukoslar Dönemi Yerleşim Politikaları. *Colloquium Anatolicum*, 14, 160-179.
- Hürmüzlü, B., Ayaşan, M. & Çelik, Ç. (2016a). 2015 Yılı Konane Antik Kenti Çalışmaları. *Anadolu Akdenizi Arkeoloji Haberleri*, 14, 206-209.
- Hürmüzlü-Kortholt, B., Ayaşan, M., Hecebil, U., Sönmez, B., Köker, H., Schenk, T. & Atav-Köker, İ. (2017). Seleukeia Sidera Antik Kenti Yüzey Araştırması Sonuçları. *Anadolu Akdenizi Arkeoloji Haberleri*, 12, 233-242.
- Hürmüzlü-Kortholt, B., Sönmez, B., Köker, H., Kalkman, P., Akaslan, M. & De Jong, L. (2019). Seleukeia Sidera Kuzey Nekropolisi 2018 Yılı Çalışmaları. *Anadolu Akdenizi Arkeoloji Haberleri*, 17, 83-89.
- Hürmüzlü, B., Sönmez, B., Ergin, B. & Kai-Browne, A. (2020). Isparta İli ve İlçeleri Yüzey Araştırması 2018 Yılı Çalışmaları. *Araştırma Sonuçları Toplantısı*, 37(1), 315-320.
- Hürmüzlü, B., Sönmez, B., Mörel, A., Kılınç, G. & Uslu, H. (2022). Paleo-Kuleönü Gölü Çevresi Antik Dönem Yerleşimleri. In Ç. Şenkul, B. Hürmüzlü-Kortholt (Eds.), *Doğal ve Kültürel Mirasın Paleo-Kuleönü Gölündeki İzleri. 50 Bin Yılın İzleri* (pp. 207-247). Süleyman Demirel Üniversitesi Yayınları.
- Imposa, S, Barone, F., Gresta, S. & Leone, A. (2009). Ground penetrating radar survey finalized to the recovery of the “S. Agata alla Badia” church in Catania (eastern Sicily, Italy), *Environmental Geology*, 58(4), pp. 889–896.
- Kaşka, G., (2019). Pisidia'da Bir Seleukos Yerleşimi: Seleukeia Sidera. In E. Akyürek-Şahin, F. Onur & M. E. Yıldız (Eds.), *Eskiçağ Yazıları* 13, Akron 17 (pp.

135- 151). Arkeoloji ve Sanat Yayınları.

Korkut, T. (2020). The Location of the Basilica in Its Civic Context. In T. Korkut & S. Urano (Eds.), *The City Basilica of Tlos* (pp. 17-20). Koç University Press.

Korkut T. & Urano S. (2020). Detailed Description of the Basilica: The Nave, Narthex, Atrium, and Other Rooms. In T. Korkut & S. Urano (Eds.), *The City Basilica of Tlos* (pp. 21-34). Koç University Press.

Krautheimer, R. (1942). The Carolingian Revival of Early Christian Architecture. *ArtB*, 24(1), 1-38. <https://doi.org/10.2307/3046798>

Krautheimer, R. (1969). *Studies in Early Christian Medieval and Renaissance Art*. New York University Press.

Krautheimer, R. (1984). *Early Christian and Byzantine Architecture*. Yale University Press.

Le Quien, M. (1740). *Oriens Christianus, in quatuor patriarchatus digestus; quo exhibentur Ecclesiae, Patriarchae, caeterique praesules totius orientis*, 1. Typographia Regia.

Mathews, T. (1971). *The Early Churches of Constantinople: Architecture and Liturgy*, Pennsylvania State University Press.

Marconi, C. (2014). *The Oxford Handbook of Greek and Roman Art and Architecture*. Oxford University Press. <https://doi.org/10.1093/oxfordhb/9780199783304.001.0001>

Mount, G. J. & Comas X. (2014). Estimating Porosity and Solid Dielectric Permittivity in The Miami Limestone Using High-Frequency Ground Penetrating Radar (GPR) Measurements at The Laboratory Scale. *Water Resources Research*, 50, 7590-7605. <https://doi.org/10.1002/2013WR014947>

Özsait, M. (1986). 1984 ve 1985 Yılı Isparta Çevresi Tarih Öncesi Araştırmaları. *Araştırma Sonuçları Toplantısı*, 4, 323-333.

Reynolds, J. M. (1997). *An Introduction to Applied and Environmental Geophysics*. Wiley-Blackwell.

Sala, R., Garcia, E. & Tamba, R. (2012). Archaeological Geophysics from Basics to New Perspectives. I. Ollich-Castanyer (Ed.), *Archaeology New Approaches in Theory and Techniques* (pp. 132-166). <https://doi.org/10.5772/45619>

Schenk, T., Tütünsatar, H.E., Schlegel, J., Akaslan, M., Hürmüzlü, B. & Atav-Köker, İ. (2019). Seleukeia Sidera Antik Kenti 2016-2017 Jeofizik Çalışmalarının Sonuçları. *Arkeometri Sonuçları Toplantısı*, 34, 103-112.

Schenk, T. (2020). Archäologische Prospektionen in Seleukeia Sidera und der Versuch, Produktionszentren zu bestimmen. In A. Mörel, G. Kaşka, H. Köker, M. Kaşka, M. Fırat & S. O. Akgönül (Eds.), *Production, Trade and Economy in*

*Pisidia and its Surrounding Areas. International Symposium Proceeding Pisidian Studies II, 31 October – 03 November 2018 Isparta, Turkey* (pp. 154-165). Süleyman Demirel University Press.

Sear, F. (1998). *Roman Architecture*. Cornell University Press.

Talloen, P. (2015). *Cult in Pisidia: Religious Practice in Southwestern Asia Minor from Alexander the Great to the Rise of Christianity*. Brepols Publishers.

Talloen, P. (2019). The Rise of Christianity at Sagalassus. In S. Mitchell & P. Pilhofer (Eds.) *Early Christianity in Asia Minor and Cyprus: From the Margins to The Mainstream* (pp. 164-201). Brill.

Talloen, P. & Vercauteren, L. (2011). The Fate of Temples in Late Antique Anatolia. In L. Lavan & M. Mulryan (Eds.), *The Archaeology of Late Antique Paganism* (pp. 347–387). Brill.

Talloen, P. & Beaujean, B. (2015). The 2013 Excavation and Restoration Activities at Sagalassos: The Excavations at Site PQ5. *Kazı Sonuçları Toplantısı*, 36(2), 48-49.

Talloen, P., Beaujean, B. & Poblome, J. (2016). Sagalassos Bouleuterion-Bazilikada 2015 Yılı Kontrol Kazıları. *Anadolu Akdenizi Arkeoloji Haberleri*, 9, 119-128.

Talloen, P. & Prodanova, M. (2021). Zosimos of Apollonia-Sozopolis. *Gephyra*, 21, 107-133.

Taşlıalan, M. (1991). *Pisidian Antioch, The Journeys of St Paul to Antioch*. Göltaş Culture.

Tütünsatar, H. E., Schenk, T., Hürmüzlü-Kortholt, B. & Akaslan, M. (2020). Seleukeia Sidera Antik Kenti 2018 Jeofizik Çalışmalarının Sonuçları. *Arkeometri Sonuçları Toplantısı*, 35, 293-301.

Ward-Perkins, J.B. (1954). Constantine and The Origins of the Christian Basilica. *PBSR*, 22, 69–90.

White, M. (1990). *The Social Origins of Christian Architecture. I, Building God's House in The Roman World*, Trinity Press.

Yegül, F. (1992). *Baths and Bathing in Classical Antiquity*. The MIT Press.

Yegül, F. & Favro, D. (2019). *Roman Architecture and Urbanism: From the Origins to Late Antiquity*. Cambridge University Press.

Zieliński A., Łyskowski, M. & Mazurkiewicz, E. (2016). Ground Penetrating Radar Investigation of Limestone Karst Objects in The Botanical Garden in Kielce. *Geology, Geophysics & Environment*, 42(1), 31-38.

**Webpage on a Website References**

OYO 1988 (20 October 2020). *OYO Georadar I Manual*, OYO Corporation, Tsukuba, Japan. <https://www.oyopacific.com/links/index.html>

## The Necropoleis and Burial Customs of Seleukeia Sidera

*Seleukeia Sidera Nekropolisleri ve Ölü Gömme Gelenekleri*

Bilge Hürmüzlü\* – Lidewijde De Jong\*\* – Tamara M. Dijkstra\*\*\*

Pisidia Bölgesi'nde birçok merkezde yürütülen çalışmalarda açığa çıkan nekropolis alanları ile ölü gömme uygulamaları ve ritüelleri hakkında diğer bölgelere göre nispeten bilgilerimiz kısıtlıdır. Temel sorun, birkaç örnek dışında, bölgedeki mezarlık alanlarının genellikle sistemli kazılar ile ortaya çıkarılmaması veya sistematik olarak çalışılmamasıdır. Bununla birlikte, bu mezar verilerinin, toplumun ritüelleri, inançları ve birçok durumda yaşam tarzı ve kalitesi gibi farklı yönleri hakkında önemli bilgiler sağladığına şüphe yoktur. Seleukeia Sidera ekibi Pisidia'daki ölü gömme uygulamalarının anlaşılmasına dönük olarak kentin nekropolislerini araştırmak amacıyla bir proje başlatmıştır. 2008 ve 2014 yıllarında yapılan yüzey araştırmalarında, yerleşimi çevreleyen Hellenistik Dönemden Geç Roma İmparatorluk Dönemi'ne kadar kullanımda olan üç farklı nekropolis ile gömü grupları tespit edilmiştir (Pl. 2: 13-16). Şimdiye kadar tespit edilen mezar tipleri, oda mezarları, kayaya oyulmuş basit mezarlar ile olası tümülüsleri içermektedir. Nekropolisler, doğudaki düzlükteki biri dışında, çoğunlukla Hisar Tepe'nin kayalık yamaçlarında veya kuzeydeki daha küçük bir tepede yer almaktadır. Yerleşimdeki ölü gömme uygulamalarına ilişkin bilgilerimiz daha çok Roma İmparatorluk Dönemi'ne tarihlenen mezarlardan kaynaklanmaktadır. Oda mezarlarda yığınlar halinde ortaya çıkarılan insan kalıntıları, bu mezarların farklı dönemlerde yeniden kullanıldığını göstermektedir. Seleukeia Sidera'da hem yakma hem de inhumasyon gömü tipinin uygulandığı anlaşılmaktadır. Lahitler ve kayaya oyulmuş mezarlar genellikle inhumasyon gömüleri ile ilişkilendirilirken, ostothekler kremasyon mezarlarına işaret etmektedir.

Bir monografi halinde yakında bilim dünyasına tanıtılmak üzere hazırlanmakta olan Kuzeybatı Nekropolis kazılarında açığa çıkan mezarlar, cinsiyet, yaş veya yön faktörlerinin gömü ritüellerinde bir rol oynamadığını açıkça göstermektedir. Nitekim Kuzeybatı Nekropolisdeki kireçtaşı ana kayaya oyulmuş mezarlarda belli bir yön birliği yoktur. Mezarlarda genellikle kandiller, sikkelere, çeşitli kap türleri ile kandiller gibi gömü hediyeleri ve döneme özgü kişisel eşyalar ele geçmiştir.

---

\* Süleyman Demirel University, Faculty of Arts & Sciences, Department of Archaeology, 32260 Isparta/TR, bilgehurmuzlu@gmail.com, ORCID: 0000-0002-3676-7436.

\*\* Groningen University, Faculty of Arts, Groningen Institute of Archaeology, Poststraat 6, 9712 ER Groningen/NL, lidewijde.de.jong@rug.nl, ORCID: 0000-0002-7968-4614.

\*\*\* Groningen University, Faculty of Arts, Groningen Institute of Archaeology Poststraat 6, 9712 ER Groningen/NL, t.m.dijkstra@rug.nl, ORCID: 0000-0001-5988-8751.

Seleukeia Sidera'da mezarların nasıl işaretlendiğine ilişkin in situ bulunmaya rastlanmamıştır. Bununla birlikte, Isparta Müzesi'nde korunan veya yakın dönem yüzey araştırmalarında ele geçen steller ile büst şeklindeki mezar işaretleyicileri, Seleukie Sidera'da mezarların nasıl işaretlendiği hakkında ipuçları sunmaktadır. Bazı mezar stellerinin ölen kişinin adının eklenmesiyle kişiselleştirilmesi birçok merkezde ve olduğu gibi çok sayıda örnekte görülebilir.

Seleukeia Sidera nekropolislerinin, Roma İmparatorluk Dönemi'ndeki toplumsal ölü gömme ve anma gelenekleri hakkında önemli bilgiler sunduğu açıktır.

Relatively little information regarding the burial practices and funerary rituals has been gathered so far from different cemeteries in the settlements of Pisidia<sup>4</sup>. The main problem is that, except for a few examples, the burial areas in the region are generally not excavated or systematically studied. Some studies attempt to understand the burial practices and study the ex-situ material, but the data are unfortunately still too patchy to allow for a holistic picture. However, there is no doubt that these funerary data provide important information on the different aspects of local society such as rituals, beliefs, and in many cases the way and the quality of life. To address these themes, the Seleukeia Sidera team initiated a project to investigate the necropoleis of the city, within the larger framework of burial practices in Pisidia<sup>5</sup>. To study and understand these burial practices, an interdisciplinary project was started in 2017 in the Northwest Necropolis (Pl. 2: 14; Fig. 1)<sup>6</sup>.

---

4 For Sagalassos: Köse, 2005; for Pisidia Antiocheia: Özhanlı, 2015; for Adada: Büyükkolancı, 2012.

5 Members of Süleyman Demirel University and Groningen University of the Department of Archaeology formed a research group focussing on the funerary customs in Pisidia. Excavations and research were supported by the two universities, the Turkish Ministry of Culture and Tourism, the Koç University Suna & İnan Kıraç Research Center for Mediterranean Civilizations and the Catharine van Tussenbroek Fonds.

6 This necropolis was already partly excavated in 1993 by the Isparta Museum under the scientific directorship of Prof. Dr. Orhan Bingöl, see: Bingöl, 1994.



Fig.1

Surveys of the site in 2008 and 2014 (Hürmüzlü, 2008) revealed several different cemeteries and burial groups surrounding the settlement, in use from the Hellenistic to the Late Roman period (Pl. 2: 13-16). Grave types identified thus far include rock-cut chamber tombs, rock-cut pit graves, and possible tumuli<sup>7</sup>. The cemeteries are mainly located on rocky slopes of the hill of Hisar Tepe or on a smaller hill to the north, except for one cemetery in the plain to the east. So far our knowledge of burial practices in the settlement is mainly derived from graves dating to the Roman Imperial period. The human remains, unearthed as heaps in chamber tombs, indicate that these tombs were reused in different periods<sup>8</sup>.

At Seleukeia Sidera both cremation and inhumation were performed. Sarcophagi, as well as rock-cut pit graves covered with sarcophagus lids, are generally associated with inhumation burials, whereas *ostothekai* held the remains of cremations (Korkut 2006, 77; Ahrens, 2015, p. 189). The practice of cremation was widely established in this part of Asia Minor, but seemed to have decreased in or after the 3rd century AD. The region of Pisidia was known for using and producing *ostothekai* (Ahrens, 2015; Koch, 1993, p. 10, pp. 154 – 159; Wenn et al., 2017, p. 206; Acuce, 2018). From Seleukeia Sidera, a large number of *ostothekai* are also known from surveys in its territory and from the collection held at the Isparta Museum<sup>9</sup>. Although none of the items from Seleukeia Sidera were associated with human remains or cremation pyres, comparisons with other Pisidian sites such as Sagalassos may suggest that cremation occurred alongside inhumation (Köse, 2005, pp. 135 – 137).

The evidence from Seleukeia Sidera highlights that the corpse was treated in different ways, cremated or deposited, placed with the remains of others or - possibly - alone, in a variety of receptacles. Graves examined in the Northwest Cemetery may suggest that gender, age, or orientation are not a factor in body treatment. There is no unity of orientation in the tombs of the Northwest Necropolis that were carved in the limestone bedrock (Hürmüzlü et al., 2018a, 236-237). Graves generally have burial gifts such as lamps, coins, different types of pottery and personal belongings such as buckles or jewellery that were typical for the period.

How the graves were marked in Seleukeia Sidera is known from the stelae and busts brought to the Isparta Museum or found during recent archaeological

---

7 The results of the Northwest Cemetery excavations carried out between 2017 and 2022 are currently being prepared for publication. For the preliminary reports, see: Hürmüzlü et al., 2018a; Hürmüzlü et al., 2019a; Hürmüzlü et al., 2022, pp. 210, 217.

8 This view is also supported by the fact that the C14 analyzes carried out on the bones found in the same chamber tomb point to dates from 2<sup>nd</sup> to 10<sup>th</sup> century AD. For dating, see: Hürmüzlü et al., 2018b, p. 249 and forthcoming publication on the Northwest Necropolis of Seleukeia Sidera.

9 Acuce, 2018, and see, in this volume, Acuce, A Group of *Ostothekai* from Seleukeia Sidera and The Surrounding Area.

surveys (Çelik, 2017, pp. 48 – 56; Iversen, 2015, pp. 37 – 63). Bust-shaped sculptures are rarely found at other sites in the region, with examples so far only known from Seleukeia Sidera and Apollonia<sup>10</sup>. Therefore, we can easily claim that in Pisidia marking the grave differed for many settlements and that the local workshops added their own stylistic interpretation to existing repertoires<sup>11</sup>.

It is clear that the cemeteries of Seleukeia Sidera offer important insights into the local burial customs and commemorative practices during the Roman Imperial period. The assemblage of the monuments, such as *ostothekai*, sarcophagi and stelae, relate to the regional repertoire found at Sagalassos, Konana, and other surveyed sites in Pisidia<sup>12</sup>. As seen often in the Roman provinces, these empire-wide trends are localized and embedded in pre-existing traditions of burial and commemoration. The lion motif, the *ostothekai* and associated cremation rites, the presence of Phrygian, Lydian and Persian names, all point to elements of continuity from pre-Roman periods and the intercultural relations of the region; Pisidia clearly has a rich, multi-cultural burial tradition already from the Iron Age onward (Hürmüzlü, 2007; Hürmüzlü & Iversen, 2015). Phrygian, Lydian, Makedonian and local aspects played important roles in the practicing of burial rituals, the use of grave types and the marking of the graves. Recent studies at Seleukeia Sidera confirmed that local, regional, and imperial impact are recognized in the funerary customs.

---

10 For an example from Seleukeia Sidera, see: Hürmüzlü, 2007, p. 12, Fig. 6. For other few examples from the region see also Horsley - Kearsley 2007: ns. 210, 239 and 318.

11 For door stelae from Pisidia, see: Waelkens, 1986. For the stylistic interpretation of the stelae in different settlements, see: Özcan, 2014; Çelik, 2017; Iversen, 2012, 2015.

12 Köse, 2005; Horsley, 2007; Iversen 2012, 2015; Özlem-Aytaçlar 2010a, and 2010b; Özcan, 2014; Acuce, 2018; van der Linde, 2018; van der Linde, 2019.

## Figure List

Fig. 1. Aerial Photo of the Northwest Necropolis. (Seleukeia Sidera Excavation Archive).

## Bibliography

Acuce, İ. (2018, July 23-26). *Isparta ve Burdur Müzesi'nde Bir Grup Ostotheke*. [Conference presentation]. Anadolu'da Hellenistik ve Roma Dönemleri'nde Ölü Gömme Adetleri Uluslararası Sempozyumu, Kütahya, Türkiye.

Ahrens, S. (2015). Whether by Decay or Fire consumed Cremation in Hellenistic and Roman Asia Minor. In J. R. Brandt, M. Prusac & H. Roland (Eds.), *Death and changing rituals: function and meaning in ancient funerary practices* (pp. 185-222). Oxbow Books.

Bingöl, O. (1994). Seleukeia Sidera (Bayat) 1993 Yılı Arkeolojik Kazıları. *Göller Bölgesi Arkeolojik Kültürel-Turistik Araştırma ve Değerlendirme Projesi*, 43-76.

Büyükkolancı, M. (2012). Adada Antik Kenti ve Geleceği. In B. Hürmüzlü, M. Fırat & A. Gerçek (Eds.), *Pisidia Araştırmaları 1, Sempozyum Bildiri Kitabı, 05-06 Kasım, Isparta* (pp. 197-214). Süleyman Demirel Üniversitesi.

Çelik, Ç. (2017). Kuzeybatı Pisidia Bölgesi (Seleukeia, Apollonia, Tymandos ve Konana) Alınlıklı Mezar Stelleri. *Süleyman Demirel Üniversitesi Fen-Edebiyat Fakültesi Sosyal Bilimler Dergisi*, 42, 45-65.

Horsley, G. H. R. (2007). *The Greek and Latin Inscriptions in the Burdur Archaeological Museum*. The British Institute of Archaeology at Ankara.

Hürmüzlü, B. (2007). Pisidia Bölgesi'nde Ele Geçen Anthemion Tipi Steller. *Colloquium Anatolicum*, 6, 97-114.

Hürmüzlü, B. (2008). Seleukeia Sidera Antik Kenti. *Türk Eskiçağ Bilimleri Enstitüsü Haberler*, 26, 12-13.

Hürmüzlü, B. & Iversen, P. (2015). Notes on Cultural Interaction in Northwest Pisidia in the Iron Age. In N. Chr. Stampolidis, Ç. Maner & K. Kopania (Eds.), *Nostoi Indigenous Culture, Migration and Integration* (pp. 531-538). Koç University Press.

Hürmüzlü, B., Akaslan, M., Köker, H., de Jong, L., Ayaşan, M., Sönmez, B. & Köker-Atav, İ. (2018a). Seleukeia Sidera Antik Kenti 2017 Çalışmaları. *Anadolu Akdenizi Arkeoloji Haberleri (Anmed)*, 16, 234-241.

Hürmüzlü, B., Sönmez, B. & Ayaşan, M. (2018b). Seleukeia Sidera Antik Kenti 2016 Yılı Yüzey Araştırması Sonuçları. *Araştırma Sonuçları Toplantısı*, 35(1), 247-254.

- Hürmüzlü, B., Sönmez, B., Köker, H., Kalkman, P., Akaslan, M. & De Jong, L. (2019). Work at the Northwest Necropolis of Seleukeia Sidera in 2018. *Anadolu Akdenizi Arkeoloji Haberleri*, 17, 83-89.
- Hürmüzlü, B., Sönmez, B., Mörel, A., Kılınç, G. & Uslu, H. (2022). Paleo-Kuleönü Gölü Çevresi Antik Dönem Yerleşimleri. In Ç. Şenkul & B. Hürmüzlü (Eds.), *Doğal ve Kültürel Mirasın Paleo-Kuleönü Gölü'ndeki İzleri: 50 Bin Yılım Öyküsü* (pp. 207-247). Süleyman Demirel Üniversitesi Yayınları.
- Horsley, G. H. R. & Kearsley, R. A. (2007). Greek and Latin Inscriptions in the Burdur Archaeological Museum. British Institute at Ankara.
- Iversen, P. A. (2012). Inscriptions From Pisidian Konane (Conana) And the Surrounding Area. *EpigAnat*, 45, 103-152.
- Iversen, P. A. (2015). Inscriptions from Northwest Pisidia. *EpigAnat*, 48, 1-85.
- Koch, G. (1993). *Sarkophage der römischen Kaiserzeit*. Wissenschaftliche Buchgesellschaft.
- Korkut, T. (2006). *Girlanden-Ostotheken aus Kalkstein in Pamphylien und Kilikien*. Mainz am Rhein.
- Köse, V. (2005). *Die Nekropolen und Grabdenkmäler von Sagalassos in Pisidien in hellenistischer und römischer Zeit*. Brepols.
- van der Linde, D. (2018). Dead Figures: The Presentation of Social Roles on Gravestones in Roman Tynada and Timbriaada. In T. Kahya, A. Özdzibay, N. T. Önen & M. Wilson (Eds.), *International Young Scholars Conference II: Mediterranean Anatolia, 04-07 November 2015, Antalya. Symposium Proceedings* (pp. 787-802). Koç University.
- van der Linde, D. (2019). Pediment Blocks in the Valley of Apollonia (Pisidia). *Colloquium Anatolicum*, 18, 209-231.
- Özcan, F. (2014). Isparta Müzesi'ndeki Yerel Stilde Bazı Roma Dönemi Mezar Stelleri. *Süleyman Demirel Üniversitesi Fen Edebiyat Fakültesi Sosyal Bilimler Dergisi*, 32, 143-154.
- Özhanlı, M. (2015). Pisidia Antiokheia'sı Nekropolleri. In B. A. Polat-Becks, H. Metin, M. Fırat & R. Becks (Eds.), *Pisidian Essays in Honour of Hacı Ali Ekinçi* (pp. 93-99). Ege Yayınları.
- Özlem-Aytaçlar, P. (2010a). Some Unpublished Inscriptions in the Isparta Museum. *Adalya*, 13, 223-241.
- Özlem-Aytaçlar, P. (2010b). Some Inscriptions in the Isparta Museum. *Gephyra*, 7, 11-21.
- Waelkens, M. (1986). *Die kleinasiatischen Türsetine. Typologische und epigrafische Untersuchungen mit Scheintür*. Mainz am Rhein.

Wenn, C. C., Ahrens, S. & Rasmus Brandt, J. (2017). Romans, Christians, and pilgrims at Hierapolis in Phrygia: Changes in funerary practices and mental processes. In J. Rasmus Brandt, E. Hagelberg, G. Bjørnstad & S. Ahrens (Eds.), *Life and Death in Asia Minor in Hellenistic, Roman and Byzantine Times* (pp. 196-216). Oxbow Books.

Yılmaz, N. (2007). Necropoleis and Funerary Monuments in Pisidia during the Roman Period. *Adalya*, 10, 155-204.

## A Group of *Ostothekai* from Seleukeia Sidera and The Surrounding Area

### *Seleukeia Sidera ve Çevresinden Bir Grup Ostothek*

İbrahim Acuce\*

Kemik muhafaza kutusu anlamına gelen *ostothek* kelimesi, sandık ve kutu kelimelerinin birleşiminden oluşmuştur. *Ostothekler*, Antik Dönem ölü gömme gelenekleri içerisinde genellikle kremasyon gömüler için kullanılmışlardır. Ancak inhumasyon gömü biçiminde, mezar yapısının yeniden kullanımı için daha önceki gömülerin kemiklerinin toplanıp, *ostothekler* içerisine konulduğu da bilinmektedir. *Ostothekler* kemik çekmecesi ve kül muhafazası olarak da düşünülebilir. *Ostotheklerin*, kayaya bağlı veya bağımsız olarak iki farklı kullanımı biçimi vardır. Kayaya bağlı *ostothekler* uygun bir kayalık zeminin şekillendirilmesi ile, kayaya sabit şekilde oluşturulur. Bağımsız olanlar ise kayaya veya bir zemine sabitlenmemiş taşınabilen *ostothekler* olarak tanımlanabilir.

Pisidia Bölgesi'nde bilinen en eski *ostothek* örneği, Termessos'da Alketas'ın mezarı olduğu düşünülen mezar yapısında bir niş içerisinde kayaya oyulmuştur. Bu *ostothekin* bir yüzü işlenmiş, süsleme unsuru olarak bölge *ostotheklerinde* sıkça kullanılan kapı tasviri işlenmiştir. Bir diğer örnek S. Mitchell tarafından Sagalassos nekropolisinde bulunan, Hellenistik Dönem'e tarihlendirilen örnektir. *Ostothek* yapımında kullanılan hammadde ve bezeme unsurları yapıldığı bölgeye, kişisel talebe ve kişinin sosyo-ekonomik durumuna göre farklılık gösterebilmektedir. Genellikle lahitlere benzemelerine rağmen vazo formuna sahip örnekler de mevcuttur.

Pisidia Bölgesi'nde bulunan *ostothekler* tipolojik olarak vazo formlu, kare ve dikdörtgen formlu *ostothekler* olmak üzere üç ana gruba ayrılmaktadır. Gövdeler kendi içerisinde alt tipolojilere sahiptir. *Ostothek* kapakları da benzer şekilde biçimlerine göre üçgen çatılı, aslan formlu klineli ve konik formlu olmak üzere dört gruba ayrılabilir. Pisidia Bölgesi *ostothekleri* zengin bezeme unsurları ile dikkat çekicidir. Genel olarak betimlenen unsurlar; kapı, silah tasvirleri, insan figür ve büstleri, çelenk, rozet, phiale vb. süsleme unsurları içerir. Özellikle bölgeye özgü kalkan motifi, yoğun kullanıma sahiptir. Ayrıca Phrygia Bölgesi mezar yapılarından bildiğimiz kapı motifi Pisidia Bölgesi'nde de sevilerek kullanılmıştır. Bezemesiz veya sadece üzerinde yazıt bulunan *ostothekler* de mevcuttur.

*Ostothek* kapakları, gövdelerinde olduğu gibi farklı süsleme unsurları ve formlara sahiptir. Vazo formlu *ostothek* kapakları konik bir şekle sahipken, dikdörtgen ve kare formlu *ostotheklerin* kapakları üçgen çatılı, akroterli olabilmek-

\* Süleyman Demirel University, Faculty of Arts & Sciences, Department of Archaeology, 32260 Isparta/TR, ibrahimacuce@gmail.com, ORCID: 0000-0002-0905-860X.

tedir. Ayrıca kapakların alınlık (*tympanum*) kısmında süsleme unsurları bulunabilir.

Bu çalışmada, Seleukeia Sidera antik kenti ve çevresinde ele geçen, hali hazırda Isparta Müzesi'nde sergilenen *ostothek* gövdeleri ve kapakları değerlendirilmiştir. Seleukeia Sidera'dan geldiği bilinen eserler genel itibarıyla bezemesiz dikdörtgen formlu *ostothek* gövdelerinden oluşur. Değerlendirilen eserler arasında iki eserde büst şeklinde betimlenen insan figürleri ve çelenk motiflerinden oluşan bezeme unsurları mevcuttur. Diğer eserler üzerinde ise herhangi bir süsleme unsuru yoktur.

*Ostothek* gövdelerinde yer alan büstlerin, gövdede geniş bir alanı kaplaması ilginçtir. Pisidia Bölgesi *ostothek*leri üzerinde büst tasvirleri normalde fazla alan kaplamaz ve daha küçük boyutlardadır. Figürlerin yüz detayları, tahrip olmaları nedeniyle tam olarak anlaşılacak kadar beraber olasılıkla *chiton* ve *himation* giyimlidirler. Figürler eğer bir mesleğe sahip değillerse *chiton* ve *himation* sıklıkla tercih edilen bir giysidir ve kullanımı MS 3. yüzyıla kadar devam karşımıza çıkar. SSB-3 numaralı eserde büst şeklinde bir erkek figürü işlenmiştir. SSB-2'de olduğu gibi bölge *ostothek*lerinden farklı olarak büst figürü geniş bir alan kaplar. Figür kıyafet detayları tam olarak anlaşılacak kadar birlikte olasılıkla *khlamys* giyimlidir. *Khlamys*, fibula ile boyna tutturulan dikdörtgen köşeli, genellikle askerler tarafından kullanılan pelerin şeklinde giysidir. Bölge *ostothek*lerinde benzer şekilde *khlamys* giyimli figürler bulunur.

Eserler üzerinde kullanılan bir diğer motif çelenk motifidir. Yalnız başına kullanıldığı gibi bazı *ostothek* gövdelerinde kalkan motifi üzerinde betimlendiği örnekler de mevcuttur. Ölümle ilişkili tasvirlerde çelenk kullanımı, mezar sahibinin ölüm karşısında zaferini veya hayattan bilinmeyen bir dünyaya geçişi güvenli şekilde başardığını göstermenin yanı sıra kişinin onurlandırıldığını veya ölümsüzlüğünü vurgulamak için de kullanılmıştır. Mezar stelleri ve *ostothek*ler gibi mezar yapılarında büst ve çelenk kullanımının artması, kişinin yaşarken erişemediği statüye ölümü ile beraber sembolik olarak eriştiğini göstermek amaçlı olmalıdır. Her iki eserde tarihlendirmeye yardımcı olacak detaylar oldukça tahrip olmuştur ve tarihlendirme konusunda ipucu vermez. Elbise kıvrımları oldukça şematiktir ve taşra özelliği gösterir. Kapaklar ise üçgen alınlıklı ve akroterlidir.

Ele alınan *ostothek* gövdeleri arasında kapı motifi bulunmamasına rağmen, bölge *ostothek*lerinin dar kenarlarında bu motif sıklıkla kullanılmıştır. Kapı motifi, üçgen çatılı akroterli *ostothek* kapakları ile birbirini tamamlayan unsurlar olarak kullanılmış olmalıdır. Bu kullanımla, gövde ile bir bütünlük oluşturulduğu düşünüldüğünde ölü evini andırmaktadırlar. SSL-2 ve 3 numaralı kapakta alınlık ve akroter kısmında herhangi bir süsleme unsuru kullanılmamıştır. SSL-1 numaralı kapakta alınlık kısmında figür başı yer alır. Bölge stelleri ve *ostothek*lerin kapaklarında alınlıkta sıklıkla rozet veya kalkan motifi kullanımı yaygındır. Ancak bu eser üzerinde figür başı kullanımı tekil bir örnektir. Figür-

rün detayları tam olarak anlaşılmamaktadır. Kapaklar üzerinde süsleme unsuru olarak kullanılan motiflerinden biri de palmet yaprağı motifi ve kıvrım dal motifidir. Çalışma kapsamında değerlendirilen eserlerde, üzerinde süsleme unsuru bulunan *ostothek* gövdeleri ve kapakları MS 1 – 3. yüzyıl arasına tarihlendirilir.

## Introduction

The term *ostotheke*, meaning “bone preservation box”, is formed from the combination of the Greek words *osto* (bone) and *theke* (chest, box) (Asgari, 1965, p. 16; Çelgin, 1990, p. 463). In addition to being used to preserve human bones, *ostothekai* are also common grave forms where the remains, consisting of bones and ashes, were placed after cremation. Furthermore, they were used in burial chambers to collect and preserve the bones of previously inhumated individuals to make room for new burials (Asgari, 1965, p. 16; Çelgin, 1990, p. 464 – 465; Koch, 2001, p. 219). *Ostothekai* can therefore be considered as both ossuaries and urns (Koch, 2001, p. 219). The raw material used to make *ostothekai* may vary according to the region, personal demand, and the socio-economic status of the maker (Acuce, 2018, p. 2). Although they generally resemble sarcophagi, they can also have a vase form (Köse, 2005; Acuce, 2018, p. 2). *Ostothekai* can be divided into two groups: rock-cut and free-standing boxes (Çelgin, 1990, pp. 481 – 503; Gürel, 2016, p. 287). Rock-cut *ostothekai* are formed by shaping a suitable part of the rock (Doğanay, 2009, p. 43; Altun, 2016, pp. 497 – 506). Freestanding *ostothekai*, on the other hand, can be defined as portable coffins (Acuce, 2018, p. 1). The earliest known example of the *ostothekai* in Pisidia was carved into the living rock in a niche of a tomb structure at Termessos, believed to be the tomb of the Macedonian general Alketas (Çelgin, 1990, p. 131; Mitchell, 1991, p. 129). One side of this *ostotheke* is carved and decorated with the depiction of a door - a frequently used motif in the region. Another example dated to the Hellenistic period is the *ostotheke* found by S. Mitchell in the necropolis of Sagalassos (Mitchell, 1991, p. 130).

Typologically, the *ostothekai* found in the region of Pisidia Region can be divided into three main groups: i) vase-shaped, ii) square, and iii) rectangular *ostothekai*<sup>2</sup>. The covers of these boxes can be divided into four groups on the basis of their shape: i) gable roofs, ii) covers with a lion on top, iii) covers in the shape of a *kline* or couch, and iv) conical lids (Acuce, 2018, p. 16). The boxes presented in this study all belong to rectangular *ostothekai*, while the covers consist of the gable roof examples. These artefacts came to the Isparta

---

2 This study includes *ostothekai* and lids known to come from the ancient city of Seleukeia Sidera, which were studied within the scope of the master's thesis titled “Pisidia Bölgesi Ostothekleri”. The artefacts presented in this paper are evaluated in accordance with the typology made within the scope of the master thesis. I am thankful to Isparta Museum, my supervisor Prof. Dr. Fikret Özcan and for her support Prof. Dr. Bilge Hürmüzlü. For more information on the *osthotokai*, see: Acuce, 2018. For further information on *ostothekai* in general in Pisidia see: Köse, 2005.

Archaeological Museum from the ancient city and territory of Seleukeia Sidera. Six of the studied objects are coffins, while four are lids. The lids and bodies do not belong together. Therefore, they were evaluated separately.

Among the *ostotheke* coffins, only two objects have ornamental elements (SSB-2 and 3). There are no decorative elements on the other artefacts. Coffin SSB-2 depicts the busts of three human figures side by side (Fig. 2). Two of the figures are male and one is female. The male figure present in the centre is possibly the head of the household as he is depicted taller than the other two figures. The other male figure is probably a child as he is depicted shorter than the female figure. It is interesting to note that the busts on this *ostotheke* cover an entire side of the coffin and are rendered in a relatively larger size. Bust-shaped human figures depicted on the Pisidian *ostothekai* normally do not occupy much space and are smaller in size. The female figure is depicted with her head covered and her hair partially visible above her forehead, but the details of the hair and the facial features cannot be fully understood. The figures are probably dressed in *chiton* and *himation*, although the details are not clear. If the individuals do not explicitly want to indicate their profession, then a *khiton* and *himation* are frequently the preferred garments in which they were depicted; their use continues well into the 3<sup>rd</sup> century AD (Özcan, 2014, p. 144). Coffin SSB-3 is decorated with a bust-shaped male figure (Fig. 3). As was the case with the figures of SSB- 2, but unlike most *ostothekai* of the region, the bust again covers a large area of the coffin. The facial details of the figure cannot be fully understood due to the damage. Although the details of the figure's clothing are not clear, it is highly probable that the figure is dressed in a *khlamys*. From this point of view, it can be said that the owner of the grave was probably a soldier. Similar figures dressed in *khlamys* feature on numerous *ostothekai* in the region.

The tradition of depicting figures in the form of busts or half-figures on burial structures began during the Late Classical - Early Hellenistic period (Korkut, 2000, pp. 181 – 192). The use of busts in funerary structures, like that of wreaths, increased in the 1<sup>st</sup> century AD, as a result of the growing individualization that occurred during the Roman Imperial period (Koch, 2001, p. 72; Köse, 2005, p. 68). There is a wreath motif on the other side of the coffin (Fig. 4) but the details of the motif are not clear. The wreath is a common motif on Pisidian *ostothekai*. It is either used alone, or on a shield. Wreaths in sepulchral art were employed to show the grave owner's victory over death or to ensure the safe passage from this life to the next, as well as to emphasize the person's honour or immortality (Kyriakou, 2014, pp. 272 – 273; Özcan, 2014, p. 145). The busts and wreaths depicted on funerary structures such as *stelai* and *ostothekai* may have been used to indicate a status that the person could not attain during his/her lifetime, but which was symbolically attained after his/her death (Özcan, 2014, p. 146). The decoration details that would help dating both artefacts have been severely damaged. The hair and facial features of the figures are quite worn and do not give any clues about dating. The folds of the dress show schematic

and provincial characteristics. However, since the use of busts is known to have increased during the Roman Imperial period, and the fact that the wreath depicted on SSB-3 has not yet become abstract, both coffins can be tentatively dated to the 1<sup>st</sup> or 2<sup>nd</sup> century AD. The other two *ostotheke* coffins do not have any elements that would help in dating them.

The *ostotheke* covers have triangular pediments and *acroteria*. Although there are no door motifs among the rectangular coffins discussed above, such motifs are frequently depicted on the narrow sides of regional *ostothekai*. The door motif and the lids with gable roofs, pediments and *acroteria* must have been used as complementary elements. Considering that this use creates a unity with the body, they resemble house of the dead. There is no ornamentation on the pediment and *acroteria* on the covers SSL-2 and 3. On SSL-1 there is a head of a human figure on the pediment (Fig. 8). While the use of rosettes or shield motifs in the pediment is common on *stelai* and *ostothekai* found in region (Çelik, 2017, p. 48; Acuce, 2018, p. 24), the use of a head is particular to this piece. The details of the figure cannot be clearly understood. The undamaged lower corner *acroterium* is decorated with a palmette motif. From the palmette leaf there is a curving branch motif running towards the top *acroterium*, which is damaged above the *sima*. The long side of the lid is decorated with a series of egg and dart arrows (Fig. 9). The motifs are quite schematic and not elaborate in terms of workmanship. On *ostotheke* cover SSL-4, a palmette leaf motif is used as an ornamental element on the side and top *acroterium* (Fig. 14 – 15). A curved branch is present under the palmette leaves. The workmanship is more elaborate compared to SSL-1. The work SSL-4 can be dated to the 1st century AD due to the similarities with the palmette and curved branch motifs in the Temple of Augustus at Pisidian Antioch<sup>3</sup>. It is difficult to make a clear dating for SSL-1. It is possible that the motifs on the piece were poorly executed due to the quality of the local workmanship, as well as the abstraction that started to be seen in architectural elements as of the 3<sup>rd</sup> century AD. Therefore, it can possibly be dated to the 2<sup>nd</sup> or 3<sup>rd</sup> century AD.

---

3 For more information please see: Özarslan, 2012.

## Catalogue

### *Ostothekai* Coffins

#### SSB-1

The object belongs to the group of rectangular *ostothekai*, within the subgroup of *ostothekai* without decoration (Fig. 1). The long side of the coffin measures 50 cm, the short side 38 cm and the height 36 cm. It is made of limestone. There is no decorative element or inscription present on the artefact.

#### SSB-2

This coffin too is an example of a rectangular *ostothekai*, but now of the subgroup with decorations (Fig. 2). It is partially damaged; the preserved part measures 41 cm on the long side, 29.5 cm on the short side and 29.5 cm in height. It is made of limestone. Three human figures are carved in relief as busts side by side on the long side. Two of the busts represent male figures, the other is female. The female figure is dressed and her head is covered. The details of the male figures cannot be fully understood due to damage.

#### SSB-3

Like the previous example, this is rectangular *ostothekai* with decorations (Fig. 3 – 4). Two sides of the box are broken and incomplete. It is made of limestone. The preserved part measures 43.5 cm on the long side, 30 cm on the short side and 27.5 cm in height. On the long side of the coffin, a bust-shaped male figure dressed in *khlamys* is represented. His facial and hair details are not clearly visible due to abrasion. There is a wreath motif on the other long side.

#### SSB-4

This item belongs to the rectangular *ostothekai* group, without any decoration (Fig. 5). The long side measures 53.5 cm, the short side 31 cm and the height 30.5 cm. It is made of limestone. There is no decoration or inscription on the object.

#### SSB-5

Another example of a rectangular *ostothekai* without decoration (Fig. 6). The long side measures 47 cm, the short side 35 cm and the height 36 cm. It is made of limestone. There is no decoration or inscription on the piece.

#### SSB-6

Also, this last example belongs to the rectangular *ostothekai* without decoration (Fig. 7). The long side of the coffin measures 48 cm, its short side 29 cm and the height 35 cm. It is made of limestone. There is no ornamentation on the piece.

### *Ostothekai Lids*

#### SSL-1

This cover belongs to the type of gable roof-shaped lids with a tympanum (Fig. 8 – 9). Since the lid was reused as *spolia*, the upper part was carved away. The preserved dimensions are 46.5 cm in length, 31 cm in width and 17 cm in height. In the centre of the pediment is the head of a figure. Due to intensive abrasion, the details of the figure's hair and face are not clear. On the upper part of the *sima* surrounding the tympanum, the curving branch motif continues from the corner acroterium to the damaged top acroterium. On the side of the lid, the curved branch motif continues with a series of eggs. The rendering of the motifs is highly stylized.

#### SSL-2

This second example too belongs to the group of gable roof-shaped lids with a tympanum (Fig. 10 – 11). Its dimensions are: length 54 cm, width 35.5 cm, and height 16 cm. The corner *acroteria* are intact but the top acroteria are damaged. The details of the *acroteria* are not carved and there is no decoration on the tympanum.

#### SSL-3

A further example of the group of gable roof-shaped lids with a tympanum (Fig. 12 – 13). Its dimensions are: length 57 cm, width 37 cm, height 14 cm. There is no decoration on the *acroteria* or pediment.

#### SSL-4

The final example is again a cover of the group of gable roof-shaped lids with a tympanum (Fig. 14 – 15). Its length measures 57 cm, its width 52.5 cm, and its height 26 cm. It has a triangular pediment and *acroteria*. The palmette motif appears as an ornamental element on the *acroteria*. In the continuation of the *acroteria*, there is a curved branch motif on the *sima*.

**Figure List**

Fig. 1. Ostotheke (Isparta Museum No: 3. 1. 03) (Seleukeia Sidera Excavation Archive).

Fig. 2. Ostotheke (Isparta Museum No: 5. 2. 04) (Seleukeia Sidera Excavation Archive).

Fig. 3. Ostotheke (Isparta Museum No: 5. 3. 04) (Seleukeia Sidera Excavation Archive).

Fig. 4. Ostotheke (Isparta Museum No: 5. 3. 04) (Seleukeia Sidera Excavation Archive).

Fig. 5. Ostotheke (Isparta Museum No: 17. 19. 02) (Seleukeia Sidera Excavation Archive).

Fig. 6. Ostotheke (Isparta Museum No: 11. 2. 93) (Seleukeia Sidera Excavation Archive).

Fig. 7. Ostotheke (Isparta Museum No: 11. 1. 93) (Seleukeia Sidera Excavation Archive).

Fig. 8. Ostotheke Lid (Isparta Museum) (Seleukeia Sidera Excavation Archive).

Fig. 9. Ostotheke Lid (Isparta Museum) (Seleukeia Sidera Excavation Archive).

Fig. 10. Ostotheke Lid (Isparta Museum No: 11. 1. 93) (Seleukeia Sidera Excavation Archive).

Fig. 11. Ostotheke Lid (Isparta Museum No: 11. 1. 93) (Seleukeia Sidera Excavation Archive).

Fig. 12. Ostotheke Lid (Isparta Museum No: 11. 2. 93) (Seleukeia Sidera Excavation Archive).

Fig. 13. Ostotheke Lid (Isparta Museum No: 11. 2. 93) (Seleukeia Sidera Excavation Archive).

Fig. 14. Ostotheke Lid (Isparta Museum No: 2. 2. 03) (Seleukeia Sidera Excavation Archive).

Fig. 15. Ostotheke Lid (Isparta Museum No: 2. 2. 03) (Seleukeia Sidera Excavation Archive).

## Bibliography

### Abbreviations

SSB- Seleukeia Sidera Body

SSL- Seleukeia Sidera Lid

Acuce, İ. (2018). *Pisidia Bölgesi Ostothepleri* [Unpublished master thesis]. Süleyman Demirel Üniversitesi.

Altun, S. (2016). Isaura Antik Kenti Nekropollerini. *Selçuk Üniversitesi Edebiyat Fakültesi Dergisi*, 36, 497- 506. <https://doi.org/10.21497/sefad.285331>

Asgari, N. (1965). *Hellenistik ve Roma Çağlarında Anadolu Ostothepleri* [Unpublished doctoral dissertation]. İstanbul Üniversitesi.

Çelgin, A. V. (1990). *Termessos Kenti Nekropollerini* [Unpublished doctoral dissertation]. İstanbul Üniversitesi.

Çelik, Ç. (2017). Kuzey Pisidia Bölgesi (Seleukeia, Apollonia, Tymandos ve Konana) Alınlıklı Mezar Stellerini. *Süleyman Demirel Üniversitesi Fen Edebiyat Fakültesi Sosyal Bilimler Dergisi*, 42, 45- 65.

Doğanay, O. (2009). *Isauria Bölgesi Kaya Mezarları ve Ölü Gömme Gelenekleri* [Unpublished doctoral dissertation]. Selçuk Üniversitesi.

Gürel, B. (2016). Phaselis Batı ve Kuzeybatı Nekropolis'leri, *Mediterranean Journal of Humanities*, 6(2), 279-297.

Koch, G. (2001). *Roma İmparatorluk Dönemi Lahitleri* (Z. İlkelen, Trans.). Arkeoloji Sanat Yayınları.

Korkut, T. (2000). Überlegungen zum Aufkommen der Halbfiguren auf kleinasiatischen Grabstelen vom Hellenismus bis zur römischen Kaiserzeit. *ADALYA IV*, 181-192.

Köse, V. (2005). *Die Nekropolen und Grabdenkmäler von Sagalassos in Pisidien in hellenistischer und römischer Zeit*. Brepols.

Kyriakou, J. (2014). Exceptional Burials at the Sanctuary of Eukleia at Aegae (Vergina): The Gold Oak Wreath. *BSA*, 109, 251-285. <https://doi.org/10.1017/S0068245414000082>

Mitchell, S. (1991). The Hellenization of Pisidia. *JMA*, 4, 119- 145.

Özarlan, S. A. (2012). *Pisidia Antiokheia'sı Augustus Kutsal Alanı'ndaki Mimari Bezemeler* [Unpublished master thesis]. Süleyman Demirel Üniversitesi.

Özcan, F. (2014). Isparta Müzesi'ndeki Yerel Stilde Bazı Roma Dönemi Mezar Stellerini. *Süleyman Demirel Üniversitesi Fen Edebiyat Fakültesi Dergisi*, 32, 143-154.



Fig. 1



Fig. 2



Fig. 3



Fig. 4



Fig. 5



Fig. 6



Fig. 7



Fig. 8



Fig. 9



Fig. 10



Fig. 11



Fig. 12



Fig. 13



Fig. 14



Fig. 15



## An Assessment of the Pottery Groups from Seleukeia Sidera

### *Seleukeia Sidera Seramik Grupları Üzerine Bir Değerlendirme*

Burak Sönmez\* – Bilge Hürmüzlü\*\*

Seleukeia Sidera’da gerçekleştirilen çalışmalarda ele geçen seramikler MÖ 8. yüzyıl ile MS 7. yüzyıl arasında kesintisiz bir repertuvara işaret etmektedir. Bu çalışmada, Hisar Tepe’de yürütülen yüzey araştırmaları ile Atölyeler Mahallesi’nin kuzeybatısında, tiyatroya giden yol ile ilişkili bir kontekstte tespit edilen seramik buluntular ele alınmıştır.

Kentteki Demir Çağı seramikleri Hisar Tepe’nin üzerinde, özellikle 2014 yılında yürütülen yüzey araştırmasında karşımıza çıkar. Buluntular, Tepe’nin Demir Çağı’nda yerleşime sahne olduğunu gösterir. Bu dönemde, Pisidia Bölgesi’nde oldukça zengin yerel ve ithal seramik buluntular karşımıza çıkar. Hisar Tepe’de bu döneme tarihlendirilen seramik repertuarı kısıtlı olmakla birlikte, düzenli yerleşimin Erken Demir Çağı’na kadar izini sürebilmemize izin vermesi nedeniyle önem taşır. Tepe’yi çevreleyen höyüklerde black-on-red, streaked ware ve gri seramik grupları karşımıza çıkmakla birlikte Hisar Tepe’nin baskın Demir Çağı grupları, bantlı seramikler ve Lydia’dan da bilinen streaked ware gruplarıdır. Ayrıca gri seramikler ve devetüyü renkli seramikler (buff ware) de görülür. Bantlı seramikler çoğunlukla amphora formu ile temsil edilir ve Erken Demir Çağı’nda çevredeki farklı kentlerden de bilinir. Pisidia Bölgesi’nde Erken ve Orta Demir Çağı’nda yaygın şekilde bilinen gri seramiklerin form repertuarı daha zengindir; krater, kâse, tabak, çömlek ve çeşitli kapalı kap formları görülür.

Yukarıda sözü edilen yol hattının anlaşılması için gerçekleştirilen sondajda, zengin ve tabakalaşma açısından tutarlı bir ikincil kontekst açığa çıkarılmıştır. Burada tespit edilen altı farklı seviyede MS 1-7. yüzyıl arasında Roma İmparatorluk ve Geç Roma İmparatorluk olmak üzere iki farklı döneme ait seramik grubu saptanmıştır. Bu gruplar, kentte varlığı bilinen ve daha önce detaylı şekilde incelenmiş olan seramik repertuarı ile karşılaştırmalı olarak ele alınmıştır. İncelenen buluntu grubu, çeşitli işlev ve formlarda kaplardan oluşur. Grup Hellenistik kâseler, Sagalassos Kırmızı Astarlıları (SRSW), Yerel/Bölgesel Kırmızı Astarlılar (LocRSW), oinophoroslar, çeşitli kırmızı astarlılar, hazırlama/servis kapları, amphoralar ve pişirme kaplarını içerir. Hellenistik Dönem sofrakapları; ekhinus kâseler ve kanca ağızlı kâselerden oluşur. Kanca ağızlı örnekler ekhinus kâseler ile benzer gövde formuna sahip olmakla birlikte ağız-

\* Süleyman Demirel University, Faculty of Arts & Sciences, Department of Archaeology, 32600 Isparta/TR, burak.sonmez.988@gmail.com, ORCID: 0000-0002-2062-3913.

\*\* Süleyman Demirel University, Faculty of Arts & Sciences, Department of Archaeology, 32600 Isparta/TR, bilgehurmuzlu@gmail.com, ORCID: 0000-0002-3676-7436.

da kanca profillidir.

Kentte saptanan sigillata ve kırmızı astarlı gruplar arasında en az sayıda örnekle temsil edilen grup Doğu Sigillatası A'dır ve incelenen kontekstte bir adet Hayes 4A tipinde kâse parçası saptanmıştır. Kentin genelinde karşımıza çıkan manzaraya uygun şekilde incelenen kontekstte de en baskın kırmızı astarlı grubu SRSW'dir. Buluntular arasında tipi belirlenebilecek durumda korunmuş olan 106 parça; kâse, tabak ve çanak formlarında 26 farklı tipe aittir. Bu tipler kentin farklı alanlarında da saptanmış olan tipik SRSW formlarıdır. Tipoloji incelemeleri ve daha önceki yıllarda yürütülen arkeometrik analizlere dayanarak saptanan LocRSW grubundan altı parça tespit edilmiştir; kentteki diğer kontekstlerden bilinen tiplerde parçalardır. Matara formundaki kaplar olan oinophoroslar, Seleukeia Sidera'da Geç Roma İmparatorluk Dönemi'nde baskın şekilde karşımıza çıkan bir diğer formdur. Arkeometrik analizler, bu formda kapların da LocRSW grubu içine dâhil olduğunu göstermiştir. Kontekstte bu formdan yedi adet parça saptanmıştır. Kentte üretiminin yapıldığına dair veriler saptanmış olan Geç Roma İmparatorluk unguentariumları bir ağız parçası ve bir tıpa ile temsil edilir.

Kaba seramikler hazırlama/servis kapları, pişirme kapları ve amphoralardan oluşur. Hatalı üretim parçalar ve arkeometrik analizler, bu grupların kentte üretildiğini ortaya koymuştur. Hazırlama/servis kapları arasında testi formunda kaplar altı adet saptanmıştır. Dördü kentte önceki çalışmalardan bilinen Tip 1, 4 ve 7B'ye girer. İki parça ise daha önce saptanmamış olan tekil örneklerdir. Dört adet saptanmış olan hazırlama çanaklarından üçü Tip 3, biri ise tekil örnektir. İki adet de tekne formulu kap bulunmuştur, kentte varlığı bilinen tiptedirler (Sönmez, 2022, p. 241).

Üretimi saptanan kaba seramikler içinde en çok form çeşitliliğine sahip olan grup pişirme kaplarıdır. Kontekstte çömlek formunun yedi farklı tipi saptanmıştır; bunlardan ikisi yeni tiplerdir ve kentte daha önce karşımıza çıkmamıştır. Güveç formunda bir adet örnek tespit edilmiştir. Tava formu kentteki diğer alanlarda tespit edilmemiştir ve ilk kez incelenen kontekstte karşımıza çıkar.

Hem yüzey araştırmaları hem kazı çalışmalarında açığa çıkarılan seramiklerde Geç Roma İmparatorluk Dönemi seramiklerinin baskın bir orana sahip olduğu görülür. Bu manzara, kentin Geç Roma İmparatorluk Dönemi'ndeki yoğun yerleşimine işaret etmekle birlikte henüz bu dönem öncesine ait materyal barındıran alan ve tabakalara rastlanmamış olmasının sonucu da olabilir. Bu çalışmada incelenen kontekst ise farklı şekilde ilk kez Geç Roma İmparatorluk Dönemi öncesi seramiklerinden oluşan bir tabaka barındırır.

Sonuç olarak, kontekstte değerlendirilen Tabaka 1, beş ayrı seviye barındırır; Tabaka 2 ise bir seviyeden oluşur. Tabaka 1 seramikleri toplam 146 parçadan oluşur. Kronolojik dağılıma bakıldığında Geç Roma İmparatorluk Dönemi %65'lik, Roma İmparatorluk örnekleri ise %23'lük bir orana sahiptir (MS 1-3.

yüzyıl arası). Repertuvarın %10'unu MS 1. yüzyıl-7. yüzyıl arasında uzun süre değişmeden kullanılmış olan formlar oluşturur. Hellenistik Dönem seramikleri ise %2'dir, tabakaya karışmış parçalar olmalıdırlar. Tabaka 2'de seramiklerin kronolojik dağılımları oldukça farklıdır. Roma İmparatorluk Dönemi seramikleri %41'lik oranla baskın grubu oluşturur. Geç Roma İmparatorluk örnekleri %27, 1-7. yüzyıl arasına tarihlendirilen kaplar ise %3'lük bir orana sahiptir. Bu durumun, paralel örneklerinin iki dönem boyunca da kullanıldığı bilinen bu kapların Geç Roma İmparatorluk Dönemi formları olduğuna işaret eden bir ön veri olduğu önerilebilir. Tabaka 1'e göre en önemli farklardan birisi, %29 ile öne çıkan Hellenistik Dönem seramiklerinin oranının yüksekliğidir.

İki tabaka kendi içlerinde değerlendirildiğinde, iki farklı dönemi temsil ettikleri açıkça görülür. Dolgularda herhangi bir mimari kalıntı saptanmamış olması, kentin farklı alanlarından taşınarak burada depolanmış dolgular olduklarını düşündürür. Tabaka 1'deki seramiklerin tarihsel dağılımı MS 4-7. yüzyıl arasında bir tarihe ait olduğunu gösterir. Tabaka 2'de ise Hellenistik ile Roma İmparatorluk Dönemi arasına tarihlendirilen seramiklerin öne çıktığı görülür. En baskın materyal %41 ile Roma İmparatorluk Dönemi seramikleridir, tabaka bu dönemin erken evrelerine ait olmalıdır.

Seleukeia Sidera'nın geneline bakıldığında MS 4-7. yüzyıl seramiklerinin baskın olduğu görülür, Roma İmparatorluk Dönemi grupları ise %22'lik bir orana sahiptir. Tabaka 1 seramikleri kent geneliyle uyumlu bir dağılım sergiler. Tabaka 2 ise kentte tespit edilen ilk Hellenistik-Roma İmparatorluk Dönemi tabakasıdır. Kontekste değerlendirilen kaplar kentte daha önce karşımıza çıkan seramiklerle aynı formlardadır; bununla birlikte yeni formlar da tespit edilmiştir. DSA grubu kentte halihazırda çok nadir karşımıza çıkar ve bu form ilk kez bu kontekste görülmektedir. Hazırlama ve servis kapları kentte karşımıza çıkan formlardan oluşur. Kontekste karşımıza çıkan pişirme kaplarında, kentten bilinen repertuvarı zenginleştiren formlar karşımıza çıkmıştır.

The pottery recovered during the archaeological work carried out in Seleukeia Sidera provides important data about the repertoire of the city from the Iron Age to the Late Roman Imperial period. Roman and Late Roman pottery finds have been examined in previous studies in terms of both typology and chronology, and production activities<sup>3</sup>. In this paper, Iron Age pottery recovered during the Hisar Tepe surveys, finds from the excavations as well as the context finds recovered from an area to the northwest of the Workshops Quarter, which is understood to be related to a road leading to the theatre, will be evaluated.

### **Iron Age Pottery Groups from Hisar Tepe**

So far, Iron Age pottery in Seleukeia Sidera has been found mainly on Hisar Tepe. It is understood that this hill has been inhabited since the Iron Age and was strongly fortified with walls during the Hellenistic period (Hürmüzlü et al., 2022, pp. 210-213). During the Iron Age, we come across a very rich local and imported pottery group in the Pisidia Region<sup>4</sup>. Although the repertoire is quite limited for the pottery groups from this period recovered from Seleukeia Sidera, it nevertheless shows that the settlement started at Hisar Tepe in the Early Iron Age. While black-on-red, streaked and grey ware pottery groups are encountered in the surrounding mounds (Hürmüzlü et al., 2022, p. 221), banded ware are predominant in Seleukeia (Fig. 1) with examples of streaked ware known from Lydia, as well as grey and buff ware also present.

Fragments of amphorae reflect Early Iron Age examples (Fig. 2). In these amphorae, which have a band on the neck or wavy line motif in some examples, are known from other centres. Similar amphora forms, which are known from many centres especially in Western Anatolia, belong to the end of the 8<sup>th</sup>-beginning of the 7<sup>th</sup> century BC<sup>5</sup>. Furthermore, among the Early Iron Age pottery, grey ware pottery also has been found. Similar jars with rounded outward protruding rims were found at Midas Kale (Kanbur, 2019, p. 111, Figure 2.26, no. 116) and Seyitömer (Çakalgöz, 2011, p. 177, Plate 58/5). Gray monochrome pottery appears in a wide geography<sup>6</sup>. In Pisidia, they have been encountered at Gönen Höyük, Taşkapı, Hacılar, Düzen Tepe, Karayuğ Höyük,

---

3 The pottery finds in question were recovered during a single-season excavation by the Isparta Museum in 1993, see: Bingöl, 1994; Bingöl, 2012. The Isparta Archaeological Survey Project directed by Prof. Dr. Bilge Hürmüzlü in 2014 and between 2016-2019, and the cleaning works and excavations conducted between 2017-2020, see: Hürmüzlü et al., 2020; Hürmüzlü & Sönmez, 2021; Hürmüzlü et al., 2022; Sönmez, 2022. Pottery recovered during all this work mostly could not be associated with excavation contexts (Sönmez, 2022).

4 For the Iron Age pottery groups in Pisidia region, see: Uslu & Hürmüzlü 2022, p. 75, no. 20 and 21.

5 For Sardeis examples, see: Ramage et al., 2021, HoB 356 (P65.269); for Klazomenain examples, see: Uzun, 2016, Resim 1.

6 For grey ware from Phrygia, see: Henrickson, 1994; 2005. For Lydian grey ware, see: Ramage et al., 2021.

northwest of Konane (Kale Tepe) and Erenler Tepe (Uslu & Hürmüzlü 2022, p. 78)<sup>7</sup>. This repertoire, consisting of craters, bowls, pots, closed vessels, and plate forms, reflects the Early and Middle Iron Age pottery in the region. Pottery fragments from Düzen Tepe near Sagalassos belonging to this group consist of storage containers (Braekmans, 2010, p. 138) while other instances were found in the Sagalassos territory (Braekmans, 2010, p. 138).

Another example from Seleukeia Sidera which reflects the Iron Age pottery tradition belongs to the buff ware pottery group. Similar pottery dating to the Late Achaemenid and Early Hellenistic periods was found at Düzen Tepe (Daems et al., 2019, pp. 151, 165; Braekmans et al., 2017)<sup>8</sup>, and comparable pot rims from Gordion and Seyitömer Höyük were dated to the 4<sup>th</sup> - 2<sup>nd</sup> centuries BC<sup>9</sup>.

The Hellenistic fortifications at Seleukeia Sidera and the fact that the settlers of the outlying mounds and areas around them were gathered in the new colony as part of a *synoikismos* process indicate a strong Hellenistic tradition (Hürmüzlü et al., 2022, p. 221). Apart from these examples, a large number of Achaemenid bowls dated between the 4<sup>th</sup> and 3<sup>rd</sup> centuries BC, and various bowl and pottery forms belonging to the West Slope ware group were found at Seleukeia.

### **Pottery Groups from the Street to the East of Hisar Tepe**

A rich and consistent stratigraphic context of secondary deposition was revealed in the sounding carried out on an intermediate street, which was identified during the investigation of the road system in the industrial quarter (Pl. 2: 21) located to the east of Hisar Tepe. Two pottery groups from the Hellenistic period and the Roman Imperial-Late Roman periods, between the 1<sup>st</sup> and 7<sup>th</sup> centuries AD, were identified at six different stratigraphic levels. In this study, first this pottery group is examined, then it is discussed in the light of the known pottery repertoire of the city.

The pottery group, retrieved from six levels in two different layers, consists of a total of 1849 fragments, including sherds that provide a full profile, and amorphous ones (Table 1). The group includes Hellenistic bowls, Sagalassos Red Slip Wares (SRSW), local/regional red slip wares (LocRSW), *oinophoroi*, miscellaneous table wares, miscellaneous red slip wares, preparing/serving

---

7 Isparta Archaeological Survey Archives (2019). For Gönen Höyük: Hürmüzlü et al., 2022, p. 234. For Taşkapı, Hacılar and Düzen Tepe: Braekmans, 2010, p. 138. For Karayuğ Höyük: Isparta Archaeological Survey Archives (2010 and 2017). For Konane (Kale Tepe): Hürmüzlü 2010a, p. 30; Hürmüzlü, 2010b, p. 66-67, Figures 4 and 5; Hürmüzlü, 2011, p. 166, Figure 8; Hürmüzlü et al., 2012, p. 2, Figure 4; Hürmüzlü et al., 2022, p. 234. Isparta Archaeological Survey Archives (IAS010, IAS011 and IAS014);

8 Examples with similar fabric type were recovered during the surveys conducted in Kayış Kale and Seydiköy, Daems et al., 2019, p. 307.

9 Examples from Gordion: Sams & Voigt, 1990, p. 80, Pl. 5/d; Stewart, 2010, p. 274, Pl. 216/214. For Seyitömer Höyük, see: Durgu, 2013, p. 97, Pl. 61/110.

vessels, *amphorae* and cooking wares. Here, Roman and Late Roman pottery were examined in detail. The sherds in question are classified according to their function groups and profile properties at each level. While calculating the number and preservation status of the sherds, the MNV method was applied, and the percentage calculations were made accordingly<sup>10</sup>. Thus, it was aimed to obtain the original number of vessels deposited in the layers: excluding amorphous fragments, a total of 315 individual vessels (Table 2) could be determined. Among these vessels, 216 pieces can be dated by analogy: the different layers were dated on the basis of these pieces.

### **Hellenistic Pottery**

Seven echinus bowls were recovered in total (Fig. 3: a-e); they are hemispherical vessels with rims inverted in different degrees, and a convex body profile. They were all recovered from Layer 2. Similar examples of these vessels, which are a very common and typical Hellenistic Period form, appear from the 4th century BC until the end of the Hellenistic period<sup>11</sup>.

Another Hellenistic period form commonly encountered in Seleukeia Sidera are hook-rim bowls, which have hemispherical shape similar to echinus bowls (Fig. 3: f-h). In bowls with plain or slightly inverted rims, a hook profile is given with a groove on the outer face of the rim. Similar ones are known from different cities<sup>12</sup>. The Seleukeia Sidera examples can be evaluated as variations, with city-specific slips associated with these vessels, belonging to different phases of the Hellenistic period.

### **Eastern Sigillata A (ESA)**

ESA, the earliest of the sigillata groups (Hayes, 2008, p. 13), is rarely encountered in Seleukeia Sidera. Except for the context examined in this study, only one profiled piece was found; it is a Hayes Atlante Form 4A type plate

---

10 MNV (Minimum Number of Vessels) is a method used to determine the number of original individual vessels among the vessel fragments in a pottery find group. In practice, this method best describes the condition of vessels before they are mixed into archaeological fillings (Voss & Allen, 2010, p. 1). As a result of the fragmentation of the vessels during the archaeological stratification process, it is possible that a large number of fragments belonged to a vessel, and it is often not possible to determine which parts match with which vessels. For this reason, evaluating only the determinant parts such as the rim, bottom and handle allows the estimation of the number of original vessels and avoids the deviation in the percentage calculations of the body parts that do not provide information about the number of individual vessels. For the MNV method and exemplary uses, see: Egloff, 1973; Voss & Allen, 2010; Rice, 2015, pp. 262-264.

11 Anderson-Stojanović, 1992, p. 103, Pl. 87/738, 740; Meriç, 2002, pp. 27-28, Taf.1/K1-K5; Duman, 2010, p. 196, Pl. I/A1; 214, Pl. IX/A66; Ladstätter, 2014, Taf. 182, K121, K125, K126, K166; Daems et al., 2019, pp. 86-87.

12 Berlin, 1999, p. 151, Pl. 11, No. 59; Yener-Marksteiner, 2007, p. 94, Abb. 10, No 8-11; Daems et al., 2019, p. 87, Fig. 2.

(Sönmez, 2022, p. 29). One ESA fragment was also detected in the context evaluated in this study (Fig. 4: a). The fragment is in the form of a crater bowl. The upright rim has a distinctive hook-shaped outward protrusion. Similar examples are dated between the 1<sup>st</sup> century BC and the first half of the 1<sup>st</sup> century AD<sup>13</sup>.

### **Sagalassos Red Slip Wares (SRSW)**

SRSW, which is the most dominant group among imported red slipped wares in Seleukeia Sidera (Sönmez, 2022, p. 29), stands out in terms of proportion in the context studied. When evaluated together, the 454 sherds of SRSW make up 127 vessels. 106 of these sherds belong to 26 different types. These are types known from other contexts in Seleukeia Sidera (Sönmez, 2022, pp. 29-60).

### **Cups**

The cup form is represented by five different types. Of the type 1A100 (Fig. 4: b-c), 5 fragments were identified. The upright and plain rimmed form has a rounded turn at the body. Based on its parallels, the form can be dated between the second half of the 1<sup>st</sup> century and the 3<sup>rd</sup> century AD<sup>14</sup>. In type 1A110/111, of which two specimens have been identified, only the rims were preserved (Fig. 4: d). On the outer face of the upright and plain rimmed form, there is a horizontal, protruding line under the rim. Since a small part of the rim was preserved in both pieces, it is not clear whether they were decorated or not. The type belongs to the second half of the 1<sup>st</sup> century to the 3<sup>rd</sup> century AD (Poblome, 1999, p. 304, Fig. 6-7).

Although 1A130 is known from only a few examples at Seleukeia Sidera (Sönmez, 2022, pp. 31-32), it is a prominent form in the pottery group with six individual fragments in the context (Fig. 4: e-f). The upright and plain rim is generally slightly everted, the body profile is thin in all parts. The abundance of the form, dated to the 1<sup>st</sup> century AD (Poblome, 1999, p. 37, Fig. 9), in this context compared to the city in general, is related to the early date of the layer in which it was found. 1A150, which is one of the Roman Imperial period forms represented with few examples throughout the city, has an everted and wide rim, and descends steeply in the body after a sharp turn in the neck (Fig. 4: g). On the outside, vertically placed double ovals and point motifs commonly known of this type (Poblome, 1999, p. 42, Fig. 14) are executed. The form can be dated to between the 1<sup>st</sup> and 3<sup>rd</sup> centuries AD, based on its counterparts found in different cities<sup>15</sup>. 1A161, the last cup form detected in the examined context, is represented by one sample. It is a short-necked form with an upright and

---

13 Hayes, 1985, p. 21, Tav. III/1-2; Lund, 2005, Fig. 10.2, Form 15; Uygun, 2011, p. 151, Table 7, No. T1.

14 Poblome, 1999, p. 304, Fig. 5; Özden Gerçeker, 2015, pp. 9-11.

15 Poblome, 1999, p. 305, Fig. 14; Firat, 2003, p. 125, Abb. 1/13; Duman, 2014, p. 11, Fig. 3/72-75; Özden- Gerçeker, 2015, pp. 15-17; Yaman, 2018, p. 441, Pl. 2/8.

slightly everted rim. There is a sharp turn from the neck to the flattened and bulged out body. There is a single row of a stamped oval with vertical lines decoration on the piece. Based on similar examples in the surrounding cities, it can be dated between the 1<sup>st</sup> century and the first half of the 2<sup>nd</sup> century AD<sup>16</sup>.

## **Bowls**

12 different types of bowl-shaped fragments have been identified, most of which are Late Roman Imperial forms. 1B100 is a common bowl from Seleukeia Sidera with a plain rim and a straight body profile (Fig. 4: h). In the evaluated context, two examples of this type were identified, a form belonging to the 4<sup>th</sup> century AD<sup>17</sup>. Another widely known bowl form in the city is 1B130 (Fig. 4: i), nine of which were found in the investigated context, and it is a very dominant form in the city in general. It is a plain rimmed bowl form, and its flat vertical body is deepened at the bottom. Based on similar examples, it can be dated to the 4<sup>th</sup> - 6<sup>th</sup> centuries (Poblome, 1999, pp. 57-58, Fig. 22; Ok, 2018, p. 37, Fig. 7/7).

1B140 is represented by two samples. It is a bowl form with a cut rim, shallow body and thick walls (Fig. 4: j). It is a typical 6<sup>th</sup> century AD form at Sagalassos (Poblome, 1999, pp. 59-60, Fig. 23); this date can also be accepted for the Seleukeia Sidera examples. 1B150, of which two specimens have been found, is one of the rare forms encountered at Seleukeia Sidera. It is a slightly everted, upright and plain rimmed bowl (Fig. 4: k). It was dated to the 1<sup>st</sup> - 3<sup>rd</sup> centuries AD<sup>18</sup>. One of the most common forms of the city, 1B170, nine pieces were unearthed in the context. It is a bowl with a simple rim and a hemispherical shape. The most popular period of the form known from Phase 1, which started in Sagalassos in 25 BC, is the 3<sup>rd</sup> century AD. Early specimens are thin-profiled and often have an inverted rim (Poblome, 1999, p. 306); one of the fragments found in the studied context is of this subtype (Fig. 4: l). The remainder of the fragments are thicker in profile (Fig. 4: m-n) and do not have an inverted rim. Therefore, they can be considered to belong to the 3<sup>rd</sup> - first half of the 4<sup>th</sup> centuries AD<sup>19</sup>.

1B200 is a heavy rimmed bowl with an upright thickened rim protruding outward in a triangular shape, with a horizontal groove on the outer face of the rim. One specimen was recovered (Fig. 5: a); based on its counterparts at Sagalassos it can be dated to the 5<sup>th</sup> - 6<sup>th</sup> centuries AD (Poblome, 1999, p. 307, Fig. 36). One 1B210 has been identified. It has a thickened rim protruding outward in a triangular shape; it was in use during the 5<sup>th</sup> - 6<sup>th</sup> centuries (Poblome, 1999, p. 307, Fig. 35). 1B220, one of the most dominant SRSW forms of Seleukeia

---

16 Poblome, 1999, p. 305, Fig. 16; Özden-Gerçeker, 2015, pp. 20-21, Table 11.

17 Poblome, 1999, p. 50, Fig. 18; Özden-Gerçeker, 2015, pp. 22-23; Ok, 2018, pp. 35-36, Fig. 7/2-3; Duman, 2014, p. 11, Fig. 3/62-65.

18 Poblome, 1999, p. 62, Fig. 24.5; Fırat, 1999, p. 28, no. 98; Alanyalı, 2013, p. 131, Çizim 5; Özden-Gerçeker, 2015, pp. 26-27, Table 10.

19 Poblome, 1999, p. 306, Fig. 29; Özden-Gerçeker, 2015, pp. 33-34, Table 13.

Sidera (Sönmez, 2022, p. 43); it is also abundant in the studied context where 15 of them were recovered. Based on similar ones found in Sagalassos, it can be dated to the mid-4<sup>th</sup> - 6<sup>th</sup> centuries AD (Poblome, 1999, p. 307, Fig. 36). Similarly, 1B221, one of the most dominant SRSW forms in the city, is prominently present in the context, where 14 of them were identified (Fig. 5: b). The bowl form with a thickened rim has similar features to 1B220, differentiated from the latter by the groove on the rim (Poblome, 1999, p. 89). It can be dated to the 4<sup>th</sup> - 6<sup>th</sup> centuries AD, based on its parallels<sup>20</sup>.

1B231 is a form that has not been encountered in previous studies in the city; two were identified in the examined context. It is a bowl form with a rectangular profile, thickened out rim and shallow body (Fig. 5: c), and belongs to the 6<sup>th</sup> century AD (Poblome, 1999, p. 307, Fig. 39). 1B232 (Sönmez, 2022, p. 44), one of the most dominant SRSW forms at Seleukeia Sidera, is represented by five examples in the context (Fig. 5: d). The body depth and broadness of the form, which has an angular profile and an everted rim profile, vary; some examples have a tray-like form rather than a bowl. One of the examples is a new variation for Seleukeia Sidera, with a steep slope at the transition from body to mouth (Fig. 5: e). The form can be dated to the 5<sup>th</sup> -6<sup>th</sup> centuries AD, based on parallel examples<sup>21</sup>. 1B233 is a bowl form with a thickened outward protruding rim with a rectangular profile, and with grooves and incised wave motifs inside the rim, and grooves outside the rim (Fig. 5: f). Not common in the city, this form was in use between the 5<sup>th</sup> - 6<sup>th</sup> centuries AD (Poblome, 1999, p. 307, Fig. 41).

## Dishes

Seven different types of dishes from the SRSW group were identified. The first form, 1C100, is represented by three examples. It is a shallow dish form with a flattened plain rim, and a straight body profile (Fig. 5: g). It is one of the most common forms in Seleukeia Sidera (Sönmez, 2022, p. 46). Based on similar examples, a 1<sup>st</sup> - 3<sup>rd</sup> century AD date can be recommended for this form<sup>22</sup>. Another dish form is 1C140 (Fig. 5: h), represented by four samples. It is a shallow-bodied dish with a triangular outward thickened rim and a flat body profile. It was in use between the 4<sup>th</sup> and 6<sup>th</sup> centuries AD<sup>23</sup>. Only one 1C151 was recovered (Fig. 5: i). It is a small vessel with a wide, everted rim. An uncommon form in the city, it belongs to the 2<sup>nd</sup> - first half of the 4<sup>th</sup> century AD (Poblome, 1999, p. 308, Fig. 60). 1C170 is represented with four pieces (Fig. 5: j-k). The upright and slightly inverted rim is thickened outward in the form of a hook. The hemispherical body has a slightly convex slope. Although it was in use between the 1<sup>st</sup> and 3<sup>rd</sup> centuries AD at Sagalassos, the 1<sup>st</sup> century AD

---

20 Poblome, 1999, p. 307, Fig. 37; Ok, 2018, p. 37, Fig. 8/12.

21 Poblome, 1999, p. 307, Fig. 40; Ok, 2018, p. 38, Fig. 8/13.

22 Poblome, 1999, pp. 307-308; Özden-Gerçeker, 2015, pp. 51-52, Tablo 22.

23 Atik, 1995, pp. 132-134, Abb. 54/265; Poblome, 1999, p. 308, Fig. 58; Duman, 2014, p. 11, Fig. 4/101-103; Özden-Gerçeker, 2015, p. 66, Tablo 30; Ok, 2018, Fig. 9/15-18.

examples of this form have a smaller rim diameter (Poblome, 1999, p. 309). The fragments found in Seleukeia Sidera belong to this subtype, and can therefore be dated to the 1<sup>st</sup> century AD.

Three 1C180s were unearthed (Fig. 6: a-b). It is a dish form with a wide rim thickened in a triangular profile, which was in use between the 4<sup>th</sup> and 6<sup>th</sup> centuries AD<sup>24</sup>. 1C182, a variation of 1C180, is represented with one example. It is a vessel with a narrow body profile (Fig. 6: c), with a groove on the outer face of the wide, protruding rim. It belongs to the second half of the 4<sup>th</sup> - 6<sup>th</sup> centuries AD (Poblome, 1999, p. 309, Fig. 67; Ok, 2018, p. 40, Fig. 11/39-40). 1C200 is the last plate form, one of which was found in the context. It is known to belong to the 1<sup>st</sup> - 3<sup>rd</sup> centuries AD from the surrounding cities (Poblome, 1999, p. 309, Fig. 71; Özden-Gerçeker, 2015, p. 84, Table 39).

### **Containers**

In the analysed context, the container form is represented by two types: two pieces of type 1F140 and eight pieces of type 1F150 were identified. 1F140 (Fig. 6: d) has an upright thickened rim, the outer side of which was partitioned with a deep groove. The body with a flat profile expands with a slight slope and bulges at the bottom. The form, which has only been published in Sagalassos, other than Seleukeia Sidera, is dated to the second half of the 4<sup>th</sup> - 6<sup>th</sup> centuries AD (Poblome, 1999, p. 310, Fig.78). 1F150 (Fig. 6: e-g), one of the most common SRSW forms at Seleukeia Sidera (Sönmez, 2022, p. 56), is also dominant in the studied context; all eight specimens were unearthed in the same layer. They are deep bowls with triangular thickened rims and different rim diameters. Based on parallel examples, they can be dated between the last quarter of the 1<sup>st</sup> century BC and mid-4<sup>th</sup> century AD<sup>25</sup>.

### **Local/Regional Red Slip Wares (LocRSW)**

A group of red slipped ware was identified among the pottery unearthed by the Isparta Museum at Seleukeia Sidera in 1993 and collected during the studies carried out by our team since 2016. This group, which was understood to be different from the other pottery productions in Sagalassos and the surrounding area, is the second dominant red slipped group of Seleukeia Sidera after the SRSWs (Hürmüzlü & Sönmez, 2021; Sönmez, 2022). In addition to nine different types and subtypes, also singular forms of this group have been identified. All the types, except Type 9, are dated to the end of the 4<sup>th</sup> - 6<sup>th</sup> centuries AD (Sönmez, 2022, p. 65). Type 9, which has a different clay from other LocRSW samples, can be dated to the second half of the 1<sup>st</sup> - 3<sup>rd</sup> centuries AD based on its similarity with 1C101, one of the SRSW types (Sönmez, 2022, p.

---

24 Poblome, 1999, p. 309, Fig. 65; Duman, 2014, Fig. 4/105; Özden-Gerçeker, 2015, p. 78; Ok, 2018, p. 40, Fig. 11/36-38.

25 Poblome, 1999, p. 310, Fig. 79; Özden-Gerçeker, 2015, p. 89, Table 42; Şimşek & Bilgin, 2018, p. 180, Fig. 7.

78; Poblome, 1999, p. 308, Fig. 48). Production waste and clay sources belonging to the Seleukeia Sidera LocRSW group have not been identified yet, so the exact place of production cannot be determined (Sönmez, 2022, p. 247). However, it is possible that they were produced in Seleukeia Sidera or a nearby settlement (Hürmüzlü & Sönmez, 2021, p. 355).

Six LocRSW fragments were found at different levels in the studied context. The two fragments (Fig. 6: h-i) belonging to the Seleukeia Sidera Type 1A subtype (Hürmüzlü & Sönmez, 2021; Sönmez, 2022, pp. 66-68) are bowls with a hemispherical body with a very wide rim. One has a thickened rim with an angular profile, and the top of the rim was flattened (Fig. 6: h). Circular and semi-circular motifs were stamped on the vessel. Another ware similarly has a wide rim (Fig. 6: j). In this fragment, a single row of stamped pearl decoration was applied on the upper face of the rim. Based on SRSW 1B233 (Poblome, 1999, pp. 96-98, Fig. 41) and local production counterparts found in surrounding cities, it can be dated to the 5<sup>th</sup> - 6<sup>th</sup> centuries<sup>26</sup>.

Two pieces can be included in Seleukeia Sidera LocRSW Type 1B (Fig. 6: j-k; Hürmüzlü & Sönmez, 2021; Sönmez, 2022, pp. 69-70). First one is a bowl form with an undecorated rim that is clearly extended outward. Second is a bowl form with a wide everted rim, tapered upward. Concentric circle decoration was stamped on the upper part of the rim in a single line. The rim diameters of the two pieces are also small, as is often seen in Type 1B examples found in the city (Sönmez, 2022, pp. 69-70). Based on local productions of different cities and their counterparts within the LRD group, they can be dated to the late 4<sup>th</sup> - 6<sup>th</sup> centuries<sup>27</sup>.

The last two locally produced fragments in the context are from the LocRSW Type 1C group (Fig. 6: l). Fragments of this subtype are similar to Type 1A in terms of their general characteristics, but the rim is clearly wider and does not protrude downwards (Hürmüzlü & Sönmez, 2021; Sönmez, 2022, pp. 70-71). The rim diameter is not large, there is a pearl-shaped relief decoration stamped in a single line on the upper face of the lip. Although the body is not preserved, it is understood from the sloping of the wall that it had a deep body. A mid-5<sup>th</sup> to 6<sup>th</sup> centuries AD date can be suggested for the type with local production parallels in many cities<sup>28</sup>, based on its similarities with the LRD group examples (Hayes, 1972, p. 379, Fig. 81), and examples from Sagalassos (Poblome, 1999, pp. 96-98, Fig. 41) and Arykanda (Yaman, 2018, pp. 133-134, Lev. 26/140-143).

---

26 Firat, 1999, pp. 34-35, Pl. 45, No. 158; Yaman, 2018, p. 378, Pl. 26/140.

27 Hayes, 1972, p. 379, Fig. 81; Williams, 1989, p. 55, Fig. 27/315; Poblome, 1999, pp. 66-69, Fig. 27; pp. 96-98, Fig. 41/1; Firat, 1999, pp. 34-35, Pl. 45/158; Bilgin, 2017, pp. 401-404, Pl. 101-106, No. 689-723; Akın, 2012, p. 34, Pl. 10/65-66; Yaman, 2018, pp. 134-135, Pl. 26/140-143.

28 Yılmaz, 2008, p. 151, no. 79; Akın, 2012, p. 34, Pl. 10/66; Bilgin, 2017, pp. 501-502, Pl. 234, No. 1558-1560; Yaman, 2018, pp. 133-134, Pl. 26/140-143.

## Oinophoroi

Fragments of seven vessels of the *oinophoros* form were identified in the context. All fragments are poorly preserved. They all belong to the round flask type *oinophoros*<sup>29</sup>; six of them are body sherds and one is a handle. *Oinophoroi*, which were produced in Sagalassos, Tripolis, Laodikeia and Pednelissos during the Late Roman Imperial period<sup>30</sup>, are frequently encountered in Seleukeia Sidera. The examples found in the city have a very rich decoration repertoire made in relief. In the vessels where Dionysiac scenes are depicted; there are Dionysos, maenads, satyrs, dancing men, various animal figures and floral motifs<sup>31</sup>. Too little of the decoration of the *oinophoroi* identified in the context is preserved to provide any detailed information. *Oinophoroi* were produced in Sagalassos between the second half of the 4<sup>th</sup> century and the first half of the 7<sup>th</sup> century AD (Poblome, 1998, p. 207; Talloen & Poblome, 2019, pp. 425-426). It is known that *oinophoroi* were produced in Laodikeia in the 5<sup>th</sup> and 6<sup>th</sup> centuries AD (Bilgin, 2017, pp. 523-524), and in Tripolis in the 6<sup>th</sup> century AD (Duman, 2018). Archaeometric analyses of the *oinophoroi* found in Seleukeia Sidera showed that they were produced from the same clay (Fabric 1) as the red slipped vessels found in the city, whose production location has not yet been determined (Sönmez, 2022, pp. 187-196; Sönmez, 2023). Based on the similar examples discussed above, it can be assumed that they date to between the second half of the 4<sup>th</sup> century and the first half of the 7<sup>th</sup> century AD.

## Other Table Wares

The first of the two pieces recovered during the excavation is in the form of a cup (Fig. 6: m), and the other a miniature cup (Fig. 6: n). The cup form (Fig. 6: m) has a plain rim, with a prominent groove on the outside. The neck has a straight profile and is quite high, descending steeply. The neck and bulging shoulder are connected in a sharp curvature. It can be dated to the 1<sup>st</sup> - 2<sup>nd</sup> centuries AD, based on its counterparts in different cities (Degeest, 2000, p. 256, Fig. 167; Vapur, 2009, pp. 46-47, Drawing 10/80). Very small miniature cup has a plain, slightly everted rim, the body with an "S" profile narrows at the neck and is bulging at the body. One handle has been preserved, but thanks to a very close parallel found in Sagalassos, it can be understood that it has double handles (Degeest, 2000, p. 171, Fig. 218). Based on the example of Sagalassos, a date between the late 5<sup>th</sup> century and mid-7<sup>th</sup> century AD can be suggested.

---

29 For *oinophoroi* of the flask type, see: Poblome, 1998; Talloen & Poblome 2019; Sönmez, 2022; Sönmez, 2023.

30 Sagalassos: Poblome, 1998, p. 207; Talloen & Poblome, 2019; Tripolis: Duman, 2018; Laodikeia: Bilgin, 2017; Pednelissos: Jackson et al., 2012, p. 95, Fig. 5.

31 Lafli, 1996; Lafli, 2004; Sönmez, 2022, pp. 96-132; Sönmez, 2023.

### Late Roman Unguentaria

A rim (Fig. 6: o) and a fully preserved lid belonging to Late Roman *unguentaria* were unearthed. This form, which is dated to the 5<sup>th</sup> - middle of the 7<sup>th</sup> century AD, was widespread in the Late Roman world<sup>32</sup>. Numerous examples were also found during the studies carried out in Seleukeia Sidera. The analyses of two *unguentarium* fragments found in the city, which are likely to be wasters, showed that the Ni/Cr ratios are compatible with the clay raw material of the Kuleönü Plain, where Seleukeia Sidera is located (Hürmüzlü et al., 2021, pp. 344-346; Sönmez, 2022, pp. 202-203). This suggests that *unguentaria* may have been produced in the city. The rim and lid identified in the context that can be dated between the 5<sup>th</sup> and the mid-7<sup>th</sup> centuries AD, based on the similar examples mentioned above.

### Coarse Wares

During the studies carried out in Seleukeia Sidera, a small number of misfired fragments of coarse ware pottery were found, pointing to the local production of coarse ware in the city (Hürmüzlü et al., 2020). Thereupon, archaeometrical analyses were carried out on fragments of various functions and forms, as well as on the misfired pieces, and compared with clay samples taken from both the shore of the modern Atabey Dam Lake, which is close to the city, and from the Kuleönü Plain. As a result of these analyses, two different types of fabric (Fabric 2 and 3) were determined, used in the production of preparation/serving wares, cooking wares, pithoi and transport amphorae. Consequently, all coarse ware found in the city from the mentioned function groups could be identified as products of Seleukeia Sidera<sup>33</sup>.

All the coarse ware excavated in the examined context were vessels produced in Seleukeia Sidera, using Fabric 2 and 3. The excavated examples consist of preparation/serving wares, cooking wares and transport amphorae<sup>34</sup>. Apart from this, as is the case throughout the city, cooking pots found in the context are the most diverse group in terms of forms among the coarse wares. Cooking pots, casseroles and pans were identified.

---

32 For some examples, see: Harrison et al., 1968; Hayes, 1971; Baldoni & Franco, 1995; Gassner, 1997; Degeest et al., 1999; Cottica, 2000; Vapur, 2001; Eisenmenger, 2003; Ötüken, 2003; Çaylak-Türker, 2005; Özüdoğru & DüNDAR, 2007; DüNDAR, 2008; İdil & Kadioğlu, 2009; Özhanlı & Fırat, 2011; Sönmez, 2016; Sönmez, 2018; Bilgin, 2018; Meriç, 2018; Kaya, 2019.

33 Sönmez, 2022, pp. 197-202; TÜBİTAK 1002 Short Term Support Project No. 220K298

34 The amphorae included in the statistical evaluation are not discussed in detail here.

## **Preparation/Service Wares**

### **Jugs**

A total of six jug fragments were identified in the context: four types of jugs and two single samples that were previously identified in the city. One example of the Seleukeia Sidera Type 1 (Sönmez, 2022, p. 156) was identified (Fig. 7: a). It is a jug form with an everted, slightly nodular rim and a narrow neck. Based on a similar jug found at Sagalassos, it can be dated to the second half of the 1st century AD (Degeest, 2000, p. 140, Fig. 133). Second jug form is classified as Type 3A (Fig. 7: b), this type can be dated between 4<sup>th</sup> century- first half of the 6<sup>th</sup> century AD (Degeest, 2000, p. 192, Fig. 193). Another jug form (Fig. 7: c-f) falls into Type 4, which is one of the dominant types of Seleukeia Sidera (Sönmez, 2022, p. 158). Although there are slight differences in the details of the form, the vertical rim is thickened outward and rounded, and there is a prominent groove on the outer side of the rim. It is narrowed in the neck and opens considerably at the body. The form can be dated to the 4<sup>th</sup> - mid 7<sup>th</sup> century AD, based on parallel examples found in Sagalassos (Degeest, 2000, pp. 160-161, Fig. 188).

One Jug Type 7B (Sönmez, 2022, p. 160) was identified (Fig. 7: g). The upright and slightly nodular rim is faintly everted, narrowing clearly in the flat neck. One horizontal relief line on the outer side of the neck is typical for this type. Other examples found in the city are dated to the 4<sup>th</sup> - 6<sup>th</sup> centuries AD, based on contextual information (Sönmez, 2022, p. 160). The same date can be accepted for Type 7B. Another jug fragment (Fig. 7: h) is a singular example that has not been detected before in the city. There is a wide and shallow groove on the outer face of the everted triangular rim. The neck is high and descends steeply. A date cannot be suggested since the fragment has not yet been identified. A jug fragment with a slightly everted and thickened rim have been found (Fig. 7: i). It narrows slightly in the neck and descends to the body by widening with a flat profile of the shoulder. This piece also cannot be dated based on parallel examples. One table amphora (Fig. 7: j) falls under Type 3. It has an everted rectangular rim and a straight neck. For this type as well, a date cannot be suggested, since no similar examples have been found yet (Sönmez, 2022, p. 167).

### **Preparation Bowls**

Preparation bowls consist of three Seleukeia Sidera Type 3 fragments and one singular example. Two fragments fall into Type 3 (Fig. 7: k-l). The plain rim is raised, there are frequent and sharp grooves on the outer face. Since the body part is not well-preserved, the form of the body is not known. Type 3 is dated to the 4<sup>th</sup> - mid-7<sup>th</sup> century AD, based on stratigraphic data from the city (Sönmez, 2022, p. 172), and similar examples found in Sagalassos belong to the same date range (Degeest, 2000, p. 371, Fig. 158). The singular example has a plain inverted rim (Fig. 7: m). The form widens from the rim to the body. On the

outside, just below the rim, there is a bow-shaped horizontal handle. The form has not been found in the city before, and a date cannot be suggested, since no similar forms have been found in the surrounding cities.

### Basins

Basins (Fig. 8: a-b), which have upright rims and deep bodies, are massive vessels with rather large bodies and wide rims. First one (Fig. 8: a) has a plain flattened rim, and a step-like transition was made to the rim with a deep groove on the outer side. The body of the hemispherical vessel is quite thick. It similarly has an upright and flattened rim. There are two parallel grooves on the rim. An amorphous oval-shaped projection is preserved on the rim. Latter one (Fig. 8: b) has a deeper body and a thinner wall than first example (Fig. 8: a), the body narrows down steeply. Based on similar examples from Sagalassos, the end of the 5<sup>th</sup> - mid-7<sup>th</sup> century range is recommended for this type which is represented by a small number of examples at Seleukeia Sidera (Sönmez, 2022, pp. 174-175).

### Cooking Pots

This category has one of the largest variety of types in Seleukeia Sidera. Two of the seven types unearthed in the examined context are new types that have not been detected before in the city. There are also two singular examples. Of Type 1A, which is one of the most abundantly found cooking pot types in Seleukeia Sidera (Sönmez, 2022, p. 177), seven fragments were identified. The inner side of the upright and slightly everted rim was dented with a groove. The short neck is slightly narrow, expanding towards the shoulder. A parallel to this type, which is understood to be a form specific to the region, was found only at Sagalassos productions, where it was dated between the second half of the 1<sup>st</sup> and the mid-7<sup>th</sup> century AD<sup>35</sup>. The same date can be accepted for the studied fragments. Cooking pot Type 1B, of which one specimen was identified, is not well-preserved. The only difference of Type 1B, which has the same form features as Type 1A, is that there is no groove on the inner surface of its thickened rim. Based on parallels found in Sagalassos (Degeest, 1995, p. 208, Fig. 10; Degeest, 2000, p. 376, Fig. 176) and Ephesos (Ladstätter, 2008, p. 188, Taf. 325, No. K590), the first half of the 2<sup>nd</sup> to the 8<sup>th</sup> century AD is an acceptable range.

Cooking pot Type 2 (Fig. 9: b-e) is the form with the largest number of representatives in the context: ten fragments were recovered. The upright rim is slightly everted, straight profiled and raised. A hook-shaped ridge for the lid is made inside the neck. The outside of the neck is sharply concave, broadly descending towards the bulging body. The profile of one piece (Fig. 9: e) is

---

35 Degeest, 1995, p. 208, Fig. 10; Degeest et al., 1993, p. 129, Fig. 36; Degeest, 2000, p. 376, Fig. 176.

almost completely preserved. It is a bowl with a bulging body and a flat bottom. At the rim of one example (Fig. 9: d), the strip handle is preserved; it continues at a wide angle. It is one of the forms that remained in use throughout the Roman Imperial and Late Roman periods. Based on parallels from different cities, it can be dated from the second half of the 1<sup>st</sup> to the mid-7<sup>th</sup> centuries<sup>36</sup>.

Three pieces that fall into cooking pot Type 7 (Sönmez, 2022, p. 180) have been identified (Fig. 9: f-h). The form has a wide rim with an everted angular profile and an “L” shaped turn on its neck. It expands from neck to body with a straight body profile. A wave-shaped line was stamped in a single row at the rim of one example (Fig. 9: g). The rim is flattened in other ones (Fig. 9: f and h), there is a wide groove on the outside of the rim. Similar examples of the type found in Arykanda (Yaman, 2018, pp. 243-244, Lev. 56, No. 386) and Limyra (Yener-Marksteiner, 2007, Taf. 21, No. C62) belong to the 5<sup>th</sup> century AD; the same date can be accepted for the fragments found in the context. Cooking Pot Type 8 (Fig. 9: i) has a similar rim profile to Type 7, but with a different flat body profile, descending with a slightly narrower slope. A 1<sup>st</sup> - 7<sup>th</sup> century date range can be suggested for the form that is common in Lykian cities<sup>37</sup>.

Cooking pot Type 11 is represented by two fragments (Fig. 9: j). The lip of the slightly inclined, upright mouth is thickened outwards, and a projection is made on the inside that serves as a ridge for the lid. The neck is very short, with a body profile descending in a convex slope directly towards the bulging body. For this type, of which three examples have been found in different contexts in the city (Sönmez, 2022, p. 182), a date cannot be suggested based on the context, and no similar vessel has been found in other cities.

Cooking pot Type 13 is a form that is represented by an individual fragment in the city (Sönmez, 2022, pp. 182-183, No. 505) (Fig. 9: k). The nodular rim has a hook-like triangular profile. It descends by expanding from the neck to the shoulder and has a bulging body. It is stated that the form found in the Lykian repertoire from the end of the 4<sup>th</sup> century AD was exported to many cities outside of Lykia (Yaman, 2018, pp. 245-246); a date between the end of the 4<sup>th</sup> and the 7<sup>th</sup> centuries AD is recommended<sup>38</sup>. There is a new type that is not encountered in other areas of Seleukeia Sidera; it was named Type 14 (Fig. 10: a). The plain rim is upright and raised, making a sharp turn in the neck, connecting with the convex shoulder. Based on the Arykanda examples, the second quarter of the 5<sup>th</sup> century AD can be accepted as date (Yaman, 2018, pp. 252-253, Lev. 59, No. 408-410).

---

36 Degeest, 1995, pp. 208-209, Fig. 34; Degeest, 2000, p. 376, Fig. 177; Mader, 1998, Abb. 36, No. 45; De Staebler, 2012, p. 67, Fig. 12.3; Gassner, 1997, pp. 102-103, Taf. 30, No. 367.

37 Yaman, 2018, pp. 230-232, Pl. 53, No. 355-356; Eisenmenger, 2003, p. 195, Pl. CX, No. LI 89 G/H II; Yener-Marksteiner, 2007, pp. 265-266, Tafel 21, No. C57-C59; Mader, 1998, Abb. 36, Nr. 46; Şen, 2017, p. 484, Pl. 57, No. 520.

38 Marksteiner et al., 2008, p. 266, Taf. 22, C66; Şen, 2017, pp. 162-263, Pl. 58-61, No. 524-552; Yaman, 2018, pp. 245-247, Lev. 57-58, No. 389-397.

The last cooking pot sample (Fig. 10: b) is a unique example that was detected for the first time in the city. The upright rim is slightly inverted and raised. A convex profile is formed in the raised part between the rim and the neck. It is connected to the shoulder with a sharp turn under the neck.

### Casserole

One fragment in the form of a casserole was identified as Seleukeia Sidera Casserole Type 1 (Sönmez, 2022, p. 184). A small part of the rim is preserved (Fig. 10: c). As the form was in use for a long period, the 2<sup>nd</sup> - 7<sup>th</sup> centuries AD can be suggested based on similar examples<sup>39</sup>.

### Pans

As a last form of cooking ware, pans (Fig. 10: d-e) appeared in the context we examined for the first time in the city, as a new type for Seleukeia Sidera. It has an upright and plain, angular rim profile. One example (Fig. 10: e) descends steeply from the rim to the body, making a sharp turn from the body to the base. Burn marks on the bottom of the pot are a clear indication of its use in cooking. In another ware, a smaller part of the body is preserved, with a slight inward slope below the plain rim (Fig. 9: d). In this fragment, a small part of the circular handle extending vertically at the edge of the rim was preserved. Any similar example of this form has not yet been found.

### Evaluation

The pottery from Seleukeia Sidera has been examined systematically since 2016. According to these evaluations, Late Roman pottery predominate in both survey and excavation studies throughout the city, probably due to the selection of the studied areas. For example, in the intensive survey carried out around the Central Transept Basilica<sup>40</sup>, Roman Imperial period pottery were found at a rate of 35% and Late Roman ones at a rate of 48%. There is a similar situation in the intensive survey conducted to detect iron production activities, with the Roman Imperial period represented by 32% and the Late Roman period by 52% of the material. As a matter of fact, the dominance of Late Roman pottery is evident from a study that evaluated all the pottery found throughout the city: the Roman Imperial period has a rate of 22%, and the Late Roman Imperial period has a rate of 67%<sup>41</sup>. This view points to the dense settlement of the city during the Late Roman Imperial period, although it may also be the result of the lack of areas and layers containing material from periods predating the Late

---

39 Degeest, 1995, p. 208, Fig. 24; Degeest & Waelkens, 1993, p. 141, Fig. 106; Degeest, 2000, p. 375, Fig. 472; Rautman, 1995, p. 69, Fig. 22, No. 105; Şen, 2017, p. 509, Pl. 77, No. 659-661.

40 See, in this volume, Tütünsatar et al., Tracing Early Christianity with Ground Penetrating Radar The Case of The Transept Basilica at Seleukeia Sidera.

41 Sönmez, 2022, p. 245, Graph 20. The remaining 11% comprises vessels that were in use during both periods.

Roman period<sup>42</sup>.

The context we examined in this article, on the other hand, contains a deposit of pottery predating the Late Roman period, for the first time. The first of the two different layers evaluated in the context - Layer 1 - includes five separate levels, while Layer 2 consists of only one level. Here, the two layers are discussed separately with their chronological distributions<sup>43</sup>.

Pottery retrieved from Layer 1 consist of a total of 146 pieces. Looking at the chronological distribution, the Late Roman period (between the 4<sup>th</sup> and 7<sup>th</sup> centuries AD) constitutes 65% of the material. Roman Imperial period fragments (between the 1<sup>st</sup> and 3<sup>rd</sup> century AD) have a ratio of 23%. Forms used unchanged for a long time, between the 1<sup>st</sup> and 7<sup>th</sup> centuries AD, constitute 10% of the assemblage. At 2% the Hellenistic period pottery are probably intrusive fragments.

The chronological distribution of the pottery in Layer 2 is quite different. Roman Imperial period pottery constitute the dominant group at 41%, while Late Roman fragments are at 27%, and the vessels dated between the 1<sup>st</sup> and 7<sup>th</sup> centuries have a ratio of 3%. One of the most important differences compared to Layer 1 is the proportion of Hellenistic period pottery that stand out with 29%.

When comparing the two layers, it is clear that they represent two different periods. The fact that no architectural remains were found in the deposits from which the pottery material was retrieved, suggests that they were refuse fills brought from different areas of the city and deposited here. The chronological distribution of pottery in Layer 1 is dated to the Late Roman period, characterising it as a deposit from 4<sup>th</sup> - 7<sup>th</sup> centuries. The dominance of different periods in this date range, as we know from the city in general, refers to a period in the 5<sup>th</sup> - 6<sup>th</sup> centuries AD. In Layer 2, pottery dated between the Hellenistic period and the Roman Imperial period stand out. As the most dominant material is Roman Imperial in date, with 41%, the layer must belong to the early phases of this period.

---

42 Sönmez, 2022, p. 244.

43 When calculating the chronological distribution, only the wares that are sure to belong to individual pots were included in the evaluation, taking into account the MNV factor. In addition, Late Roman amphorae, which were not evaluated here in detail due to being out of our scope, were included in the calculation in order to determine the chronological distribution correctly. Of the 41 amphorae fragments which were dated, 40 were in the same form as the Sagalassos amphorae, dating back to 4<sup>th</sup>-7<sup>th</sup> centuries AD (Talloon & Poblome, 2019). However, archaeometric analyses performed on amphorae with the same clay contents revealed that they were produced in Seleukeia Sidera (TÜBİTAK 1002 Short Term Support Project, code 220K298). One amphora is similar to the 6H130 type found in Sagalassos, parallels of which are dated from the end of the 5<sup>th</sup>- mid-6<sup>th</sup> centuries AD (Degeest, 2000, p. 257, Fig. 214).

When looking at Seleukeia Sidera in general, as mentioned above, 4<sup>th</sup> - 7<sup>th</sup> century AD pottery appears to be dominant, while Roman Imperial period groups have a rate of 22%<sup>44</sup>. The pottery from Layer 1 exhibits a chronological distribution similar to that of the rest of the city. Layer 2 is the first Hellenistic-Roman Imperial period deposit identified in the city. The pottery evaluated in the context are the same forms as the pottery encountered in the city before, however, new forms have also been identified. ESA group is very rarely encountered in the city, and it appeared for the first time in this context. SRSWs and LocRSWs are consistent with the forms commonly detected in the city. Preparation and Serving Wares are also made up of forms that we encounter in the city. Forms enriching the repertoire of the city have emerged from the group of cooking vessels that were found in the excavated context. Cooking pot Type 14 and Pan Type 1 are new forms for the urban repertoire. Cooking Pot Type 14 (Fig. 10: a) is dated to the Late Roman Imperial period based on similar examples; this date range is also consistent with the date of Level 1 where they were recovered from. Pan Type 1 (Fig. 10: d-e) was also a new form but could not be dated based on similar examples.

The surveys and excavations carried out on and around Hisar Tepe provide us with a nearly complete overview of the pottery repertoire for the city of Seleukeia Sidera. Of course, it should be noted that the chronology and types of pottery uncovered so far are related to the selection of the areas where excavations or surveys took place. It is certain that future studies, especially in the residential areas, will contribute significantly to our knowledge of the city's pottery repertoire in the coming years.

---

44 Sönmez, 2022, p. 244.

	Surface	TN0	TN1	TN2	TN3	TN4	TN5	TN6	Total
SRSW	2	56	32	32	66	92	47	127	454
Local/Regional red slip ware		1			4	1	1		7
Oinophoroi			1	2	2		1	1	7
Miscellaneous Table ware		2	8	4	12	7		37	71
ESA								1	1
Hook-rim bowls								3	3
Echinus bowls								7	7
Preparing/serving vessels	1	103	73	104	154	110	43	121	715
Cooking wares	10	76	48	40	76	108	51	118	527
Amphorae			2	9	15	15	4	10	55
Pithoi				2				4	6
Storage jar					1				1
Late Roman Unguentaria				1			1		2
<b>Total</b>	13	237	164	194	326	335	148	427	<b>1849</b>

**Table 1:** Numbers of the pottery finds according to the function and groups in different layers of trench X24-25 (All sherds).

	Surface	TN0	TN1	TN2	TN3	TN4	TN5	TN6	Total
SRSW	1	1	1	14	20	31	14	45	127
Local/Regional red slip ware		1			4		1	1	7
Oinophoroi			2	2	1		1	1	7
Miscellaneous Table ware			5	1	2	1		20	29
ESA								1	1
Hook-rim bowls								3	3
Echinus bowls								7	7
Preparing/serving vessels			4	9	11	4	2		30
Cooking wares		1	5	6	8	10		11	41
Amphorae			2	6	15	15	4	10	52
Pithoi				2			1	5	8
Storage jar					1				1
Late Roman Unguentaria				1			1		2
<b>Total</b>	1	2	19	41	62	61	24	104	<b>315</b>

**Table 2:** Numbers of the pottery finds according to the function and groups in different layers of trench X24-25 (MNV).

## Figure List

Fig. 1. Amphora Rim Fragment from Hisar Tepe Survey (Drawing by Hilal Uslu, Seleukeia Sidera Excavation Archive).

Fig. 2. Banded Ware Fragments Hisar Tepe Survey (Drawing by Hilal Uslu, Seleukeia Sidera Excavation Archive).

Fig. 3. Echinus Bowls (a-e) and Hook-rim Bowls (f-h) from Trench X24-25 (Drawing by Burak Sönmez Seleukeia Sidera Excavation Archive).

Fig. 4. Eastern Sigillata A (a); Sagalassos Red Slip Wares from (b-n) Trench X24-25 (Drawing by Burak Sönmez Seleukeia Sidera Excavation Archive).

Fig. 5. Sagalassos Red Slip Wares from Trench X24-25 (Drawing by Burak Sönmez Seleukeia Sidera Excavation Archive).

Fig. 6. Sagalassos Red Slip Wares (a-g); Local/Regional Red Slip Wares (h-l); Other Table Wares (m-n); Late Roman Unguentarium (o) from Trench X24-25 (Drawing by Burak Sönmez Seleukeia Sidera Excavation Archive).

Fig. 7. Preparation/Serving Wares (a-j); Preparation Bowls (k-m) from Trench X24-25 (Drawing by Burak Sönmez Seleukeia Sidera Excavation Archive).

Fig. 8. Basins from Trench X24-25 (Drawing by Burak Sönmez Seleukeia Sidera Excavation Archive).

Fig. 9. Cooking Pots from Trench X24-25 (Drawing by Burak Sönmez Seleukeia Sidera Excavation Archive).

Fig. 10. Cooking Pots (a-b); Casserole (c); Pans (d-e) from Trench X24-25 (Drawing by Burak Sönmez Seleukeia Sidera Excavation Archive).

## Bibliography

Akın, F. (2012). *Rhodiapolis Seramikleri Roma Dönemi Tabakları, Çanakları ve Kâseleri 2006-2011 Buluntuları* [Unpublished master thesis]. Akdeniz Üniversitesi.

Alanyalı, H. S. (2013). Side 2011-2012 Yılı Çalışmaları. *Anadolu Akdenizi Arkeoloji Haberleri (Anmed)*, 11, 121-133.

Anderson-Stojanović, V. R. (1992). *Stobi The Hellenistic and Roman Pottery*. Princeton University Press.

Atik, N. (1995). *Die Keramik aus den Südthermen von Perge*. *Istanbuler Mitteilungen Beiheft* 40. Ernest Wasmuth.

Baldoni, D. & Franco, C. (1995). Unguentaria Tardo-Antichi da Iasos. *RdA*, XIX, 121-134.

Berlin, A. M. (1999). Studies in Hellenistic Ilion: The Lower City. Stratified Assemblages and Chronology. *Studia Troica*, 9, 79-159.

- İlgin, M. (2017). *Laodikeia'nın Geç Antik Çağ Yerel Üretim Kırmızı Astarlı Seramikleri*. [Unpublished doctoral dissertation]. Pamukkale Üniversitesi.
- Bilgin, S. (2018). Perge'de Bulunmuş Geç Roma Dönemi Damgalı Unguentariumları. In T. Kahya, A. Özdzibay, N. Tüner Önen & M. Wilson (Eds.), *Uluslararası Genç Bilimciler Buluşması II: Anadolu Akdenizi Sempozyumu Bildiri Kitabı 04-07 Kasım 2015* (pp. 117-132). Koç Üniversitesi Suna & İnan Kıraç Akdeniz Medeniyetleri Araştırma Merkezi.
- Bingöl, O. (1994). Seleukeia Sidera (Bayat) 1993 Yılı Arkeolojik Kazıları. *Göller Bölgesi Arkeolojik Kültürel-Turistik Araştırma ve Değerlendirme Projesi*, 43-76.
- Bingöl, O. (2012). Seleukeia Sidera. In O. Bingöl, A. Öztan & H. Taşkıran (Eds.), *Anatolia (Anadolu) DTCF 75. Yıl Armağanı* (pp. 457-470). Ankara Üniversitesi Dil Tarih ve Coğrafya Fakültesi.
- Braekmans, D. (2010). *The Archaic, Classical and Hellenistic Ceramics in the Later Territory of Sagalassos and Düzen Tepe: The Petrographic and Geochemical Evidence* [Unpublished doctoral dissertation]. Katholieke Universiteit Leuven.
- Braekmans, D. (2017). Reconstructing Regional Trajectories: The Provenance Distribution of Archaic to Hellenistic Ceramic in Central Pisidia (South-West Turkey). *Archaeometry*, 59, 472-492. <https://doi.org/10.1111/arcm.12259>
- Cottica, D. (2000). Unguentari Tardo Antichi dal Martyrion di Hierapolis, Turchia. *MÉFRA*, 112(2), 999-1021. <https://doi.org/10.3406/mefr.2000.9551>
- Çakalgöz, S. (2011). *Seyitömer Höyüğü Kazıları Işığında Eskişehir, Afyon, Kütahya Çevresinde Bulunan Frig Keramiği* [Unpublished doctoral dissertation]. Dokuz Eylül Üniversitesi.
- Çaylak-Türker, A. (2005). Myra'da Aziz Nikolaos'un Yağ Kültüyle İlişkili Seramik Kaplar. *Adalya*, VIII, 311-328.
- Daems, D., Van Der Enden, M., Talloen, P. & Poblome, J. (2019). The Hellenistic Pottery Repertoire made at Sagalassos, SW Anatolia. In A. P. Giros (Ed.), *Daily Life in a Cosmopolitan World: Pottery and Culture During the Hellenistic Period* (pp. 81-96). Phoibos Verlag.
- Degeest, R. (1995). A Preliminary Report on the Coarse Ware behind the Library at Sagalassos. In M. Waelkens, J. Poblome (Eds.), *Sagalassos III, Report on the Fourth Excavation Campaign of 1993* (pp. 207-233). Leuven University Press.
- Degeest, R. (2000), *The Common Wares of Sagalassos*. Brepols Publishers.
- Degeest, R. & Waelkens, M. (1993). II. The Common Ware. In M. Waelkens (Ed.), *Sagalassos I: First General Report on the Survey (1986-1989) and Excavations (1990-1991)* (pp. 131-152). Leuven University Press.
- Degeest, R., Ottenburgs, R., Kucha, H., Viaene, W., Degryse, P. & Waelkens, M.

- (1999). The Late Roman Unguentaria of Sagalassos. *BABESCH*, 74, 247-262.
- De Staebler, P. D. (2012). Roman Pottery. In C. Ratté, P. D. De Staebler (Eds.), *Aphrodisias Regional Survey* (pp. 59-86). Mainz Am Rhein.
- Duman, B. (2010). *Laodikeia Hellenistik ve Erken Roma Dönemi Seramiği* [Unpublished doctoral dissertation]. Selçuk Üniversitesi.
- Duman, B. (2014). Red Slip Pottery from Laodiceia/Phrygia. *ReiCretActa*, 43, 9-17.
- Duman, B. (2018). The First Evidence of Round Oinophoros Workshop in Late Roman Tripolis. *RCRFACTa*, 45, 667-674.
- Durgu, F. (2013). *Seyitömer Höyük MÖ I. Bin Gri Monokrom Seramikleri* [Unpublished master thesis]. Dumlupınar Üniversitesi.
- Dündar, E. (2008). *Patara Unguentariumları*. Ege Yayınları.
- Egloff, B. J. (1993). A Method for Counting Ceramic Rim Sherds. *AmerAnt*, 38(3), 351-353. <https://doi.org/10.2307/279724>
- Eisenmenger, U. (2003). Late Roman Pottery in Limyra (Lycia). In C. Abadie-Reynal (Ed.), *Les Ceramiques en Anatolie aux Epoques Hellenistique et Romaine* (pp. 193-196). Instituts Français D'Études Anatoliennes George Dumézil.
- Fırat, N. (1999). *Perge Konut Alanı Keramiği* [Unpublished doctoral dissertation]. İstanbul Üniversitesi.
- Fırat, N. (2003). Roman Period Ceramics. In H. Abbasoğlu, W. Martini (Eds.), *Die Akropolis von Perge, Band 1, Survey und Sondagen 1994-1997* (pp. 123-130). Philip von Zabern.
- Gassner, V. (1997). *Forschungen in Ephesos XIII/1/1, Das Südtor der Tetragonos Agora Keramik und Kleinfunde*. Verlag der Österreichischen Akademie der Wissenschaften. <https://doi.org/10.11588/diglit.52037>
- Harrison, R. M., Fıratlı, N. & Hayes, J. W. (1968). Excavations at Saraçhane in Istanbul: Fifth Preliminary Report, With a Contribution on A Seventh-Century Pottery Group. *DOP*, 22, 195-216. <https://doi.org/10.2307/1291282>
- Hayes, J. W. (1971). A New Type of Early Christian Ampulla. *BSA*, 66, 243-248.
- Hayes, J. W. (1972). *Late Roman Pottery*. The British School at Rome.
- Hayes, J. W. (1985). Sigillate Orientali. *Enciclopedia dell'Arte Classica e Orientale. Atlante delle Forme Ceramiche II. Ceramica Fine Romana nel Bacino Mediterraneo* (pp. 1-96). Istituto della Enciclopedia italiana.
- Hayes, J. W. (2008). *The Athenian Agora XXXII, Roman Pottery: Fine-ware Imports*. The American School of Classical Studies at Athens.

- Henrickson, R. C. (1994). Continuity and Discontinuity in the Ceramic Tradition of Gordion During the Iron Age. In A. Çilingirođlu & D. H. French (Eds.), *The Proceeding of the Third Anatolian Iron Ages Colloquium held at Van, 6-12 Ağustos, 1990* (pp. 95- 129). British Institute at Ankara.
- Henrickson, R. C. (2005). The Local Potter's Craft at Phrygian Gordion. In xL. Kealhofer (Eds.), *The Archaeology of Midas and the Phrygian Recent Work at Gordion* (pp. 124-135). University of Pennsylvania Press.
- Hürmüzlü, B. (2010a). Isparta Arkeolojik Surveyi 2008 Yılı Çalışmaları. *Araştırma Sonuçları Toplantısı*, 27, 65-76.
- Hürmüzlü, B. (2010b). Isparta Bölgesi Arkeolojik Yüzey Araştırması 2009; Konane (Conana) Antik Kenti ve Çevresi. *Anadolu Akdenizi Arkeoloji Haberleri*, 8, 124-126.
- Hürmüzlü, B. (2011). Isparta Arkeolojik Surveyi 2009 Yılı Çalışmaları: Konane (Conana). *Araştırma Sonuçları Toplantısı*, 28(2), 163-172.
- Hürmüzlü, B., Kohlmeyer, K., De Giorgi, A., Iversen, P., Çoşkun-Abuagla, A., İnan, A. & Hecebil, U. (2012). Isparta Arkeolojik Surveyi 2010 Yılı Çalışmaları: Konane (Conana). *Araştırma Sonuçları Toplantısı*, 29(1), 1-10.
- Hürmüzlü, B., Sönmez, B. & Atav-Köker, İ. (2020). Seleukeia Sidera Antik Kenti Üretim Faaliyetleri Hakkında Ön Deđerlendirmeler. In A. Mörel, G. Kaşka, H. Köker, M. Kaşka, M. Fırat & S. O. Akgönül (Eds.), *Production, Trade and Economy in Pisidia and its Surrounding Areas. International Symposium Proceeding Pisidian Studies II, 31 October – 03 November 2018 Isparta, Turkey* (pp. 140-153). Süleyman Demirel University Press.
- Hürmüzlü, B. & Sönmez, B. (2021). A New Member of the Late Roman Koiné? A New Red-Slipped Pottery Group Found at Seleukeia Sidera. *Olba*, XXIX, 349-362.
- Hürmüzlü, B., Sönmez, B., Mörel, A. & Kaşka, G. (2021). Seleukeia Sidera'da Geç Antik Dönem Hakkında Ön Sonuçlar. *Süleyman Demirel Üniversitesi Fen-Edebiyat Fakültesi Sosyal Bilimler Dergisi*, 54, 339-361.
- Hürmüzlü, B., Sönmez, B., Mörel, A., Kılınç, G. & Uslu, H. (2022). Paleo-Kuleönü Gölü Çevresi Antik Dönem Yerleşimleri. In Ç. Şenkul, B. Hürmüzlü (Eds.). *Dođal ve Kültürel Mirasın Paleo-Kuleönü Gölü'ndeki İzleri 50 Bin Yılım Öyküsü* (pp. 208-247). Süleyman Demirel Üniversitesi Yayınları.
- İdil, V. & Kadiođlu, M. (2009). 2007 Yılı Nysa Kazı ve Restorasyon Çalışmaları. *Kazı Sonuçları Toplantısı*, 30(3), 499-520.
- Jackson, M., Zelle, M., Vandeput, L. & Köse, V. (2012). Primary Evidence for Late Roman D Ware Production in Southern Asia Minor: A Challenge to "Cyriot Red Slip Ware". *AnatSt*, 62, 89-114.

- Kanbur, N. (2019). *Yeni Araştırmalarla Yazılıkaya/Midas Vadisi Seramiklerinin Değerlendirilmesi* [Unpublished master thesis]. Anadolu Üniversitesi.
- Kaya, D. (2019). *Küçük Çekmece Göl Havzası (Bathonea) Kazıları Unguentariumları* [Unpublished master thesis]. Trakya Üniversitesi.
- Ladstätter, S. (2008). Keramik. In M. Steskal & M. La Torre (Eds.), *Forschungen in Ephesos, XIV/1, Das Vedioseum in Ephesos* (pp. 97-189). Verlag der Österreichischen Akademie der Wissenschaften.
- Ladstätter, S. (2014). Keramik. In Funde H. Thür, E. Rathmayr (Eds.), *Forschungen in Ephesos Band VIII/9 Hanghaus 2 in Ephesos Die Wohnheit 6 Baubefund, Ausstattung* (pp. 435-588). Verlag der Österreichischen Akademie der Wissenschaften.
- Lafli, E. (1996). *Seleukeia Sidera 1993 Kazısında Bulunmuş Olan Pişmiş Toprak Eserler* [Unpublished master thesis]. Ankara Üniversitesi.
- Lafli, E. (2004). Dionysiac Scenes on Sagalassian oinophoroi from Seleuceia Sidera in Pisidia (southwestern Turkey). In S. Bell & G. Davies (Eds.), *Games and Festivals in Classical Antiquity, Proceedings of the Conference, Edinburgh 10-12 Temmuz 2000* (pp. 125-136). Archaeopress.
- Lund, J. (2005). An economy of consumption: the Eastern Sigillata A industry in the late Hellenistic period. In Z. H. Archibald, J. K. Davies & V. Gabrielsen (Eds.), *Making, Moving, and Managing: The New World of Ancient Economies, 323-31 BC* (pp. 233-251). Oxbow Books.
- Mader, I. (1998). Keramik der Feldforschungen auf dem Gebiet von Kyaneai Teil II: Die Funde aus den Jahren 1993/94. In F. Kolb (Ed.), *Lykische Studien 3: Die Siedlungskammer von Kyaneai in Lykien. Bericht über Feldforschungen im Yavu-Bergland im Sommer 1992* (pp. 97-123). Dr. Rudolf Habelt GmbH.
- Marksteiner, T., Lemaitre, S. & Yener-Marksteiner, B. (2008). Keramik aus der Sondage 5 in der Weststadt von Limyra. *ÖJh*, 76, 236-276.
- Meriç, R. (2002). *Forschungen in Ephesos IX/3. Späthellenistisch-römische Keramik und Kleinfunde aus einem Schachtbrunnen am Staatsmarkt in Ephesos*. Verlag der Österreichischen Akademie der Wissenschaften.
- Meriç, A. E. (2018). Late Roman Pottery from the Theatre of Nicaea in Bithynia. *Anatolia Antiqua*, 26, 69-87. <https://doi.org/10.4000/anatoliaantiqua.572>
- Ok, M. (2018). Tripolis'te bulunan Sagalassos Kırmızı Astarlı Seramikleri. *Arkhaia Anatolica*, 1, 31-51. <https://doi.org/10.32949/Arkhaia.2018.2>
- Ötüken, S. Y. (2003). Likya Bölgesi'ndeki Kazı ve Yüzey Araştırmaları Çerçevesinde Orta Çağ Seramikleri. *Adalya*, 6, 233-249.

- Özden Gerçeker, G. S. (2015). *Perge Batı Nekropolisi Dolgu Tabakasında Bulunan (Parsel 159) Sagalassos Kırmızı Astarlı Keramikleri* [Unpublished doctoral dissertation]. İstanbul Üniversitesi.
- Özhanlı, M. & Fırat, M. (2011). Side Unguentariumları Işığında Dinin Kapların Kullanım Alanları Üzerindeki Etkileri. *Süleyman Demirel Üniversitesi Fen-Edebiyat Fakültesi Sosyal Bilimler Dergisi*, 23, 7-30.
- Özüdoğru, Ş. & DüNDAR, E. (2007). Kibyra Geç Roma-Erken Doğu Roma Dönemi Mühürlü Unguentariumları. *Olba*, XV, 145-178.
- Poblome, J. (1998). Dionysiac Oinophoroi from Sagalassos Found in Egypt. In J. Quaegebeur (Ed.), *Orientalia Lovaniensia Analecta, Egyptian Religion The Last Thousand Years Part I* (pp. 205-226). Peeters Publishers.
- Poblome, J. (1999). *Studies in Eastern Mediterranean Archaeology II. Sagalassos Red Slip Ware*. Brepols.
- Ramage, A., Ramage, N. & Gürtekin-Demir, R. G. (2021). *Ordinary Lydians at Home. The Lydian Trenches of the House of Bronzes and Pactolus Cliff at Sardis*. Harvard University Press.
- Rautman, M. (1995). Two Late Roman Wells at Sardis. *AASOR*, 53, 37-84.
- Rice, P. M. (2015). *Pottery Analysis, A Sourcebook*. The University of Chicago Press.
- Sams, G. K. & Voigt, M. M. (1990). Work at Gordion in 1988. *Kazı Sonuçları Toplantısı*, 12(2), 77-105.
- Sönmez, B. (2016). Nysa ad Maeandrum Çarşı Bazilikası Hellenistik ve Roma Dönemi Seramikleri. In G. Coşkun (Ed.), *Anadolu, Arkeoloji, Zaman ve Mekân, Dumlupınar Üniversitesi V. Arkeoloji Sempozyumu Bildiri Kitabı, Kütahya, 10-12 Ekim 2016* (pp. 231-250). Bilgin Kültür Sanat Yayınları.
- Sönmez, B. (2018). Nysa ad Maeandrum Cadde 1-Plateia Hellenistik ve Roma Dönemi Sofra Kapları ve Unguentariumları. *Süleyman Demirel Üniversitesi Fen-Edebiyat Fakültesi Sosyal Bilimler Dergisi*, 45, 11-42.
- Sönmez, B. (2022). *Seleukeia Sidera Antik Kenti'nde Roma İmparatorluk Dönemi Seramik Üretimi ve Ticari İlişkiler* [Unpublished Doctoral Dissertation]. Süleyman Demirel Üniversitesi.
- Sönmez, B. (2023). Oinophoroi of Seleukeia Sidera. *ReiCretActa*, 47, 141-149.
- Stewart, S. M. (2010). *Gordion After the Knot: Hellenistic Pottery and Culture* [Unpublished Doctoral Dissertation]. Cincinnati University.
- Şen, D. (2017). *La Céramique Protobyzantine de Lycie: étude du mobilier des "bains portuaires" (Hurmaliik Hammam) de Patara* [Unpublished Doctoral Dissertation]. Université Panthéon-Sorbonne.

- Şimşek, C. & Bilgin, M. (2018). Laodikeia Geç Antik Çağ Seramikleri. In T. Kaçar & C. Şimşek (Eds.), *Geç Antik Çağ'da Lykos Vadisi ve Çevresi/The Lykos Valley and Neighbourhood in Late Antiquity* (pp. 175-199). Ege Yayınları.
- Talloon, P. & Poblome, J. (2019). The Age of Specialization. Dionysus and the Production of Wine in Late Antiquity: A View from Sagalassos (SW Turkey). *Olba*, XXVII, 413-442.
- Uslu, H. & Hürmüzlü, B. (2022). Pisidia Erenler Tepe Yerleşimi'nin Konumu ve Seramik Buluntularının Analizi. *Colloquium Anatolicum*, 21, 67-96.
- Uygun, Ç. (2011). *Patara IV.2, Tepecik Kırmızı Astarlı Seramikleri (İ.Ö. 2. yy- İ.S. 4. yy)*. Ege Yayınları.
- Uzun, K. (2016). Klazomenai Dalgalı Çizgili Seramiği: M.Ö. 650-550. *Süleyman Demirel Üniversitesi Fen Edebiyat Fakültesi Sosyal Bilimler Dergisi*, 38, 97-124.
- Vapur, Ö. (2001). *Magnesia ad Maeandrum Gymnasion'u Roma Dönemi Seramikleri* [Unpublished master thesis]. Ankara Üniversitesi.
- Vapur, Ö. (2009). *Menderes Magnesiası Hypokaustlu Yapı Yerel Üretim Seramikleri* [Unpublished Doctoral Dissertation]. Ankara Üniversitesi.
- Voss, B. L. & Allen, R. (2010). Guide to Ceramic MNV Calculation Qualitative and Quantitative Analysis. *Technical Briefs in Historical Archaeology*, 5, 1-9.
- Williams, C. (1989). *Anemurium The Roman and Early Byzantine Pottery*. Pontifical Institute of Medieval Studies.
- Yaman, A. (2018). *Arykanda Geç Antik Dönem Mahallesi Seramikleri* [Unpublished Doctoral Dissertation]. Muğla Sıtkı Koçman Üniversitesi.
- Yener Marksteiner, B. (2007). Keramik aus der Sondage 5 in der Weststadt von Limyra. *Jahreshefte des Österreichischen Archäologischen Institutes in Wien*, 76, 236-276.
- Yılmaz, Z. (2008). Keramik der Späthellenistischen – Frühbyzantinischen Epochen. In F. Kolb (Ed.), *Tübinger Althistorische Studien Band, Lykische Studien 8: Keramik, Münzen, Kirchen und Wirtschafts komplexe des zentrallykischen Yavu-Berglandes (Gebiet von Kyaenai)* (pp. 105-172). Dr. Rudolf Habelt GMBH.



Fig. 1



Fig. 2

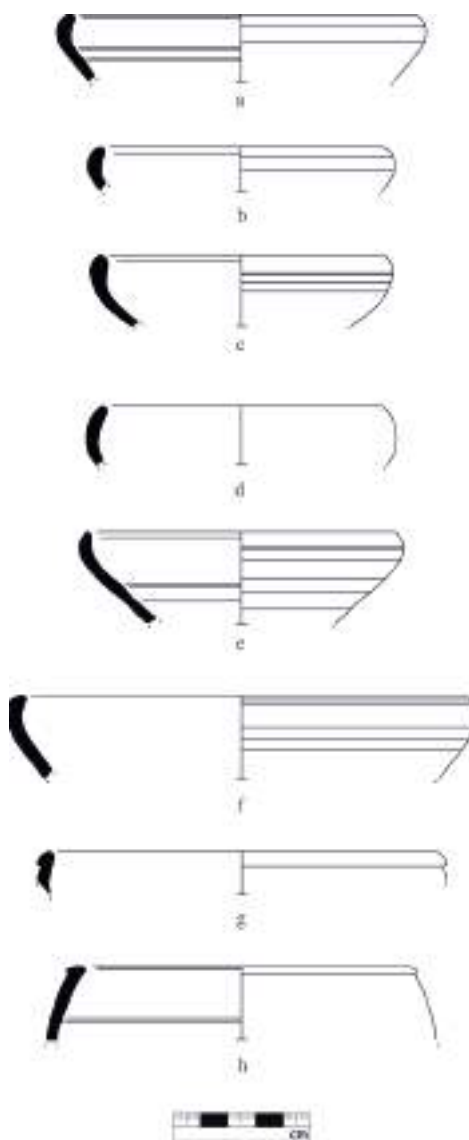


Fig. 3

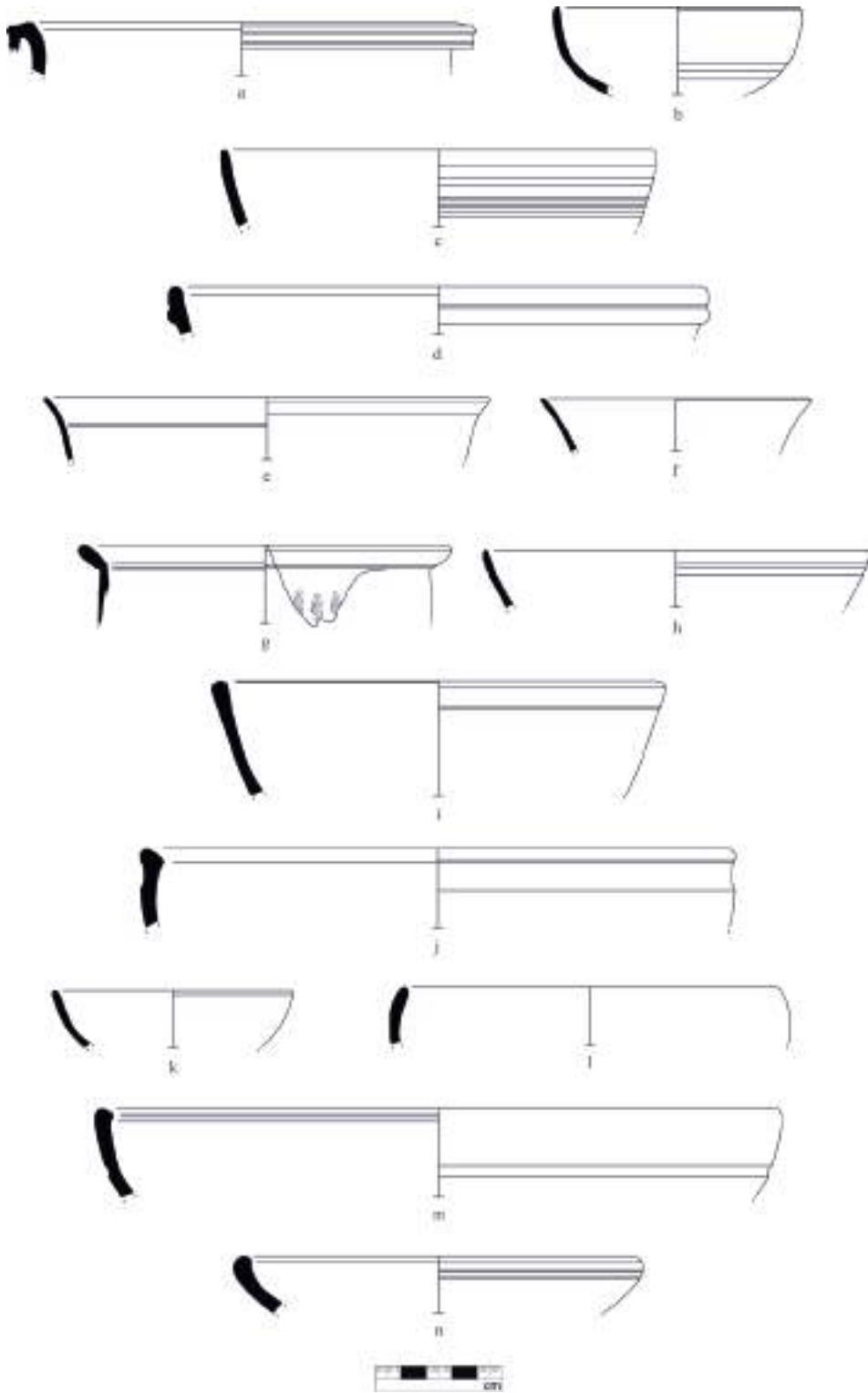


Fig. 4

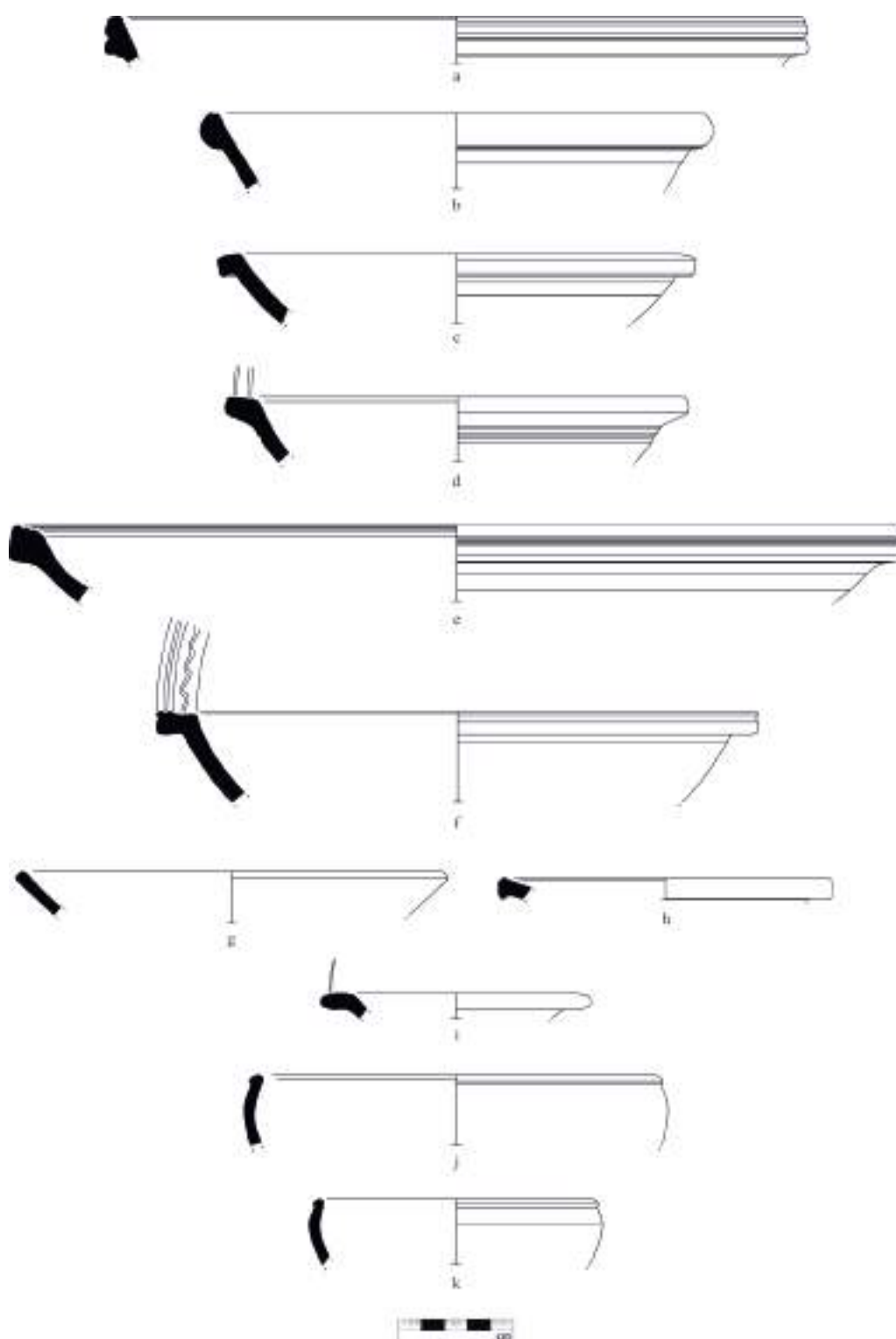


Fig. 5

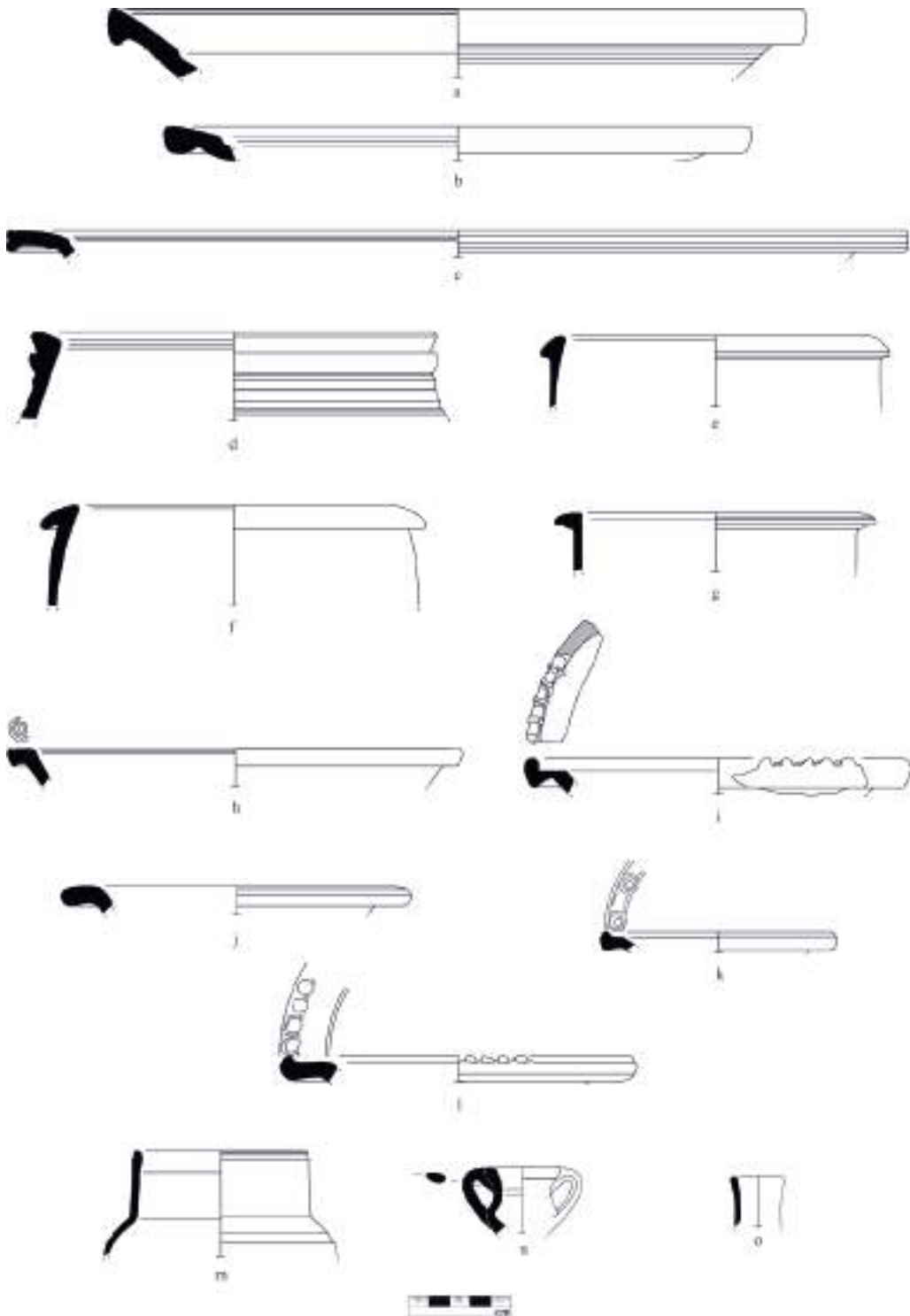


Fig. 6

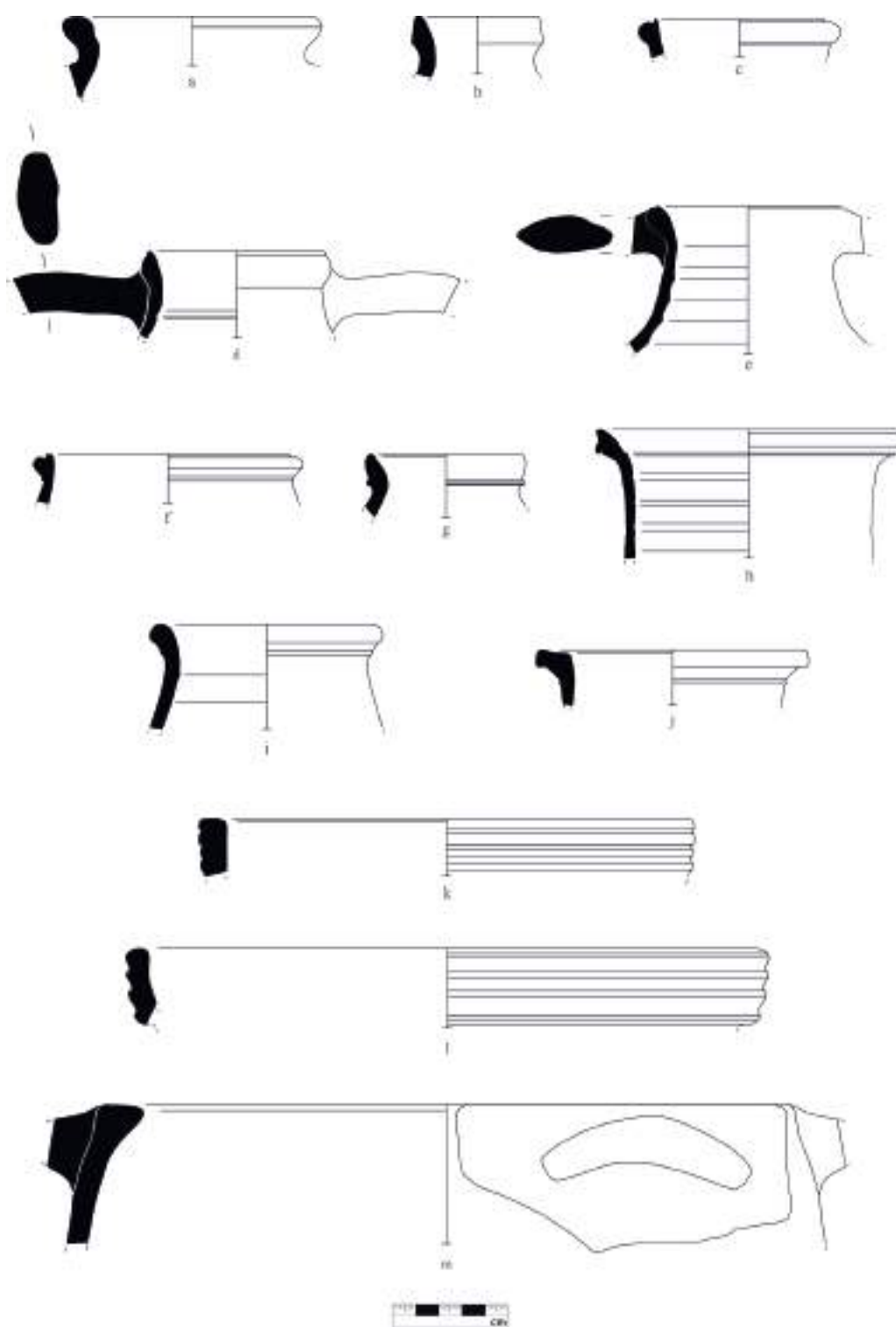


Fig. 7

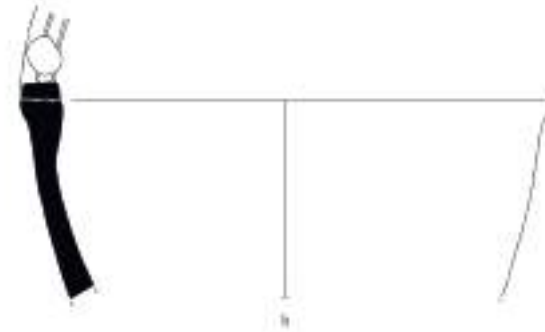
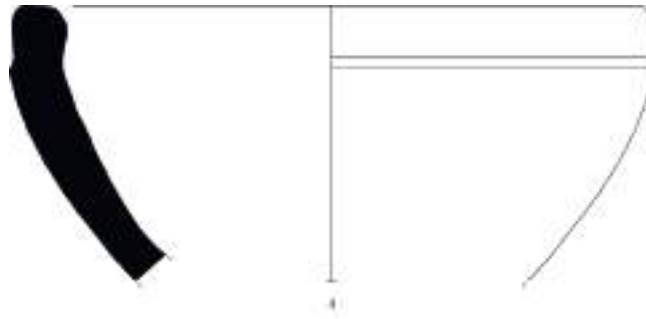


Fig. 8

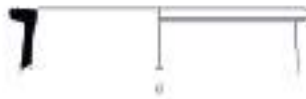
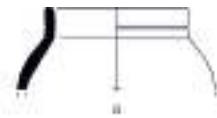


Fig. 10

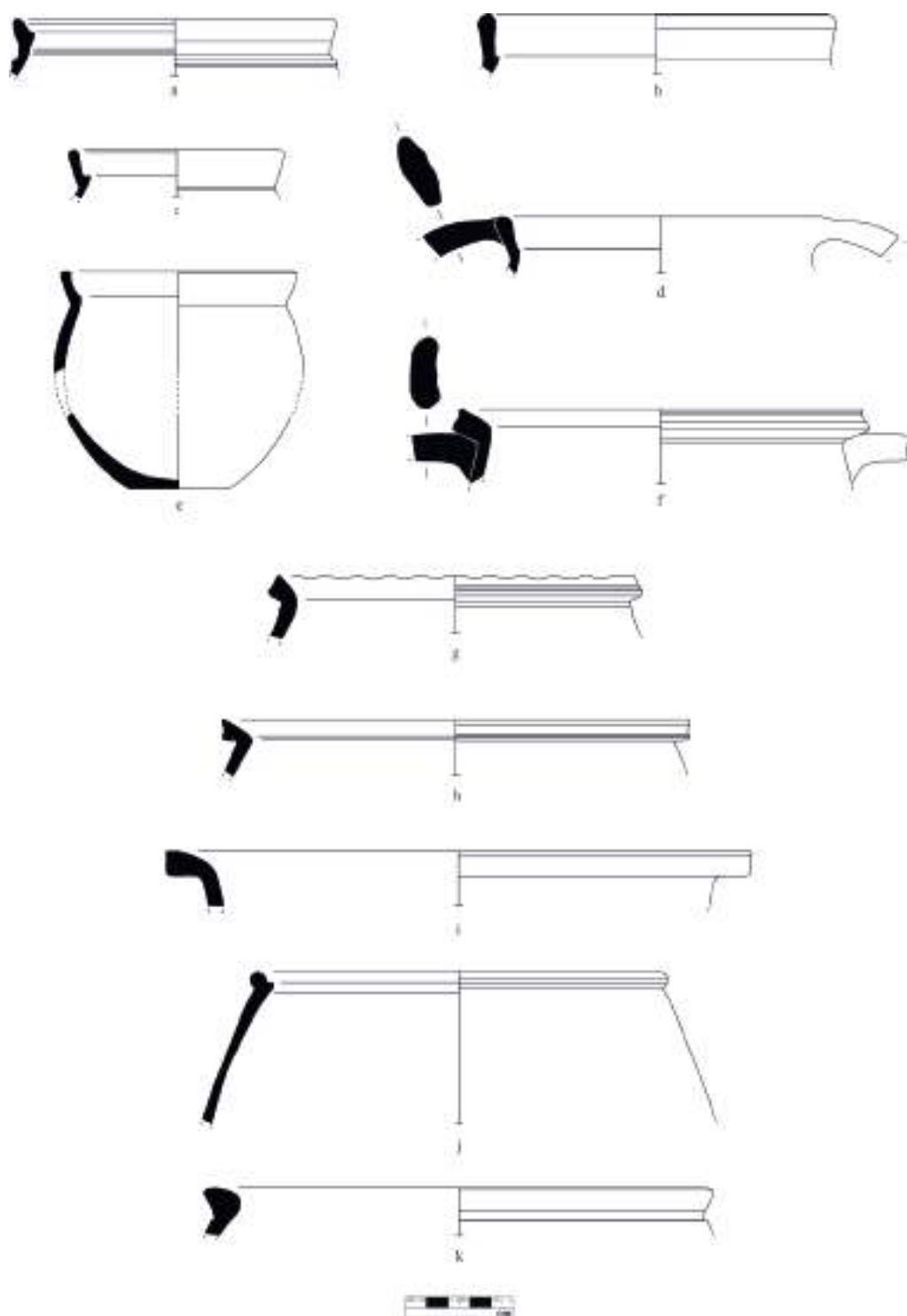


Fig. 9

## Hellenistic Pottery from Seleukeia Sidera in Pisidia

*Pisidia Bölgesi'ndeki Seleukeia Sidera'da Ele Geçen Hellenistik Dönem Seramikleri*

Mehmet Kaşka\*

Seleukeia Sidera'da gün ışığına çıkarılan Hellenistik Dönem seramiklerinin, sayıca az olmasına rağmen oldukça zengin sayılabilecek bir çeşitliliğe sahip olduğu gözlemlenmektedir. Bu bölümde ele alınan seramiklerin çok büyük bir kısmı (Cat. n° 1-3, 5-12) antik kentte 1993 yılında Prof. Dr. Orhan Bingöl başkanlığında yürütülen kazılarda, Hisar Tepe'nin güney terasında ele geçmiştir (Bingöl, 1994, pp. 43-76; Bingöl, 2012, pp. 457-471). Bir kazı sezonu süren çalışmalarda bulunan Hellenistik Dönem seramikleri, Ergün Lafli tarafından kentte ortaya çıkarılan diğer seramik eserler ile birlikte yayınlanmıştır (Lafli, 1996; Lafli, 2001, pp. 77-80). Hisar Tepe'de 2021 yılında S 23 plan karesinde yapılan kazılar sırasında Hellenistik Döneme ait iki parça (Cat. n° 4 ve 13) daha bulunmuştur ancak, ne yazık ki bu seramiklerin hiçbiri kontekst buluntusu değildir (Lafli, 2001, p 77).

Hellenistik Dönem'in en sevilen seramik gruplarından biri olan Batı Yamacı Seramiği Seleukeia Sidera'da beş parça ile temsil edilmektedir (Cat. n° 1-5). Sadece iç yüzeyinde dekorasyon içeren bir kâse parçası olan No. 5 dışındaki parçaların ağız çaplarından (Cat. n° 1) cidar kalınlıklarından (Cat. n° 2-4) ve iç yüzeylerin de astarla kaplı olması nedeniyle krater formuna ait oldukları anlaşılmaktadır. Söz konusu beş parça üzerinde Batı Yamacı Seramikleri'nde çok sık tercih edilen, dalları kazıma çizgi, yaprakları ise beyaz ek boya ile yapılmış sarmaşık bitkisi görülmektedir. Yedi parça (No. 7-13) astarlı yüzey üzerinde, yani açık renk zemin üzerinde firnis ile yapılmış bitkisel dekorasyon içermektedir. İğ biçiminde bir formu olan unguentarium (Cat. n° 6) üzerinde ise herhangi bir dekoratif unsur bulunmamaktadır. Bir amphora dudak-boyun parçası olan (Cat. n° 7) ve dökme kabı olan (Cat. n° 8)<sup>2</sup> dışındaki parçalar cidar kalınlıkları, hamurlarında içerdikleri küçük taş parçaları ve iç yüzeylerinde astar bulunmaması nedeniyle depolama kaplarına ait olmalıdırlar.

Antik kentte ele geçen seramikler üzerinde yapılan incelemede en dikkat çeken durum, bu seramikler arasında Hellenistik Dönemin bir diğer çok beğeni kazanmış grubu olan Kalıp Yapımı Kâselere (Megara Kâsesi) ait hiçbir parçanın olmamasıdır. Tamamen rastlantı olabilecek bu durum, Pisidia'nın Attalos

\* Süleyman Demirel University, Faculty of Arts & Sciences, Department of Archaeology, 32600 Isparta/TR, mtkaska@gmail.com, ORCID: 0000-0002-4463-4182.

2 Bu kap E. Lafli'ya göre skyphos formundadır ve Batı Yamacı Seramiği taklidir (Lafli, 1996, pp. 36-37; Lafli, 2001, pp. 77-78). Ancak, bu parçanın Batı Yamacı Seramiklerinin tam aksine açık zemin üzerinde koyu renk dekorasyona sahip olduğu görülmektedir.

Krallığı'nın egemenliğine girmesinin ardından (MÖ 188'den sonra<sup>3</sup>, yani Kalıp Yapımı Kâselerin yoğun olarak üretildiği tarihlerde) Seleukeia Sidera'nın ticaret rotası dışında kalması veya daha büyük olasılıkla, Seleukos kuvvetlerinin çekilmesi ve Pergamon Krallığı'nın da kente ilgi göstermemesi nedeniyle kentin son derece zayıf bir yerleşime sahip olmasıyla açıklanabilir. Bu, aynı zamanda kentte yapılan kazılarda niçin Bergama üretimi ya da taklidi seramiğin ele geçmediğini de açıklar niteliktedir. Seleukeia Sidera'da bulunan en erken sikkelerin (Aulock, 1979, pp. 154-155, no. 1871-1873) ve yazıtların MÖ 1. yüzyıla ait olması da bu fikri desteklemektedir. Dolayısıyla, Apameia Barışı'nın Seleukeia Sidera Hellenistik Dönem seramikleri için bir *terminus ante quem* oluşturduğu hipotezi öne sürülebilir.

Hellenistic pottery in Seleukeia Sidera, although not numerous, shows a variety that can be considered rich. Most of the pieces discussed here were unearthed in 1993 during the excavations carried out under the direction of Orhan Bingöl (Bingöl, 1994, pp. 43-76; Bingöl, 2012, pp. 457-471) in the southern terrace of Hisar Tepe and published by Ergün Laflı (Lafli, 1996; Lafli, 2001, pp. 77-80). Two pieces (Cat. n° 4 and 13) found in 2021 during the excavations in Hisar Tepe. Unfortunately, none of the thirteen pieces presented here are context finds (Lafli, 2001, p. 77).

West Slope Ware, one of the most popular pottery groups of the Hellenistic period, is represented in Seleukeia Sidera by five pieces (Cat. n° 1-5). There is no decoration on No. 6. The other seven pieces have a floral decoration on slipped clay surface (Cat. n° 7-13).

It may be purely coincidental, but it is strange that moldmade bowls (Megarian Bowl), other popular group of the Hellenistic period have never been found in Seleukeia Sidera. The reason for this can be explained by the fact that the city has been the scene of a weak settlement since the time the region came under the sovereignty of the Attalid Kingdom (after 188 BC<sup>4</sup>, that is, when Megarian bowls were intensively produced) or it was far in this time from foreign trade route. This may be the reason why no Pergamon production or Pergamon imitation ceramic fragments have been found yet in the excavations carried out in the ancient city. The fact that the earliest coins and inscriptions in Seleukeia Sidera belong to the 1st century BC also supports this idea (Aulock, 1979, pp. 154-155, no. 1871-1873; SNG Turkey 6/2 no. 1664). In this case, it can be hypothesized that the Treaty of Apameia formed a *terminus ante quem* for the imported Hellenistic ceramics found in Seleukeia Sidera.

---

3 Apameia Barışı gereğince Seleukos Krallığı Toros Dağları'nın batısına çekilmeyi kabul etmiştir (Polybius, 42). Bunun sonucunda da Seleukeia Sidera tamamen olmasa da ekonomik kaynağını büyük ölçüde kaybetmiş olmalıdır.

4 According the Peace of Apameia, the Seleukids had to leave Pisidia and as a result (Polybius, 42), Seleukeia must have lost its importance economically as well to a large extent, if not completely.

## **West Slope Pottery (Cat. n° 1-5)**

### **Krater Fragments (Cat. n° 1-4)**

The Krater form is the most common among the West Slope Pottery recovered from Seleukeia Sidera. These pieces are decorated with the ivy plant, which is also used very fondly in the West Slope Pottery. The branches of the ivy plant were made with incised lines, as in the West Slope Ceramics found in many other ancient cities, and the leaves were made with white additional paint.

### **Bowl Fragment (Cat. n° 5)**

An ivy plant can also be seen in this bowl fragment, which is decorated only on the inner surface.

### **Unguentarium (Cat. n° 6)**

The vase must belong to the Early Hellenistic period, as evidenced by its counterparts found in ancient cities in Anatolia<sup>5</sup> and other Mediterranean countries.

## **Floral Decoration on Slipped Clay Surface (Cat. n° 7-13)**

### **Amphora (Cat. n° 7)<sup>6</sup>**

The neck of the piece is decorated with bands and dots made with glaze.

### **Pouring Vessel (Cat. n° 8)**

This vessel was evaluated by E. Lafli as an imitation of West Slope Pottery (Lafli, 1996, pp. 36-37; Lafli, 2001, pp. 77-78)<sup>7</sup>. However, this vase has a decoration made with a glaze on a light background, in stark contrast to the decoration system of the group in question (with additional white paint on a dark background and scraped lines).

### **Storage Bins (Cat. n° 9-13)**

The pieces, decorated with vegetal motifs, must belong to storage bins, as can be seen from their wall thickness and large amount of small stones in the clay used.

---

5 No. 7 was dated to the Early Hellenistic period by E. Lafli (Lafli, 2001, p. 78). For a similar one found in Parion and other comparison examples see Kasapoğlu, 2008, p. 100, No. 2.

6 The profile is similar to the examples found in the Agora of Athens (Rotroff, 2006, p. 88, 257-258, Fig. 20 No. 128).

7 According to E. Lafli, this fragment belongs to a skyphos (Lafli, 1996, pp. 36-37; Lafli, 2001, p. 78).

### **Catalogue**

**Cat. n° 1:** Krater (Rim and body fragment)

Inv. SLV93\_18\_s\_243

H. 11.7; Diam. 26.2; Thickness of body: 0.8

Lafli, 1996, 46, Pl. 58 No. 376, Pl. 96 F. 115; Lafli, 2001, pp. 77-78, 97 Fig. 14 a;  
Lafli, 2002, 314.

**Cat. n° 2:** Krater (Body fragment)

Inv. SLV93\_18\_s\_250

Length 6.5; W. 5.4; Thickness of body: 0.8

Lafli, 1996, 36, Pl. 27 No. 233, Pl. 93 F. 66.

**Cat. n° 3:** Krater? (Body fragment)

Inv. -

Length 4.1; W. 4.2; Thickness of body: -

Lafli, 1996, 36-37, Pl. 27 No. 234, Pl. 93 F. 68.

**Cat. n° 4:** Krater? (Body fragment)

Inv. SS21\_s23\_tn12\_s\_1

Length ??; W. \*\*; Thickness of body: \*\*

Unpublished.

**Cat. n° 5:** Bowl fragment (Phiale?)

Inv. SLV93\_18\_s\_253

Length 4.1; W. 4.2; Thickness of body: -

Lafli, 1996, pp. 36-37, Pl. 27 No. 233, Pl. 93 F. 68; Lafli, 2001, pp. 77-78, 97 Fig. 14 c;  
Lafli, 2002, p. 314.

**Cat. n° 6:** Unguentarium

Inv. -

Lafli, 1996, p. 54, Pl. 71 No. 440, Pl. 102 F 178; Lafli, 2001, pp. 77-78, 97 Fig. 14 d;  
Lafli, 2002, p. 314.

**Cat. n° 7:** Amphora (Rim and neck fragment)

Inv. SLV93\_18\_s\_238

H. 6.2; Diam. 18; Thickness of body: 0.7

Lafli, 1996, p. 46, Pl. 50 No. 357.

**Cat. n° 8:** Pouring Vessel (Rim and body fragment)

Inv. SLV93\_18\_s\_246

H. 11.5; Diam. 15.2; Thickness of body: 0.3

Lafli, 1996, pp. 36-37, Pl. 27 No. 232, Pl. 93 F. 64; Lafli, 2001, pp. 77-78, 97 Fig. 14 b; Lafli, 2002, pp. 314.

**Cat. n° 9:** Storage Bin (Rim and body fragment)

Inv. SLV93\_18\_s\_249

H. 4.65; Diam. 23; Thickness of body: 0.8

Unpublished.

**Cat. n° 10:** Storage Bin (Rim and body fragment)

Inv. SLV93\_18\_s\_240

H. 5.3; Diam. 25.8; Thickness of body: 1

Lafli, 1996, p. 46, Pl. 50 No. 356.

**Cat. n° 11:** Storage Bin (Rim and body fragment)

SLV93\_18\_s\_242

H. 9; Diam. 30; Thickness of body: 1.3

Lafli, 1996, p. 46, Pl. 50 No. 358.

**Cat. n° 12:** Storage Bin (Rim and body fragment)

Inv. SLV93\_18\_s\_248

H. 4.65; Diam. 23; Thickness of body: 0.8

Unpublished.

**Cat. n° 13:** Storage Bin (body fragment)

SS21\_s23\_tn15\_s\_8

Unpublished

**Figure List:**

Cat. n° 1. West Slope Pottery, Krater Fragment (Drawing by Hilal USLU, Seleukeia Sidera Archive).

Cat. n° 2. West Slope Pottery, Krater Fragment (Drawing by Hilal USLU, Seleukeia Sidera Archive).

Cat. n° 3. West Slope Pottery, Krater (?) Body Fragment (after Lafli, 1996, Pl. 27 No. 234).

Cat. n° 5. West Slope Pottery, Bowl Fragment (Drawing by Hilal USLU, Seleukeia Sidera Archive).

Cat. n° 7. Amphora Fragment with Floral Decoration on Slipped Clay Surface (Drawing by Hilal USLU, Seleukeia Sidera Archive).

Cat. n° 8. Pouring Vessel with Floral Decoration on Slipped Clay Surface (Drawing by Hilal USLU, Seleukeia Sidera Archive).

Cat. n° 9. Storage bin Fragment with Floral Decoration on Slipped Clay Surface (Drawing by Hilal USLU, Seleukeia Sidera Archive).

Cat. n° 10. Storage bin Fragment with Floral Decoration on Slipped Clay Surface (Drawing by Hilal USLU, Seleukeia Sidera Archive).

Cat. n° 11. Storage bin Fragment with Floral Decoration on Slipped Clay Surface (Drawing by Hilal USLU, Seleukeia Sidera Archive).

Cat. n° 12. Storage bin Fragment with Floral Decoration on Slipped Clay Surface (Drawing by Hilal USLU, Seleukeia Sidera Archive).

## Bibliography

### Ancient Source

Polyb. *Hist.*

Polybios, *The Histories*. (R. Waterfield, Trans.). Oxford, 2010.

### Modern Sources

von Aulock, H. (1979). *Münzen und Städte Pisidiens II*. Tübingen.

Bingöl, O. (1994). Seleukeia Sidera (Bayat) 1993 Yılı Arkeolojik Kazıları. *Göller Bölgesi Arkeolojik Kültürel-Turistik Araştırma ve Değerlendirme Projesi*, 43-76.

Bingöl, O. (2012). Seleukeia Sidera. In O. Bingöl, A. Öztan & H. Taşkıran (Eds.), *Anatolia (Anadolu) DTCE 75. Yıl Armağanı* (pp. 457-470). Ankara Üniversitesi Dil Tarih ve Coğrafya Fakültesi.

Kasapoğlu, H. (2008). *Parion Nekropolü 2006 Yılı Seramik Buluntuları* [Unpublished master thesis]. Atatürk Üniversitesi.

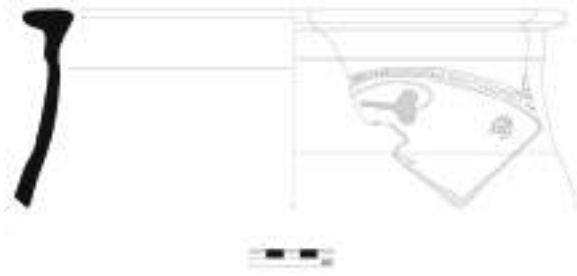
Lafı, E. (1996). *Seleukeia Sidera 1993 Kazısında Bulunmuş Olan Pişmiş Toprak Eserler*. [Unpublished master thesis]. Ankara Üniversitesi

Lafı, E. (2001). Seleuceia in Pisidia in the Hellenistic Period. *Orbis Terrarum*, 7, 55-98.

Lafı, E. (2002). Notes on the history of Seleuceia Sidera in Pisidia (South-western Turkey): second preliminary report on the inscriptions. In P. Freeman, J. Bennett, Z. T. Fiema, B. Hoffmann (Eds.), *Limes XVIII - Proceedings of the XVIIIth International Congress of Roman Frontier Studies held in Amman, Jordan (September 2000). A Conference held under the auspices of the Department of Antiquities of the Hashemite Kingdom of Jordan, The Council for British Research in the Levant and the Department of Archaeology at the University of Liverpool. Volume I*, BAR International Series, 1084(1) (pp. 313 – 236). BAR Publishing.

Rotroff, S. I. (2006). *Hellenistic Pottery: The Plain Wares*. American School of Classical Studies.

SNG Turkey 6/2 (2019). *Burdur Museum. Sagalassos – Termessos* (H. Köker). Turkish Institute of Archaeology.



Cat. n° 1



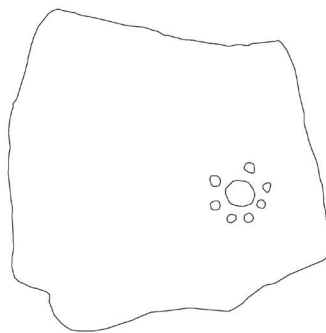
Cat. n° 1



Cat. n° 2



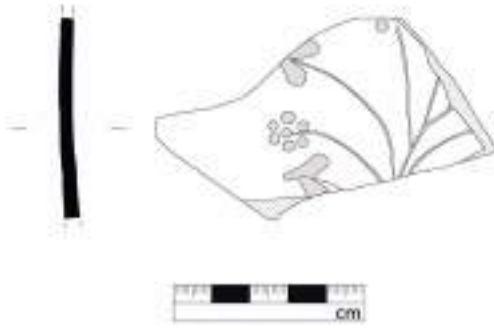
Cat. n° 2



Cat. n° 3



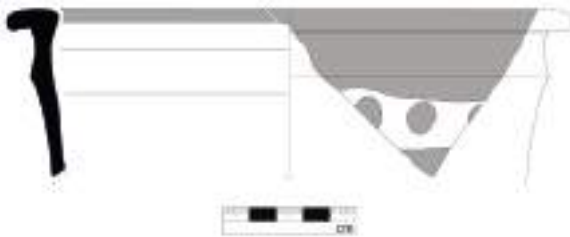
Cat. n° 4



Cat. n° 5



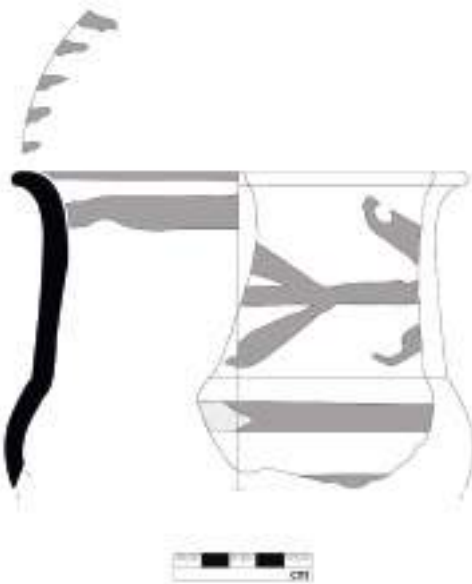
Cat. n° 5



Cat. n° 7



Cat. n° 7



Cat. n° 8



Cat. n° 8



Cat. n° 9



Cat. n° 9



Cat. n° 10



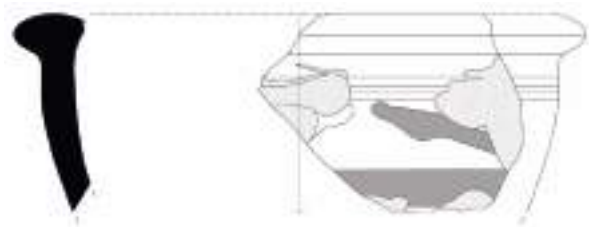
Cat. n° 10



Cat. n° 11



Cat. n° 11



Cat. n° 12



Cat. n° 12



Cat. n° 13

## A Preliminary Evaluation of the Oil Lamps Found at Seleukeia Sidera

### *Seleukeia Sidera Kandilleri Üzerine Bir Ön Değerlendirme*

Murat Fırat\*

Isparta İli Atabey İlçesi sınırlarında kalan ve ovaya hâkim yüksek bir tepelik alan üzerine konumlandırılmış olan Seleukeia Sidera, Pisidia Bölgesi'nin başat kentlerinden birisidir. Kentte uzun soluklu araştırmalar yürütülmemiştir. Bilimsel nitelikli sistematik kazılar yakın zamanda başlar, buna karşın kısa sürede önemli buluntu grupları ile karşılaşılır. Bahsi geçen buluntu grupları arasında yer alan ve 2021-2022 kazı sezonlarında katalog faaliyetleri gerçekleştirilen bir grup kandil bu çalışmaya konu edilmiştir. Yapım tekniklerine göre ayrılan kandiller öncelikle tipolojik ve kronolojik olarak irdelenmiş, ardından daha önceki kazı sezonlarında saptanan ve tarafımızca yayınlanan diğer kandiller ile karşılaştırmalı olarak değerlendirmeye gidilmiştir.

Seleukeia Sidera kazı deposunda yürütülen çalışmalar doğrultusunda, irdelenen 16 adet kandilin Kuzeybatı Nekropolisinde iki farklı oda mezar (OM021 ve OM022) ve bir adet sanduka tipi mezar (SM025) ile tiyatro *scaenae frons* civarından ele geçtikleri görülmüştür (Pl. 2: 6 ve 14). Buluntular arasında yer alan kalıp yapımı kandillerin ağırlıklı olarak 4. – 7. yüzyıllara ait olan burun üstü kanallı kandillerin örnekleri oldukları söylenebilir. Bu eserler arasında Küçük Asya olarak tanınan tipin örnekleri de yoğundur. Küçük Asya tipi olarak ayrılan gruba ait üç adet ilginç örnek, Seleukeia Sidera kazılarında ele geçer. Bu kandillerin gövdeleri dairesel formlu, burun öne doğru uzatılmış ve hafif yükseltilmiş, içbükey diskus kabartı halka ile sınırlandırılmış, diskus-burun hattı kanalla bağlantılı ve eğimli omuzda yivli tutamaktır (Fig. 2, cat. n° 5 – 7). Bununla birlikte son dönem çalışmalarında bu tipin benzerlerinin Kibyra ve Sagalassos'ta da üretilmiş olduğu ileri sürülmektedir. Kalıp yapımı kandiller arasında bir adet de palmet kulplu örnek yer alır (Fig. 4, cat. n° 14). Bu kandil formunun belirleyici özellikleri kulbunun tutamak şeklinde ve bitkisel kabartı ile süslü olması ve ayrıca diskus ile burun arasında bir kanalla bağlantı sağlanması şeklinde açıklanabilir. İlginç tek bir örnek ise *Cocked Hat*, *Brooner* 35 veya *Saucer Type* şeklinde literatürde tanınır (Fig. 4, cat. n° 16). Çok küçük bir bölümü korunmuş olan bu kandil dairesel gövde yapısına sahiptir. Alçak çanak biçimli gövdenin merkezinde içbükey diskus yer alır. Bu alan küçük, kabartı bir halka ile kuşatılmıştır. Diskusun merkezinde de küçük boyutlu ve dairesel formlu bir delik gözlenir. Diskustan eğimli omuz ile gövdeye geçiş hattı kurulmuştur. Gövde diskus aralığını kaplayacak biçimde yerleştirilmiş olan küçük bir tutamak arka tarafta kalır. Kandilin alt gövdesi kırık ve eksiktir. Eserde bezeme

\* Süleyman Demirel University, Faculty of Arts & Sciences, Department of Archaeology, 32260 Isparta/TR, muratfirat@sdu.edu.tr, ORCID: 0000-0002-5747-0869.

olarak omuz üzerinde “((((” şeklinde hilal biçimli kabartı dizisi vardır. Benzerleri farklı çalışmalarda tanıtılan bu tipin Sagalassos üretimi olduğu düşünülmektedir. Sagalassos buluntuları 6. – 7. yüzyıl aralığı olarak tarihlendirilir. Tanıttığımız parçanın da gerek kil gerekse astar özellikleri dikkate alındığında, Sagalassos ürünü olduğu anlaşılır.

Seleukeia Sidera buluntusu çark yapımı kandiller ise tek bir tip ile temsil edilir. Bu tip son dönem çalışmalarında *teapot type* olarak yer almaktadır. Bu çalışmaya dâhil edilen örneklerin tamamı sanduka tipi mezarlarda ele geçer. Bu kandiller, disk formu olup, aşağı doğru basık haznelidirler. Dar bir diskusa sahip bu tipin diskus çevresinde genellikle kabartı yivler ve merkezde geniş bir yağ deliği gözlenir. Omuz dışa ve aşağı doğru açılıp, sıklıkla kabartı bir halka ile sınırlanır. Gövde dışa doğru ve geniş açılı bir şekilde tasarlanmıştır. Projeksiyon noktası gövde üzerinde ve tabana/kaideye yakın bir noktadadır. Burun omuzdan yukarı doğru uzatılmış olup, ucu düz kesilmiş ve genellikle oval fitil deliklidir. Bazı örneklerde uzun, bazı örneklerde ise çok kısa tutulmuştur. Formun tabanı kaidesiz, düz ve dairesel formu olabildiği gibi küçük ve içbükey bir halka kaide ile de tamamlanabilir. Eklenti şeklinde geniş, az eğimli omuzdan itibaren yükselen iki, üç ya da dört dilimli ve alçak makara tutamaklara sahiptirler; bazen bu tutamaklar tam bir kulba dönüşebilir. Çark yapımı olan bu kandillerin burun ve kulp/tutamak eklentilerinin sonradan yapıldığı anlaşılmaktadır. Bazı araştırmacılar elde veya kalıpta hazırlanan bu kısımların genellikle hamur kurumadan gövdeye monte edildiğini öne sürer. Bu grubun örneklerinin, geniş bir zaman diliminde ve başat olarak Sagalassos'ta üretildiği mevcut veriler dâhilinde anlaşılır. Sagalassos'ta üretimleri olduğunu kesin olarak bildiğimiz bu kandil grubunun, özellikle Pisidia ve yakın çevresinde yoğun biçimde kullanıldığı gözlemlenir. Bu tip kandillerin tarihlendirmesi noktasında, genellikle kaliteli ve daha geç örnekler olarak ayrıldıkları ve buna bağlı olarak da 1. – 5. yüzyıllar gibi geniş bir zaman aralığında kullanılmış oldukları sonucuna ulaşılır. İrdelediğimiz buluntu ise kentin Kuzeybatı Nekropolis alanında (Pl. 2: 14) bir sanduka mezar içerisinde ele geçer. Burun ve gövdesinden küçük bir bölümü korunmuş olan örnek, daha düşük kaliteli kırmızı astarı ve yükseltilmiş burun yapısına bağlı olarak, benzer örneklerden hareketle, 3. – 4. yüzyıllar aralığında üretilmiş oldukları anlaşılır.

Bu çalışmada yer verilen eserlerden çark yapımı kandillerin Sagalassos kandilleri ile yakın kil yapısına sahip olduğu gözlenir ve ayrıca özellikle 9 numaralı kalıp yapımı kandilin de Kibyra üretimi olduğu anlaşılır. Bunun dışında bazı örneklerin de (cat. n° 13) yine tipolojik karşılaştırmalar doğrultusunda Ege Bölgesi kıyı kentlerinde yoğun biçimde saptanan kandillerin benzerleri olduğu görülür. Tüm bu veriler doğrultusunda da Seleukeia Sidera'nın, kandil çeşitliliği açısından, Batı ve Güneybatı Anadolu kentleri ile etkileşim halinde olduğu fikrini ileri sürmek yanlış olmayacaktır.

Although systematic excavations at the site of Seleukeia Sidera have only recently started, quite a number of categories of material culture have already been encountered. A group of oil lamps, which are among these find groups and which were documented during the 2021-2022 excavation seasons, are the subject of this study. These artefacts, which are grouped according to their production techniques, will first be examined from a typological and chronological point of view<sup>2</sup>. Then, a comparative evaluation will be made with other lamps found during previous excavation seasons.

### Wheel-Made Oil Lamps

Among the finds unearthed so far at Seleukeia Sidera, only one type of wheel-made oil lamp has been observed. All the examples included in this study were found in cist graves in the city's necropolis (Fig. 1, cat. n° 1 – 4). These oil lamps, which are known as the so-called “teapot type”, are disc-shaped and have a downwardly flattened oil reservoir. This type, which has a narrow discus, usually has ridges around the discus and a large filling hole in the centre is observed. The shoulder opens outward and downward, often bordered by a raised ring. The body is designed outward, with a wide angle. The widest points are on the body and near the base. The nozzle is elongated upwards from the shoulder, with a straight cut at the tip and usually an oval wick hole. The nozzle can be long in some examples and very short in others. The bottom of this type can be without a proper base, in a flat and circular form, or it can be completed with a small and concave ring base. They have two-, three- or four-sectioned, low roller handles that rise from the broad, slightly sloping shoulder in the form of extensions. Sometimes these handles can turn into a full handle. The nozzle and handle of these oil lamps were added to the wheel-turned body. Some researchers state that these parts, which are prepared by hand or in a mould, are usually mounted on the body before the clay dries<sup>3</sup>. After the nozzle was attached to the body of the lamp, the wick hole and the body were pierced with a hollow tube (Çokay, 1998, p. 13; Metin, 2012, p. 24). This type of oil lamps, which is known to have been produced at Sagalassos, was used especially in Pisidia and its immediate surroundings<sup>4</sup>. As far as their chronology

---

2 I would like to thank Prof. Dr. Bilge Hürmüzlü, the head of the excavation, for her permission to study this material. The drawings of some of the oil lamps included in the study were made by Assist. Prof. Dr. Burak Sönmez, who is greatly acknowledged for this. Finally, I would also like to thank the other team members who have made my job easier by keeping the inventory records of the finds.

3 Bailey, 1972, p. 13; Çokay, 1998, p. 13; Metin, 2012, p. 24.

4 According to the latest finds, these lamps are thought to have been primarily produced in the region of Pisidia. For a general evaluation and similar examples, see Heimberg, 1973, p. 129, No. 197, Taf. 88; Bailey, 1975, pp. 98 – 99, Pl. 30 – 31. Q158; Bailey, 1988, pp. 412, 418 – 419, Pl. 125, Q3335 – 3343; Başer, 1990, p. 235 – 240, 252; Roovers, 1993, p. 153 – 154, 109 – 112; Scheltens, 1993, p. 191 – 207; Coşkun, 2007, p. 25, 54, Res. 2; Tekocak, 2013, p. 714, No. 16 – 18, Fig. 16 – 18; Metin, 2012, p. 103 – 105; Öz, 2014, pp. 42 – 43, 86 – 87, No. 14 – 16, Lev. 7 – 8; Bussière & Lindros Whol, 2017, p. 46 – 47, 407 – 408, No. 50, 552 – 554; Fırat, 2020. Four

is concerned, these types of lamps are generally separated into early Roman imperial period examples of high quality and later examples; accordingly, they were used in a wide period ranging from the 1<sup>st</sup> to the 5<sup>th</sup> century<sup>5</sup>. The oil lamps of this type were all found in cist graves in the northwestern necropolis area of the city (Pl. 2: 14) The nose and a small part of its body have been preserved. Due to the lower quality of its red slip and raised nose structure, and based on similar examples, it is understood that they were produced between the 3<sup>rd</sup> and 4<sup>th</sup> centuries.

### **Mould-made Oil Lamps**

During the excavations carried out in the city, also several types of mould-made lamps were found. A first evaluation of these artefacts, which are generally dated to the 4<sup>th</sup> - 7<sup>th</sup> centuries, indicates the presence of different types. The first of these consists of oil lamps belonging to the so-called "Asia Minor" group. Three examples of this type were found in Seleukeia Sidera so far. The bodies of these lamps are circular in shape, the nozzle extends forward and is slightly elevated, the concave discus ridge is limited by a ring, the discus and nozzle are connected with a canal and the lamp has a grooved handle on the sloping shoulder (Fig. 2, cat. n° 5 – 7). Relief decoration in the shape of ivy tendrils is present on the broad shoulder of the oil lamps. The area of the discus is decorated with a rosette motif. The leaves of the rosette are not fully contiguous, but slightly separated. The discus hole is placed exactly in the centre of this rosette. Careful examination of the first two of these oil lamps, which were found together in a chamber tomb at Seleukeia Sidera, revealed that they were made from the same mould, despite the difference in the colour of the slip (possibly due to firing). Although the third oil lamp of the group is compatible with the first two in its general form features, it differs especially in terms of the decoration on its shoulder, with vertical double lines instead of ivy tendrils and raised dots in between. Furthermore, although it is understood from the soot marks on the nozzle that this lamp was actually used, the slope and ratio differences between the shoulder lines show us that this lamp was faulty. Similar examples of this lamp type in terms of broad shoulder line, discus placement and ornamental details, as found in other cities, are identified by many scholars as originating from Western Anatolian cities<sup>6</sup>. When considering oil lamps in the region of Pisidia, the close similarity with a group of artefacts found in Kibyra can be drawn<sup>7</sup>. The main difference between the examples found in Kibyra and the oil lamps examined here is the detail of the decoration scheme on the shoulder. For the Seleukeia Sidera lamps, only a series of ivy leaves or vertical stripes

---

examples of this type lamps found at Seleukeia Sidera in 2019 were recently published (Yeşil & Fırat, 2021, pp. 60 – 61, No. 14, Fig. 2).

- 5 Since the oil lamps included in our study all belong to the Roman period, all dates are AD.
- 6 Broneer, 1930, p. 241, Pl. 14, Fig. 1059; Perlzweig, 1961, p. 160, Pl. 33, Fig. 2046; Roovers, 1993, p. 155, Fig. 114c; Biers, 1985, p. 84, Pl. 35, Fig. 146; Böttger, 2002, p. 296, Taf. 82, Abb. 4711.
- 7 Metin, 2012, pp. 173 – 174, 424 – 431, Kbr-T26-a2, K293 – 303.

with raised dots are visible on the shoulder, while on the examples from Kibyra grape clusters are observed between the vines. Other than that, no significant difference can be observed. As a result, the artefacts from Seleukeia Sidera are oil lamps with canals on the nozzle from Asia Minor and can be dated analogously to the second half of the 4<sup>th</sup> century and somewhat afterwards.

Lamp No. 8 of the Asia Minor group is oval-shaped and has a flattened oil reservoir (Fig. 2, cat. n° 8). The concave discus ridge is bound by a ring. It has a wide shoulder and grooved handle. The filling hole is located in the middle of the discus. A relief decoration composed of vine branches and bunches of grapes can be seen on the broad shoulder. There are worn spiral ends and buds between the short and flat nozzle and the discus. The connection of its ring base with the base of the handle and the nozzle is provided by double oblique relief lines. At these connecting points, a raised dot can be observed. Similar examples of this type are generally dated to the 6<sup>th</sup> century (Bailey, 1988, p. 388, Pl. 109, Q3162). Two lamps from Kibyra, which are identical in terms of the decoration scheme, slip colour and dimensions, and therefore probably the product of the same mould, have also been dated to the 6<sup>th</sup> century<sup>8</sup>.

Another oil lamp of the same group only the upper body (discus, shoulder, and handle) is preserved, its lower body is broken and missing (Fig. 3, cat. n° 9). The type is oval-shaped and has a flattened oil reservoir. The concave discus is bounded by a double raised ring. It has a grooved handle on the sloping shoulder. The filling hole, surrounded by a thirteen-leaf rosette, is situated in the middle of the discus. The vine branches and the buds between them are located on the shoulder. Although the nozzle is largely missing, it is partially decorated with vertical tongue motifs. In addition to other examples of this oil lamp type found in the same chamber tomb, similar ones found in Kibyra are also dated to the 6<sup>th</sup> century<sup>9</sup>.

Lamp No. 10, with an oval shape, a flattened oil reservoir, a concave discus surrounded by a raised ring, and a moulded handle, was found in chamber tomb 22 (Fig. 3, cat. n° 10). A rabbit figure (?) is depicted on the discus running to the left; the back part of the figure is not preserved. Three rings with raised dots placed at regular intervals and triple hobnail renderings between them can be seen on the shoulder. The nozzle, as far as it is preserved, is short and flat on top. On its bottom, the oil lamp has a ring base, and double oblique ridges under the handle and nozzle and a single centrally located ridge can be observed. This example can be dated to the 6<sup>th</sup> century, based on published parallels with similar formal characteristics<sup>10</sup>. Another oil lamp found in the

---

8 Metin, 2012, pp. 225 – 226, 651 – 652, Kbr-T26- b3 Group 3, No. K703 – 704.

9 Perlzweig 1961, p. 192, Pl. 44, Fig. 2806; Özkul, 1991, p. 52, Res. 28; Metin, 2012, pp. 211 – 212, 582 – 584, Kbr-T26-b2, K576-578.

10 Bruneau, 1965, p. 140, Pl. 33, Fig. 4698; Metin, 2012, p. 45, 198, 525, Kbr-T26- b1 Group 1, No. K473.

same burial chamber is distinguished not by its formal features, but by its decoration scheme (Fig. 3, cat. n° 11). Only the upper body part of the artefact is partially preserved. The discus of this lamp is plain, and on the shoulder only a series of small ridges can be seen. Considering its formal features and find context, this example too belongs to the 6<sup>th</sup> century.

The discus of another mould-made oil lamp with a circular form and a flattened oil reservoir is undecorated (Fig. 3, cat. n° 12). The ridge of the concave discus is limited by a ring and the lamp has a grooved handle on the inclined shoulder. The filling hole is located in the middle of the discus. The top of the short nozzle is slightly straightened. On the bottom, it has a ring base, and a foot-shaped stamp can be seen in the middle of it. The only decoration detail is in the form of oblique notches under the handle and nozzle. Based on similar lamps, the artefact can be dated to the 6<sup>th</sup> century<sup>11</sup>.

Another lamp, which is very similar to the above-mentioned examples regarding its formal features, but differs in terms of its decoration scheme, was found in chamber tomb 4 (Fig. 4, cat. n°13). Its body is oval, the middle of the belly has a sharp profile, and it has an oil reservoir that expands from the bottom. The concave discus is connected to the nozzle through a canal. It has a grooved handle on top of the wide shoulder. The decoration on the sides of the shoulder consists of a series of drops arranged on both sides of centrally placed rosettes. Starting from the handle, a sequence of four drops, a single rosette in the approximate centre, and then another of five drops towards the nozzle make up this interesting decorative element. At the bottom of the lamp, a ring in relief forms the base, and under the handle two outwardly curved spiral motifs are observed. Similar examples of this type have been published and are generally dated to the 6<sup>th</sup> - 7<sup>th</sup> centuries<sup>12</sup>.

Among the mould-made lamps found in the city, there is an oil lamp with a distinctive palmette-shaped handle (Fig. 4, cat. n° 14). Other than, this typical handle decorated with vegetal motifs in relief, the defining features of this oil lamp also comprise a canal that connects the discus to the nozzle. From recent research, it is understood that oil lamps with palmette handles, originally dating back to the Hellenistic period, were especially popular during the 1<sup>st</sup> century and that the palmette form was generally mounted on vertical ring handles in that period (Metin, 2012, pp. 187 – 188, 494, No. 419 – 420). In addition to Anatolian cities such as Pergamon, Kyzikos and Tarsus-Gözlükule oil lamps with palmette handles were also found in North Africa and Syria<sup>13</sup>;

---

11 Shear, 1922, pp. 406 – 407, Fig. 14; Shear, 1927, p. 24, Fig. 3, No. 10; Evren, 1996, pp. 31 – 32, Draw. 40; Metin, 2012, pp. 607 – 616, Kbr-T26-b3 Group 2, No. 524 – 640.

12 Bailey, 1988, p. 389, Pl. 110, Q3173; Evren, 1996, pp. 31 – 32, Draw. 28; Metin, 2012, p. 185, 485-86, Kbr-T26-a3 Group 3, No. 405 – 406.

13 For Pergamon: Heimerl, 2001, pp. 62 – 63, Taf. 4; For Kyzikos: Öztürk, 2003, pp. 114 – 116, Lev. 14a-c; For Tarsus-Gözlükule: Goldman, 1950, p. 108, Fig. 127 – 128; For North Africa: Deneauve, 1969, p. 147; For Syria: Kassab & Sezer, 1995, p. 156, Fig. 441.

however, production ceased in most centres by the middle of the 2<sup>nd</sup> century. Oil lamps with palmette handles were produced again in some cities such as Sardis, Ephesos, Miletos, Tralleis, Kibyra and Sagalassos in the 6<sup>th</sup> – 7<sup>th</sup> centuries<sup>14</sup>. The palmette handles on these lamps are highly stylized compared to the 1<sup>st</sup> century examples. Moreover, the oil reservoirs are quite flat in the later examples. In some instances, a decoration of bunches of grapes with vine branches can be observed on the shoulder. The example discussed here was found in a tomb. The artefact, which draws attention with its pear-shaped body, is undecorated. A stamped foot motif is present in the middle of the bottom of the lamp, surrounded by a ring base. A stylized leaf motif is also present under the handle. This oil lamp, of which a close parallel kept at the Isparta Museum was published (Fırat & Metin, 2011, pp. 147 – 148, 150, No. 11), can be dated to the 6<sup>th</sup> – 7<sup>th</sup> centuries, based on its typological counterparts.

An oil lamp with a pear-shaped body and a canal on the nose was found in tomb number 20 (Fig. 4, Cat. n° 15). The details of this object, which is almost half preserved, cannot be understood due to excessive weathering. Only the outer edge of the ridge limiting the discus is partially decorated. It has a handle that rises above the shoulder at the back. The parallels of the artefact are dated to a wide period between the 4<sup>th</sup> and 7<sup>th</sup> centuries<sup>15</sup>.

A final mould-made oil lamp from Seleukeia Sidera, represented by a single example, is known in literature as the Cock Hat, Broneer 35 or Saucer Type (Fig. 4, cat. n° 16). This lamp, of which only a very small part is preserved, has a circular body. The concave discus is located in the centre of the low, bowl-shaped body. This area is surrounded by a small, raised ring. A circular filling hole is present in the centre of the discus. A sloping shoulder formed the transition from the discus to the body. A small handle, connecting the body to the discus, is placed at the back of the object. The lower body of the lamp is broken and missing. There is a crescent-shaped relief sequence “((((” present on the shoulder. Similar lamps are mentioned in several studies<sup>16</sup>. Based on the properties of the clay and slip, this lamp is thought to be a product of Sagalassos where such finds are dated to the 6<sup>th</sup> – 7<sup>th</sup> century.

## Evaluation and Conclusion

The oil lamps examined in this study were found in two different chamber tombs (OM021 and OM022), in a cist grave (SM025) and around the stage

---

14 For Sardis: Bailey, 1988, p. 395, Pl. 114, Q3219; For Ephesus: Bailey, 1988, p. 393, Pl. 114 – Q3210; For Miletos: Barn, 1995, p. 12, Lev. 4a-d; For Tralleis: Civelek, 2001, p. 98, Lev. 23, K132; For Kibyra: Metin, 2012, pp. 187 – 188, 494, No. 419 – 420; For Sagalassos: Roovers, 1993, p. 156, Fig. 115c.

15 Broneer, 1930, pp. 121 – 122, 291, Type XXXIII, No. 1512, Pl. XXIII; Perlzweig, 1961, p. 198, No. 2927, Pl. 46.

16 Broneer, 1930, Tip 35; Menzel, 1969, No. 659; Çokay, 1996, No. 132; Özkönü, 2006, p. 86, No. 39.

building of the theatre. The mould-made oil lamps among these finds are mostly examples of lamps with canals between the nozzle and the discus, dating to the 4<sup>th</sup> – 7<sup>th</sup> centuries<sup>17</sup>. Among these artefacts, examples of the type known as the Asia Minor are most numerous. However, as stated above, recent research indicates that similar types were also produced at Kibyra and Sagalassos. Wheel-made oil lamps are represented by a single type. In recent studies this type is mentioned as the so-called “teapot type”. It is understood from the available data that examples of this group were produced over a long period of time and mainly at Sagalassos. Publications of excavated finds also indicate that they were found especially in Pisidia and its surrounding regions. The examples of this type presented in this paper can be dated mainly to the 3<sup>rd</sup> – 4<sup>th</sup> centuries. Similar oil lamp finds from the city were also examined in another publication (Yeşil & Fırat, 2021). In this publication, it is understood on the basis of macroscopic analysis that some of the objects have a similar clay fabric. The wheel-made lamps have a clay fabric close to that of Sagalassos oil lamps, while mould-made lamp number 9 is a product of Kibyra. Apart from this, some examples (f.i. No. 13) are typologically similar to oil lamps found in the coastal cities of the Aegean Region (Yeşil & Fırat, 2021, p. 66). Other than lighting devices, the types of lamps are also important in terms of understanding the interactions of the city. In this regard, it would not be wrong to suggest that Seleukeia Sidera interacted with Western and Southwestern Anatolian cities where these different types had their origins.

### **Catalogue**

#### **Cat. n° 1 (Fig. 1)**

Excavation Inventory Number: SS22.KBN.SM053.TN2.S1

Find Spot: SM053

Clay Colour: 2.5YR 6/8 Light Red

Slip Colour: 5R 4/8 Red, 2.5YR 7/8 Light Red

Fabric Structure: Refined, very little porous, hard.

Dimensions:

L: 6.3 cm.

H: 3.3 cm.

D (base): 3.6 cm.

#### **Cat. n° 2 (Fig. 1)**

Excavation Inventory Number: SS22.KBN.SM053.TN2.S2

Find Spot: SM053

---

17 For similar examples in different studies, see: Shear, 1922, pp. 406 – 407, Fig. 14; Bailey, 1988, p. 393, Pl. 114, Q3210; Radt, 1986, p. 56, Abb. 41d; Barın, 1995, p. 11 – 12, Lev. 4a-d, Draw. 10a-d; Metin, 2012, pp. 417 – 420, No. 329 – 340; Szentléleky, 1969, pp. 119 – 120, Fig. 208a; Hübinger, 1993, p. 124, Taf. 29, Abb. 234.

Clay Colour: 2.5YR 6/8 Light Red

Slip Colour: 5R 4/8 Red, 2.5YR 7/8 Light Red

Fabric Structure: Refined, very little porous, hard.

Dimensions:

L: 9.1 cm.

H: 3.6 cm.

D (base): -

**Cat. n° 3 (Fig. 1)**

Excavation Inventory Number: SS22.KBN.SM052.TN2.S1

Find Spot: SM052

Clay Colour: 2.5YR 6/8 Light Red

Slip Colour: 5R 4/8 Red, 2.5YR 7/8 Light Red

Fabric Structure: Refined, very little porous, hard.

Dimensions:

L: 3.1 cm.

H: 3.2 cm.

D (base): -

**Cat. n° 4 (Fig. 1)**

Excavation Inventory Number: SS18.KBN.SM025.TN1.S1

Finds Spot: SM25

Clay Colour: 2.5YR 6/8 Light Red

Slip Colour: 5R 4/8 Red, 2.5YR 7/8 Light Red

Fabric Structure: Refined, very little porous, hard.

Dimensions:

L: 3.8 cm

H: -

D (base): -

**Cat. n° 5 (Fig. 2)**

Excavation Inventory Number: SS21.KBN.OM021.TN15.S1

Find Spot: OM021

Clay Colour: 2.5YR 6/6 Light Red

Slip Colour: 5YR 5/4 Reddish Brown, 2.5YR 4/1 Dark Reddish Gray

Fabric Structure: Refined, very little porous, hard.

Dimensions:

L: 9.4 cm

H: 3.3

D (base): 4.8 cm

**Cat. n° 6 (Fig. 2)**

Excavation Inventory Number: SS21.KBN.OM021.TN17.S1

Finds Spot: OM21

Clay Colour: 5YR 6/6 Reddish Yellow

Slip Colour: 7.5YR 3/1 Very Dark Grey, 2.5YR 5/8 Red

Fabric Structure: Refined, very little porous, hard.

Dimensions:

L: 9.3 cm

H: -

D (base): -

**Cat. n° 7 (Fig. 2)**

Excavation Inventory Number: SS21.KBN.OM022.S9.01

Find Spot: OM22

Clay Colour: 5YR 7/4 Pink

Slip Colour: 2.5YR 5/6 Red, 2.5YR 4/2 Light Red

Fabric Structure: Refined, very little porous, hard.

Dimensions:

L: 6.1 cm

H: 2.7 cm

D (base): -

**Cat. n° 8 (Fig. 2)**

Excavation Inventory Number: SS18.KBN.OM004.TN9-3.S1

Find Spot: OM004

Clay Colour: 5YR 5/4 Reddish Brown

Slip Colour: 5YR 5/3 Reddish Brown, 5YR 4/2 Dark Reddish Gray

Fabric Structure: Refined, very little porous, little lime, medium hard.

Dimensions:

L: 7.7 cm.

H: 3.8 cm.

D (base): 2.6 cm.

**Cat. n° 9 (Fig. 3)**

Excavation Inventory Number: SS21.KBN.OM021.TN12.S1

Finds Spot: OM21

Clay Colour: 5YR 6/4 Light Reddish Brown

Slip Colour: 10R 5/4 Light Red, 2.5YR 4/1 Dark Gray

Fabric Structure: Refined, very little porous, hard.

Dimensions:

L: 13.2 cm.

H: 2.8 cm

D (base): -

**Cat. n° 10 (Fig. 3)**

Excavation Inventory Number: SS21.KBN.OM22.TN6. S2

Find Spot: OM022

Clay Colour: 7.5YR 6/4 Light Brown

Slip Colour: 10YR 3/1 Very Dark Grey, 10YR 7/3 Very Light Brown

Fabric Structure: Refined, very little porous, hard.

Dimensions:

L: 8.0 cm

H: 4.4 cm

D(base): 3.8 cm

**Cat. n° 11 (Fig. 3)**

Excavation Inventory Number: SS21.KBN.OM22.TN13.S1

Find Spot: OM022

Clay Colour: 5YR 6/8 Reddish Yellow

Slip Colour: 7.5YR 4/2 Brown, 10R 5/6 Red

Fabric Structure: Refined, very little porous, hard.

Dimensions:

L: 8.1 cm

H: - cm

D (base): - cm

**Cat. n° 12 (Fig. 3)**

Excavation Inventory Number: SS21.KN.OM022.TN9.S1

Find Spot: OM022

Clay Colour: 7.5YR 7/4 Pink

Slip Colour: 5YR 5/4 Reddish Brown, 10YR 7/3 Very Light Brown

Fabric Structure: Refined, very little porous, little lime, medium hard.

Dimensions:

L: 8.7 cm

H: 2.6 cm

D (base): - cm

**Cat. n° 13 (Fig. 4)**

Excavation Inventory Number: SS18.KN.OM004.TN7-3.S1

Find Spot: OM004

Clay Colour: 7.5YR 6/3 Light Brown

Slip Colour: 5YR 4/3 Reddish Brown, 7.5YR 4/1 Dark Gray

Fabric Structure: Refined, very little porous, little lime, medium hard.

Dimensions:

L: 9.4 cm.

H: 3.9

D (base): 4.0 cm

**Cat. n° 14 (Fig. 4)**

Excavation Inventory Number: SS21.KN.OM021.TN12.S1

Find Spot: OM021

Clay Colour: 5YR 6/4 Light Reddish Yellow

Slip Colour: 10R 5/4 Light Red, 2.5YR 4/1 Dark Gray

Fabric Structure: Refined, very little porous, little lime, medium hard.

Dimensions:

L: 13.2 cm

H: 2.8 cm

D (base): -

**Cat. n° 15 (Fig. 4)**

Excavation Inventory Number: SS18.KN.OM20.TN2.S14

Find Spot: OM020

Clay Colour: 5YR 6/6 Reddish Yellow

Slip Colour: 2.5YR 5/8 Red, 2.5YR 3/2 Dark Red

Fabric Structure: Refined, very little porous, little lime, medium hard.

Dimensions:

L: 4.2 cm

H: -

D (base): -

**Cat. n° 16 (Fig. 4)**

Excavation Inventory Number: SS21.TS.T27.TN12.S1

Find Area: TS

Clay Colour: 2.5 YR 5/6 Red, 2.5 YR 4/4 Reddish Brown

Slip Colour: 7.5 YR 5/6 Dark Brown

Fabric Structure: Refined, very little porous, little lime, medium hard.

Dimensions:

L: 4.9 cm

H: 2.5 cm

D (base): -

### Figure List

Fig. 1. Wheel-made Oil Lamps, Cat. n°. 1-4 (Seleukeia Sidera Excavation Archive).

Fig. 2. Mould-made Oil Lamps, Cat. n°. 5-8 (Seleukeia Sidera Excavation Archive).

Fig. 3. Mould-made Oil Lamps, Cat. n°. 9-12 (Seleukeia Sidera Excavation Archive).

Fig. 4. Mould-made Oil Lamps, Cat. n°. 13-16 (Seleukeia Sidera Excavation Archive).

### Bibliography

Bailey, D. M. (1972). *Greek and Roman Pottery Lamps*. British Museum Publications.

Bailey, D. M. (1975). *Catalogue of the Lamps in the British Museum I. Greek, Hellenistic and Early Roman Pottery Lamps*. British Museum Publications.

Bailey, D. M. (1988). *Catalogue of the Lamps in the British Museum III. Roman Provincial Lamps*. British Museum Publications.

Barın, G. (1995). *Aydın ve Milet Müzesi'ndeki Üzeri Kabartmalı Hellenistik-Roma Dönemi Kandiller* [Unpublished doctoral dissertation]. Ege Üniversitesi.

Başer, S. S. (1990). 1988-89 Yılları Kibyra Kurtarma Kazıları. *Müze Kurtarma Kazıları Semineri*, 1, 235-260.

Biers, J. C. (1985). *The Great Bath on the Lechaion Road, Corinth Vol. XVII*. The American School of Classical Studies at Athens.

Böttger, B. (2002). *Die Kaiserzeitlichen Lampen vom Kerameikos*. Hirmer.

Broneer, O. (1930). *Terracotta Lamps, Corinth, Vol. 4, No. 2*. The American School of Classical Studies at Athens.

Bruneau, P. (1965). *Les lampes - exploration archéologique de Délos fascicule XXVI / Ecole Française d'Athènes*. E. de Boccard.

Bussière, J. & Lindros Whol, B. (2017). *Ancient Lamps in the J. Paul Getty Museum*. The J. Paul Getty Museum.

Civelek, A. (2001). *Tralleis Nekropolisini Buluntuları Işığında Hellenistik ve Roma Dönemi Seramiği* [Unpublished doctoral dissertation]. Ege Üniversitesi.

Coşkun, D. (2007). *Konya-Ereğli Müzesi'nde Bulunan Roma Dönemi Kandilleri* [Unpublished master thesis]. Selçuk Üniversitesi.

Çokay, S. (1996). *Antik Çağda Aydınlatma Araçları ve Perge Pişmiş Toprak Kandilleri* [Unpublished master thesis]. İstanbul Üniversitesi.

- Çokay, S. (1998). *Antik Çağda Aydınlatma Araçları*. Türk Eskiçağ Bilimleri Enstitüsü.
- Deneauve, J. (1969). *Lampes de Carthage*. Centre National de la Recherche Scientifique.
- Evren, A. (1996). Selçuk - Efes Davut Yeriş Tarlası 1993 Yılı Kurtarma Kazısı. *Müze Kurtarma Kazıları Semineri*, 7, 21-76.
- Fırat, M. & Metin, H. (2011). Isparta Arkeoloji Müzesi Envanterinde Yer Alan Bir Grup Kandil. *Arkeoloji Dergisi*, 16, 143-154.
- Fırat, M. (2020). Isparta Müzesi'nden Bir Grup Çark Yapımı Kandil: Demlik Form. *Arkeoloji Dergisi*, 25, 119-129.
- Goldman, H. (1950). *Excavation at Gözlükule, Tarsus, Vol. I, Hellenistic and Roman Period*. Princeton University Press.
- Heimberg, U. (1973). Lampen. In *Antiken aus Rheinischem Privatbesitz (Exh. Cat)* (pp. 116-137). Rheinland Verlag.
- Heimerl, A. (2001). *Die Römischen Lampen Aus Pergamon*, Berlin.
- Kassab, D. & Sezer, T. (1995). *İstanbul Arkeoloji Müzeleri Pişmiş Toprak Kandil Kataloğu, Cilt I, Prehistorik, Arkaik, Klasik ve Hellenistik Dönemler*. Fransız Anadolu Araştırmaları Enstitüsü.
- Menzel, H. (1969). *Antike Lampen im Römisch-Germanischen Zentralmuseum zu Mainz*. Verlag des Römisch-Germanischen Zentralmuseums.
- Metin, H. (2012). *Kibyra Kandilleri* [Unpublished doctoral dissertation]. Atatürk Üniversitesi.
- Hübinger, U. (1993). *Die Antiken Lampen des Akademischen Kunstmuseums der Universität Bonn*. Deutsches Archäologisches Institut.
- Öz, C. (2014). *Silifke Müzesi'nde Bulunan Pişmiş Toprak Kandiller* [Unpublished master thesis]. Selçuk Üniversitesi.
- Özkönü, Y. (2006). *Sagalassos'un Kalıp Yapımı Kandilleri* [Unpublished master thesis]. İstanbul Üniversitesi.
- Özkuş, A. (1991). *Patara Kandilleri* [Unpublished master thesis]. Atatürk Üniversitesi.
- Öztürk, N. (2003). *Kyzikos Kandilleri* [Unpublished doctoral dissertation]. Atatürk Üniversitesi.
- Perlzweig, J. (1961). *Lamps of the Roman Period First to Seventh Century After Christ, The Athenian Agora Vol. 7*. The American School of Classical Studies at Athens.
- Radt, W. (1986). Lampen und Beleuchtung in der Antike. *AntW*, 17(1), 40-58.

Roovers, I. (1993). The Lamps. In M. Waelkens (Ed.), *Sagalassos 1. First General Report on Survey (1986-1989) and Excavations (1990-1991)* (pp. 153-162). Leuven University Press.

Scheltens, E. (1993). Some Wheelmade Lamps of Sagalassos. A Preliminary Note. In M. Waelkens & J. Poblome (Eds.), *Sagalassos II, Report on the Third Excavation Campaign of 1992* (pp. 191-208). Leuven University Press.

Shear, T. L. (1922). Sixth Preliminary Report on the American Excavations at Sardes in Asia Minor. *AJA*, 26(4), 389-409. <https://doi.org/10.2307/497951>

Shear, T. L. (1927). A Roman Chamber-Tomb at Sardis. *AJA*, 31(1), 19-25. <https://doi.org/10.2307/497612>

Szentléleky, T. (1969). *Ancient Lamps*. Akadémiai Kiadó

Tekocak, M. (2013). Akşehir Müzesi'nde Bulunan Pişmiş Toprak Kandiller. In M. Tekocak (Ed.), *Studies in Honour of K. Levent Zoroğlu* (pp. 707-728). Suna-İnan Kıraç Akdeniz Medeniyetleri Araştırma Enstitüsü.

Yeşil, M. & Fırat, M. (2021). Seleukeia Sidera'da 2019 Yılında Ele Geçen Roma Dönemi Kandilleri. *Seramik Araştırmaları Dergisi*, 3, 58-77.

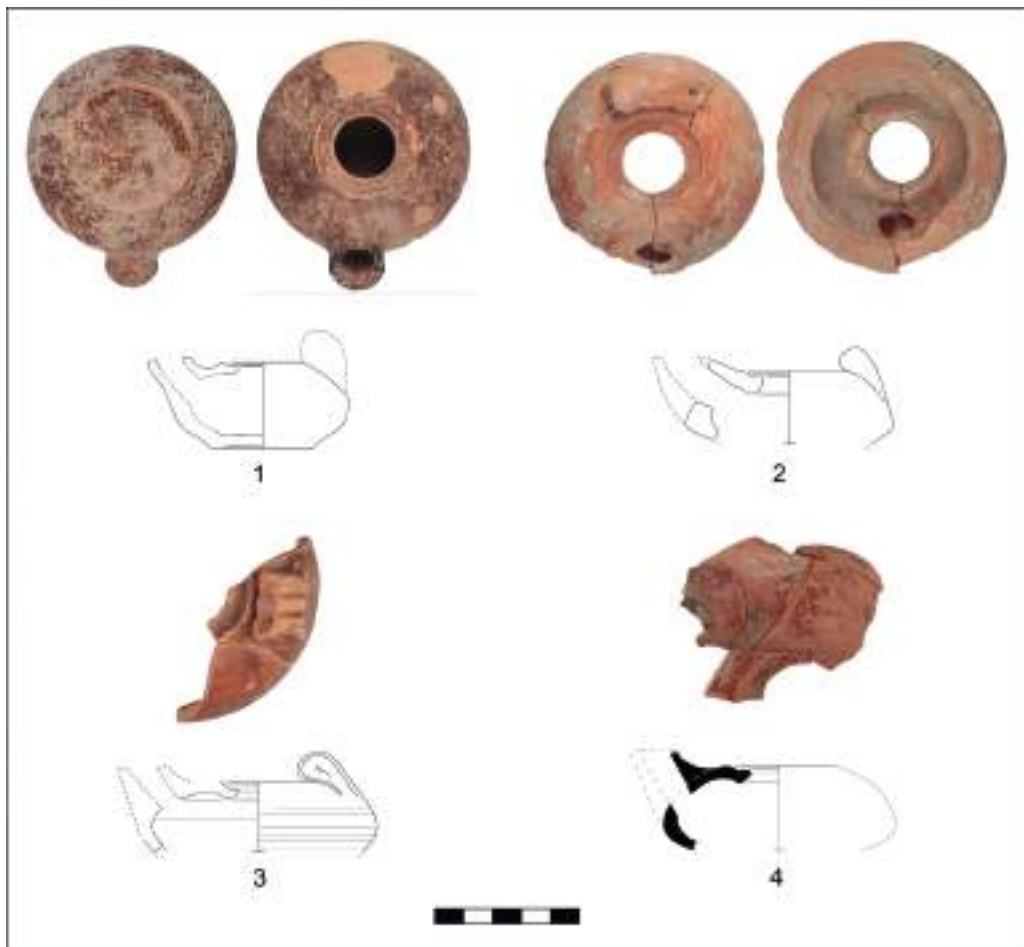


Fig. 1



Fig. 2

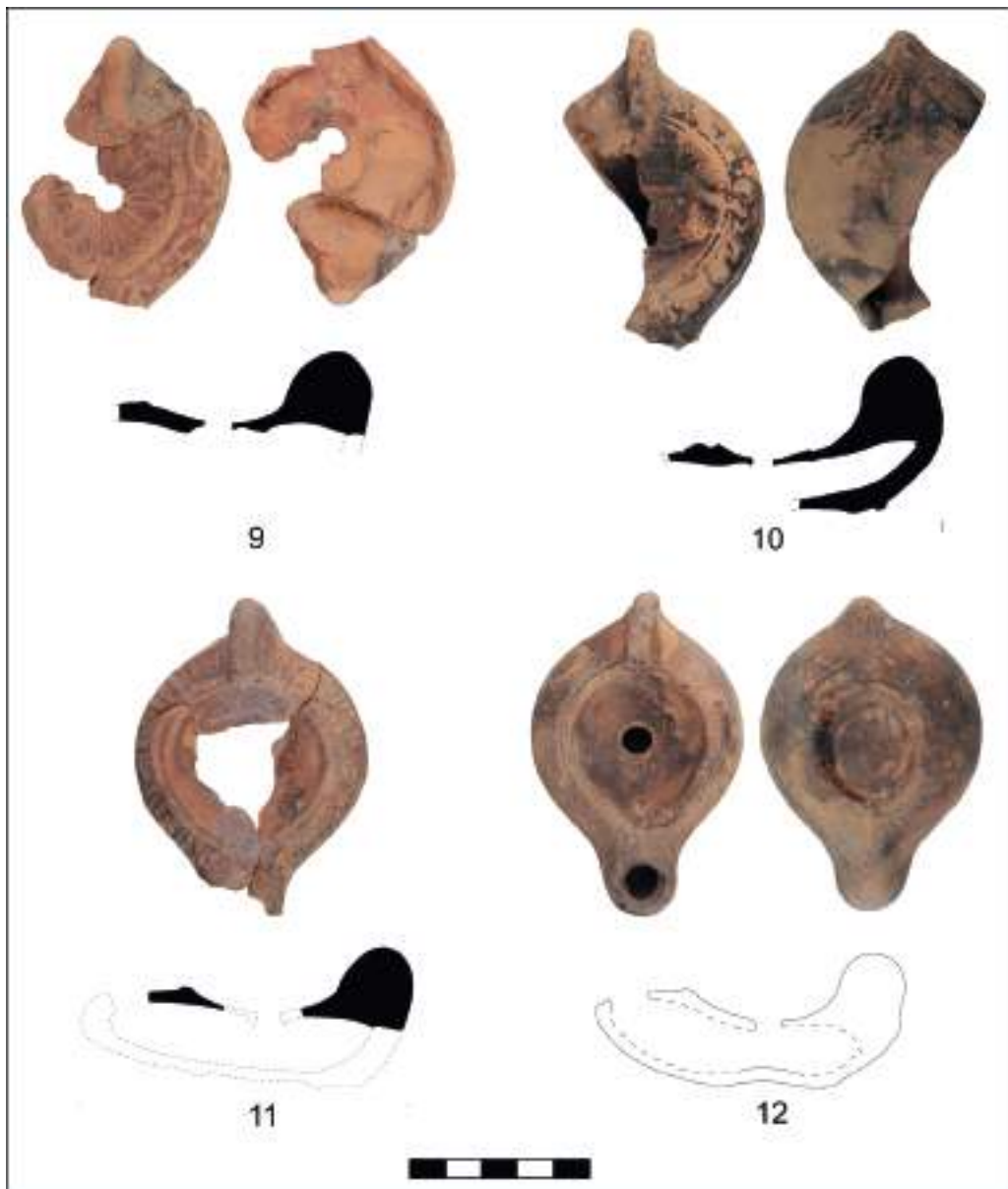


Fig. 3

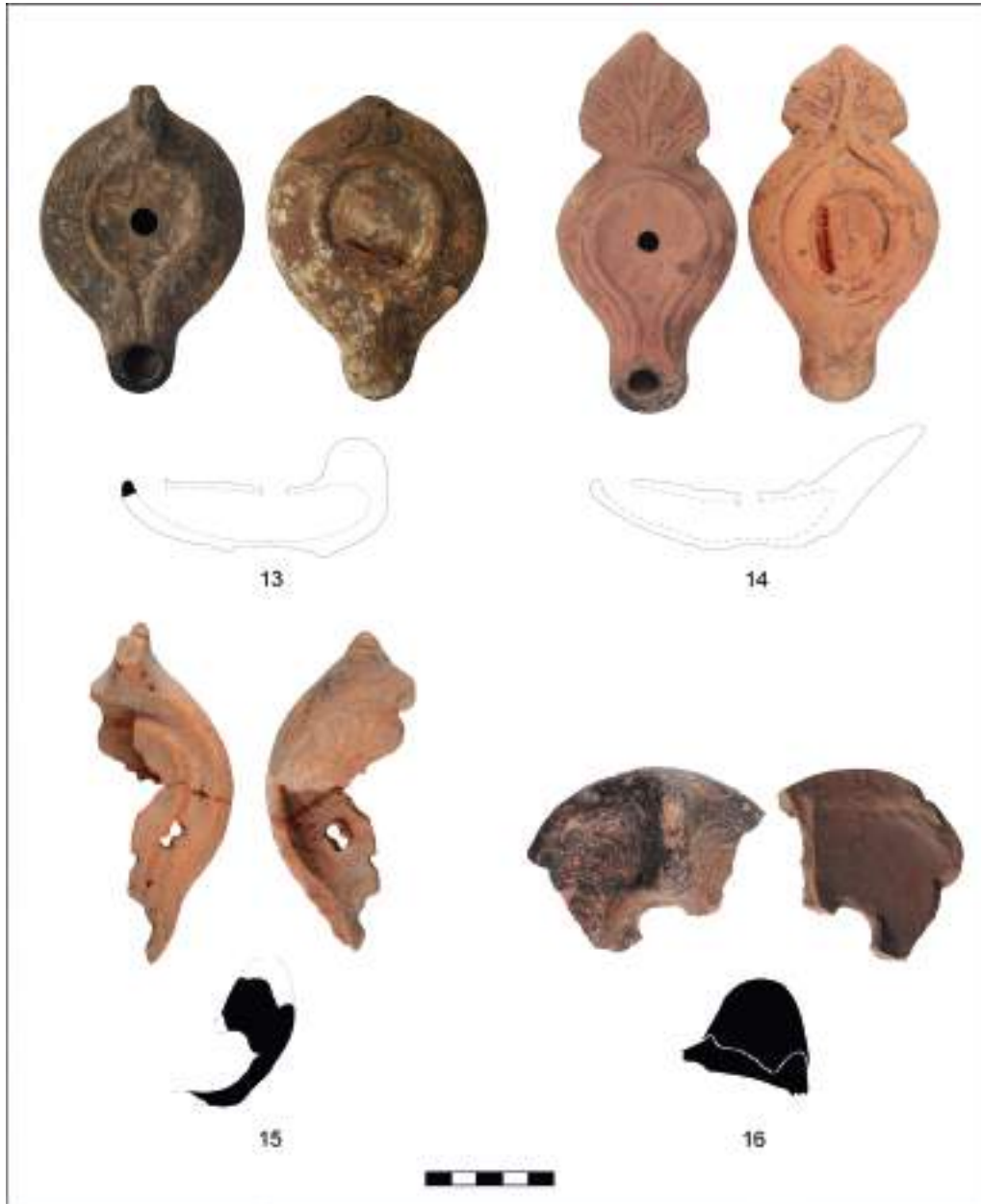


Fig. 4



## Terracotta Figurines of Seleukeia Sidera

### *Seleukeia Sidera Pişmiş Toprak Figürinleri*

Peter Talloen\* – Özgür Perçin\*\*

Küçük Asya'da neredeyse her kentte olduğu gibi, Seleukeia Sidera'da da pişmiş toprak figürinler materyal kültürün yaygın bileşenlerinden birisidir. Ucuz hammadde kullanılarak seri şekilde üretilen pişmiş toprak figürinler toplumun geniş kesimi için ulaşılabilir ve antik yaşamın dini/kültürel pratikler, sanat, teknoloji ve ticaret gibi çeşitli yönleri ile ilişki içindedir.

Seleukeia Sidera'da pişmiş toprak figürinler, ilk olarak 1993 yılında Prof. Dr. Orhan Bingöl'ün bilimsel danışmanlığında Isparta Müzesi tarafından gerçekleştirilen kazılarda açığa çıkarılmıştır. 2010 yılında kentin güney periferisinde yerel bir çiftçi tarafından, 19 figürinden oluşan özel bir grup bulunmuştur. 2017 yılından itibaren Prof. Dr. Bilge Hürmüzlü başkanlığında yapılan sistematik kazılarda açığa çıkarılan parçalar mevcut repertuarı zenginleştirmiştir.

Bu çalışmada ele alınan malzeme, farklı yılların kazılarında açığa çıkarılmış olan parçalanmış durumdaki figürinlerin toplamından korunma durumlarına göre seçilen 20 figürini içermektedir; bu daha iyi korunmuş örnekler, konunun ikna edici bir şekilde tanımlanmasına ve dolayısıyla anlamlarına ve kullanımlarına yaklaşma olasılığına izin verir. Seleukeia Sidera materyali, Sagalassos figürinlerinin yanı sıra Pisidia Bölgesi için yayınlanan ikinci gruptur; bu antik bölgedeki pişmiş toprak figürinlerin kullanımı, kronolojisi ve üslup gelişimi hakkında verdikleri bilgiler açısından büyük önem taşımaktadır<sup>3</sup>.

Pişmiş toprak figürinlerin tartışılmasında arkeolojik bağlam, teknik, stil, tipoloji ve kronoloji gibi çeşitli parametreler kullanılabilir. Bu yazıda, üretim ile ilgili yönleri ele alındıktan sonra, figürinler önce kronolojik bir şekilde gruplandırılmıştır. Buna göre, Arkaik Dönemden Erken Bizans Dönemine kadar uzanan ve bin yılı aşkın bir süreyi kapsayan üç pişmiş toprak grubunun varlığı söz konusudur. Her kronolojik dönem için, konularına göre farklı türler sunulmuştur. Bunu, heykelticiklerin üretim ve ticaret, kronoloji ve işlev açısından önemini tartışılması izler. Son olarak katalogda, tipolojik paralellikler eşliğinde üretim teknikleri ve tanımlayıcı bilgiler dâhil olmak üzere figürinler tüm detayları ile sunulmuştur.

Pişmiş toprak figürinlerin üretimi nispeten kolay olmasına rağmen, Seleu-

---

\* Bilkent University, Faculty of Humanities and Letters, Department of Archaeology, 06800 Ankara/TR, University of Leuven, Sagalassos Archaeological Research Project, 3000 Leuven/BE, petertalloe@gmail.com, ORCID: 0000-0001-9644-3073.

\*\* Isparta Museum, 32100 Isparta/TR, ozgurpercin32@gmail.com, ORCID: 0009-0001-0962-5141.

3 Both authors want to thank Prof. Dr. Bilge Hürmüzlü for her generous offer to study and publish this material.

keia Sidera'da şimdiye kadar yerel üretim için – kalıp ve üretim artıkları gibi – herhangi bir gösterge bulunamamıştır. Bu figürinlerin kil çeşitleri ve tipleri, yakınlardaki köklü üretim merkezi Sagalassos'un yanı sıra diğer bölgesel kaynaklar ve aynı zamanda Anadolu'nun batı kıyısındaki daha uzak yerler gibi birçok kökene işaret eder. Ayrıca bu grup, bölgede bulunan Geç Arkaik-Erken Klasik Dönemlere tarihlendirilen en eski figürinleri içerir. Belki biraz şaşırtıcı bir şekilde, şimdiye kadar hiçbir figürin, kentin Hellenistik Dönemdeki kuruluşu ve yerleşimi ile ilişkilendirilememiştir. Ancak, Hellenistik seramik buluntularının da genel olarak sınırlı kaldığını belirtmek gerekir. Roma İmparatorluk Dönemi'nde Seleukeia Sidera'da figürinlerin olağanüstü artışı belki de bölgede, Sagalassos'ta ve başka yerlerde üretimin başlaması ile açıklanabilir.

Pişmiş toprak figürinler kentin kültürü, dini ve günlük yaşamının bileşik bir resmini sunar; ancak bu durumda birincil buluntu bağlamlarının olmaması nedeni ile yorumlanması ciddi şekilde sınırlıdır. Genel ifadeyle, pişmiş toprak figürinler tapınaklarda ve kutsal alanlarda bir tanrı veya tanrıçaya adak olarak, bazen evlerde oyuncak ve kült objesi olarak sunulabilir ve mezarlara bırakılan figürinler, ölülerin ruhlarını korumak veya neşelendirmek için birçok anlam taşır. Seleukeia Sidera'nın Kuzeybatı Nekropolisi'ndeki (Pl. 2: 14) kaçak kazı ile açığa çıkan sanduka mezarlarında birkaç figürin parçasının varlığı, figürinlerin burada mezar hediyesi olarak da kullanıldığını düşündürür. Öte yandan, bugüne kadar Seleukeia Sidera'da bulunan figürinlerin çoğu, orijinal kullanımına çok az ışık tutan veya hiç ışık tutmayan dolgularda ele geçmiştir. Bu dağınık, bağlam dışı karakterin bir istisnası, bir çiftçinin şehir merkezinin yaklaşık 900 m güneydoğusunda tarlasını sürerken bulduğu 19 figürinden oluşan bir gruptur. Yüzey buluntuları olmalarına rağmen, birçoğunun neredeyse tamamen restore edilebilmesi, nispeten iyi korunmuş tek bir bölgede bulduklarına işaret eder. Periferik konumu göz önüne alındığında, aynı alanda bulunan mimari kalıntının da gösterdiği üzere, olası bir tabaka bağlamı olarak bir mezarı akla getirir. Böyle bir mezarın kapalı yapısı, ikincil tabakalanma süreçlerinin bir parçası olarak yerleşimde dağılmadan önce genellikle birçok parçaya ayrılan figürinlerin parçalarının bir arada kalmasını sağlayacaktır. Gerçekten de figürinlerin büyük ihtimalle birbirine ait olduğuna dair başka işaretler de vardır. Hepsi MS 2. yüzyıla (ikinci yarısı) tarihlendirilebilir ve arp çalan kadın dışında, buluntu topluluğu tamamen erkek figürinlerinden oluşur: iki erkek büstü, üç Eros, dört Hermes, arp çalan figürün yanında bir erkek çocuk ve bir gladyatör grubu. Dahası, konuları erkek çocukların ve genç erkek ergenlerin *Gedankenwelt*'iyle ilişkilendirilebilecek çarpıcı bir konu tutarlılığı sergiler: küçük çocukların ve gençlerin koruyucuları olarak çocuk tanrılar Eros ve Harpokrates'in yanı sıra Hermes, erkek veya ergenlerin omuz-büstleri ve bir grup gladyatör, bunlar erkek çocuklar ve gençlerin beğendiği oyunlar olarak görülebilir. Eros ve muhtemelen Hermes'in aşağı dönük meşaleleri de bir cenaze töreni bağlamına uyar.

Antik Akdeniz'in birçok bölgesinde pişmiş toprak figürinler çocuk ve gençlerin mezarları ile ilişkilendirilir. Bu örnekler, figürinler ile ölen kişinin cinsiyete

ti ve sosyal statüsü arasında ilişki kurmanın mümkün olduğunu göstermiştir. Geleceğin bu vatandaşları, çocukluktan ergenliğe, oyundan şiddetli yarışmalara kadar farklı yaşlarda, farklı rollerde ve etkinliklerde sunulur. Bir insanın sosyal kimliğinin inşa anlarını onaylayan bu çoklu aşamalarla, her seferinde ziyafetlerle ritüelleştirilen, ölümlüye eşlik eden, onu koruyan ya da ona örnek ve model olarak hizmet eden bir kahraman ya da tanrısal varlık ilişkilendirilir. Seleukeia Sidera'daki figürinlerde bu durum Eros/Harpokrates ve Hermes'in varlığıyla örneklenir. Dolayısıyla bu figürin grubunun, MS 2. yüzyılın ikinci yarısında erken bir ölümün kesintiye uğrattığı gelişim aşamalarını temsil ettiğini tasavvur edebiliriz.

## **Introduction**

As in almost every ancient city of Asia Minor, terracotta figurines were a common element of material culture at Seleukeia Sidera. Manufactured of an inexpensive material in a mass-production process, the terracottas were made available to wide classes of society, and relate to various aspects of ancient life, such as religious and cultic practices, art, technology and commerce.

Terracotta figurines were first brought to light at Seleukeia by the exploratory excavations of 1993 under the scientific advisory of Prof. Dr. Orhan Bingöl. These 43 fragments were studied as part of Master Thesis of E. Laflı and partly published by him (Laflı, 1996; 1998) and were also partly incorporated into the Master Thesis of N. Çevik (Çevik, 2019). Additional examples have been yielded by the systematic excavations taking place at the site since 2017 under the direction of Prof. Bilge Hürmüzlü. Finally, a special group of 19 figurines, found by a local farmer in a field in the southern periphery of the city in 2010 were the topic of a Master thesis by Ö. Perçin (Perçin, 2019).

The material presented here comprises a total of 20 objects, selected on the basis of their preservation from the totality of fragmentary figurines excavated over the years; these better preserved instances allow for a convincing identification of the subject matter, and therefore the possibility of approaching their meaning and use. In addition to the figurines from Sagalassos (Talloen, 2019a; 2020), the material from Seleukeia will be the second group to be published for the region of Pisidia, bearing great significance for the information they yield on the usage, chronology and style of terracotta figurines in this ancient region.

Several parameters can be employed in the discussion of terracotta figurines, such as archaeological context, technique, style, typology and chronology (Nicholls, 1952). In this paper, after a discussion of the production related aspects, the figurines are first grouped in a chronological manner. This results in three groups of terracottas, ranging chronologically from the Archaic period to the Early Byzantine period, spanning more than a thousand years. For each chronological period, the different types will be presented according to their subject matter. This is followed by a discussion of the importance of the figurines in terms of production and trade, chronology, and function. Finally, a catalogue will present the figurines in full detail, including production techniques and descriptive information accompanied by typological parallels.

## **Production**

### **Clay fabric**

No archaeometrical analysis of the clay fabrics of figurines found at Seleukeia has taken place so far, but macroscopic examination of the objects identified several distinct fabric groups, suggesting different origins for the objects. The reddish yellow (5YR 6/8) clay fabric of the protomai (cat. n° 1-2; Fig.

1-2), for example, is quite powdery with many mica inclusions and few small pores and limestone. Such a micaceous and fine clay fabric is not present in the immediate vicinity of Seleukeia and is generally associated with the Anatolian west coast and Maeander Valley (Burn & Higgings, 2001, p. 173). The light red (2.5YR 6/6) to reddish yellow clay (5YR 6/6) of the warrior figurines (cat. n° 15-17; Fig. 15-17) and animal figurines (cat. n° 18-20; Fig. 18-20), on the other hand, is almost certainly the so-called fabric 1 of Sagalassos Red Slip Ware, as already argued by Laflı (1998, p. 77). This relatively clean clay with very few small limestone inclusions and few pores, quarried in the valley of Çanaklı 7 km southeast of Sagalassos, is also known to have been used for the production of figurines (Degryse & Poblome, 2008). As a well-established production centre, Sagalassos is known to have exported its figurines to other cities in the region (Talloen, 2020). A third group, comparable to fabric 1 and represented by several examples (f.i. cat. n° 3-4, cat. n° 13), is composed of a similar reddish yellow clay fabric (5YR 6/6) but is less refined, with some mica and quartz-sand inclusions in addition to limestone. This suggests an origin in the same general region, yet different from the Sagalassos clays. Given its prominence among the figurines from Seleukeia and the fact that the clay closely resembles the one used for the local/regional production of pottery (Hürmüzlü & Sönmez, 2021) it was perhaps the clay from the area around the city, hinting at local/regional production. One instance (cat. n° 9) stands out in terms of its fabric: the very pale brown (10YR 7/4) clay with quartz-sand, mica and limestone inclusions, as well as its stylistic characteristics, suggest an import from outside of the region.

### **Modelling**

Two different techniques were used for modelling the figurines found at Seleukeia; both handmade and mould-made figurines have been documented among the objects. The handmade production technique is performed by shaping the wet clay and then joining the different parts (such as limbs and heads) while the clay is still soft. On hand-shaped figurines, details such as hair, headdress, ears, and breasts were added as appliquéés, while other details could be indicated with incised lines or paint. The figurines shaped by hand, have very rough lines and are all massive. Therefore, they are generally considered to be the earliest examples. Yet, this technique continued to be employed in the region until the end of production in the Early Byzantine period (Talloen, 2020). At Seleukeia, for example, this technique was used for the production of several animal figurines (cat. n° 18-20; Fig. 18-20) that can be dated to the 5<sup>th</sup> - 6<sup>th</sup> century AD.

From the Archaic period onward, figurines were often made by pressing clay into moulds taken from a prototype or existing figurines (Uhlenbrock, 1990, pp. 16 – 17). The use of moulds not only allowed rapid and standardized production, but also facilitated the reproduction of complicated forms. Two kinds of mould production are attested among the Seleukeia figurines: the use

of single, frontal moulds and of multiple moulds.

In the single mould technique, the head was moulded together with the body, and the back of the figure was shaped by hand. Figurines made with a single frontal mould are characterized by their solid body and generally flat surface at the back. While the front side of the figurines was extremely detailed and with a good finish, the back varied in its degree of finish. The majority of the terracotta figurines were either partly worked or completely unworked at the back. This technique is attested by the earliest example such as the *protome* (cat. n° 1; Fig. 1) and by some of the latest examples of figurines at Seleukeia like the riders on horseback (cat. n° 15-16; Fig. 15-16).

The use of multiple (i.e. two or more) moulds allowed for hollow figurines with plastically rendered details, even on the backside. Generally, the Seleukeia figurines were mould-made from two moulds, front and back. The back mould is generally less refined. Yet, there are also more elaborate figurines, like cat. n° 3 and 5 (Fig. 3 and 5), that were made from several moulds allowing for the expression of movement.

Ceramic and plaster were the two most widely used materials for the production of figurine moulds in the Eastern Mediterranean (Papantoniou et al., 2019, p. 31). A clay mould allegedly found during survey of the site back in 1993 (Lafli, 1996, p. 52) would provide an indication for local manufacturing of figurines, although the exact nature of this mould is not clear<sup>4</sup>. Many of the figurines at Seleukeia were produced using plaster moulds. Although the moulds nearly always disintegrate, leaving no trace of their existence, the use of plaster moulds can be surmised from the figurines themselves, namely from the 'blisters' that are apparent on the surface of several figurines (e.g. cat. n° 5 and 14, Fig. 5 and 14). Plaster heats up and produces air bubbles when mixed with water. As the bubbles rise to escape through the plaster's surface, they leave small, round voids that become permanent when the plaster hardens. Positive impressions made from these pockmarked negatives result in blisters on the surface of the figurines. While plaster moulds were used in the production of terracotta figurines in Egypt and cities like Athens starting from the 2<sup>nd</sup> century BC, their use only became widespread in the Roman Imperial period (Burn & Higgins, 2001, p. 19). It appears that such plaster moulds were used especially for making secondary copies from existing figurines.

Once the clay was fitted into the moulds, the moulds would be left aside for the excess water to evaporate. As a result, the figurine's clay body shrinks, making the release of the figurine from the mould easier. Then the different parts would be joined together using strips of clay. The terracotta figurines

---

4 In view of local ceramic production during the Late Antique period (Hürmüzlü & Sönmez, 2021), especially of mould-made relief ware known to be closely related to the production of figurines (Talloen, 2020), such local figurine manufacture can be expected, although no clear evidence is available so far.

could also be covered with a clay slip before they were fired, which would turn red or brown, as is the case with some of the later figurines from Seleukeia (cat. n° 15-20; Fig. 15-20).

### **Firing**

Figurines are likely to have been fired in kilns like those used for pottery. However, because they were not designed to hold liquids, they did not need to be as hard as most pots. Therefore, they were not fired for as long and at lower temperatures, varying between 750 and 950°C (Burn & Higgins, 2001, p. 20). This often resulted in a somewhat softer and more powdery clay fabric.

A small, circular hole is found in several of the hollow terracotta figurines made from multiple moulds (f.i. cat. n° 3, 7, 8 and 11; Fig. 3, 7, 8 and 11). These apertures operated as vent holes (Burn & Higgins, 2001, p. 19). The vent hole is defined as the rectangular, square, oval or rarely triangular holes on the back of the terracotta figurine, which allows the water vapour inside to escape so that the terracotta figurine is not exposed to breakage or cracking during firing.

### **Finishing**

Like most figurines, the examples from Seleukeia that were not slipped, were probably painted in vivid colours. Having said that, hardly any figurines display traces of this painted decoration (few traces of red as skin colour on cat. n° 6 and 7; traces of yellow as wool colour on cat. n° 9). Traces of a white coating, on the other hand, have been registered on several examples (e.g. cat. n° 3 and 5). It was common practice to cover the terracotta figurines with a white slip or lime wash, which formed the base for the subsequent colour decoration. The fact that this is poorly preserved may be due, as Burn and Higgins (2001, p. 20) have argued, to its being applied after firing – as opposed to the well-preserved slip in cases where it was added before firing.

### **Chronological Overview of the Types**

Because all figurines discovered at Seleukeia so far were found removed from their original context of deposition, we lack contextual information concerning their period of use. Therefore, only a general chronological overview can be presented here, mainly based on typological and stylistic parallels from dateable contexts elsewhere. Three periods of production can be distinguished among the figurines found at Seleukeia: The Archaic period, the Roman Imperial period and the Late Antique period. Within these three chronological groups, several iconographical types could be discerned. They include a variety of deities, ordinary humans, and animals.

## I. The Archaic and Classical Periods (Late 6<sup>th</sup> century – early 4<sup>th</sup> century BC)

The oldest known figurine from Seleukeia, dating to the Late Archaic – Early Classical period (cat. n° 1; Fig. 1), takes the form of a mould-made protome, depicting the stylized head of a woman with round, bulbous eyes; a hole in the open back indicates that the object was intended to be suspended. The second object (cat. n° 2; Fig. 2) is a hand-shaped double protome and depicts the combined heads and upper torsos of two human (female?) figures reduced to their simplest, recognizable forms. Its primitive style makes it more difficult to date but a regional parallel from Tymbrida<sup>5</sup> suggests that this may have been produced somewhat later, perhaps in the early 4<sup>th</sup> century BC.

Their characteristic orange and micaceous clay fabric suggests that both these protomai were imports from the Anatolian west coast during the late Archaic and Classical period, a region with a well-established tradition of figurine production (Higgings, 1967, pp. 37 – 39). Pottery finds from Pisidia indicate that patterns of exchange existed between this region and the Anatolian west coast during this period (Kaşka, 2020) and these figurines can easily have been part of the imported goods that found their way to inner Anatolia.

Generally, terracotta female *protomai* are encountered in a number of different contexts: as offerings in sanctuaries (dedicated primarily to female deities), as ritualistic objects in domestic shrines, as objects with apotropaic or decorative character in private households, and as grave offerings in women's and children's burials. Their interpretation is uncertain since they are sometimes considered depictions of deities and other times of mere mortals. Together with shoulder busts, they were originally thought to represent chthonic deities or reproductive deities<sup>6</sup>. Yet, many busts and *protomai* are present in the sanctuaries of other deities, such as Artemis, Hera, Aphrodite and the Nymphs. This led to a new identification of these objects by A. Muller and his team as an abbreviated representation of figurines that need to be interpreted as a conventional representation of mortals performing offerings. The idea was further developed by S. Huysecom-Haxhi as generic and conventional images of mortals represented in their different social and family status (Huysecom-Haxhi & Muller, 2007).

## II. Roman Imperial Period (1<sup>st</sup> – early 3<sup>rd</sup> century AD)

The figurines datable to the Roman Imperial period are conventionally divided into two groups on the basis of the subject matter: mythological and genre pieces. The genre figurines often reproduce secular themes without apparent sacred connotations.

---

5 Çevik, 2019, p. 245 cat. n° K122.

6 See: Muller, 2009, pp. 82 – 84 for an overview of different interpretations.

## Mythological types

So far, two mythological figures could be identified among the terracotta figurines found at Seleukeia: the Greek deities Eros and Hermes. Except for one Hermes figurine found at the theatre (cat. n° 5; Fig. 5), all of these mythological images were collected in a field southeast of the city centre, suggesting that they belong to a single assemblage (Perçin, 2019, pp. 24-33). Some of these figurines echo famous life-size sculptures by named artists. But in the hands of coroplasts, clay allowed for many possibilities for expressive modelling and innovation. Emerging from the artisan's mould was an almost endless variety of reduced-scaled figures that could be at the same time ornamental, functional and sacred.

### A. Eros

Just like his mother Aphrodite, Eros is a commonly represented god among terracotta figurines of the Hellenistic and Roman Imperial period (Hermans et al., 1986). The iconography of Eros is diverse. He is normally depicted as a winged naked infant or early-age child, but also frequently portrayed as a youth/young adolescent. The child god was often invoked as the protector of children; as such his figurines were used as votive gifts at sanctuaries and as offerings in graves. Three images of the child god have been documented at Seleukeia so far.

The first type is represented by a well-preserved figurine (cat. n° 3; Fig. 3), of which only the right arm is missing. It depicts Eros as a young boy standing on top of a relief-decorated hexagonal base and holding a downturned, lit torch in his lowered left hand. The similar, albeit distinct, clay fabric and stylistic parallels with Sagalassos suggest a regional product. The stylistic characteristics of the figurine and the relief decoration present on its base, based on relief decoration of sarcophagi (Perçin, 2019, p. 31), suggest a date in the 2<sup>nd</sup> century AD. The type of Eros with a lowered torch is commonly associated with death and has characteristically funerary connotations, although this is a much disputed matter (Hermans et al., 1986, 931 – 932; Michaelides, 2015).

The second type (cat. n° 4; Fig. 4), of which only the winged upper body of the child god is preserved, shows him playing with a ball, perhaps a reference to the golden ball that he was given by Aphrodite according to Apollonius' *Argonautica* (Apoll. *Argon.* 3.135). The ball was a common toy and typical symbol of childhood in antiquity (Castiglione, 2020). Together with his long curly hair in plaits, alluding to the time before the ceremonial haircut marking his transition from childhood to adolescence, at the age of fourteen (Neils, 2003, pp. 145 and 153) this type of Eros possibly underlines his character as protector of children. The rendering of the pupils of the eye also allows for a 2<sup>nd</sup> century date for this example.

The final example (cat. n° 5; Fig. 5) depicts the body of a standing naked boy with wings, raising his right hand to his face<sup>7</sup>. While the wings point to Eros, the raised right hand suggests the typical stance of Harpokrates, the Egyptian child god who was commonly associated with Eros (Tinh et al., 1988). Harpokrates is a child form of the god Horus, the son of Sarapis and Isis, symbol of rebirth and fertility. In Egypt, Harpokrates is typically depicted as a naked infant or early-age child, although on occasion he is portrayed as a young adolescent wearing a cloth loosely draped around his waist or with a cloak flowing down his back. He is typically represented in the act of making a characteristic gesture, either touching or approaching his lips with the index of his right hand as a sign of his infancy (Savvopoulos, 2019, pp. 318 – 319). Like Eros, he was considered a protector of children (Talloen, 2001).

## B. Hermes

A second deity attested at Seleukeia is Hermes, represented by five figurines. Hermes was a god with many functions (Siebert, 1990): the speedy messenger of the gods with his typical wand or *kerykeion*, and winged attributes, the guardian of doors and boundaries, but of course also the god of trade and prosperity (as indicated by his purse) and shepherds. The god of commerce and travel was also known as protector of those attending the *gymnasion* (ages 14 to 18), as well as *psychopompos* or “guide of souls”, able to transgress the border between the realms of the living and the dead. Consequently, there are many different iconographical types of the god, corresponding to his different functions.

Three of the figurines show the god standing, holding his wand or *kerykeion* and purse as typical attributes<sup>8</sup>. Two of them (cat. n° 6 and 7; Fig. 6 and 7) depict the same type although with different stylistic characteristics. Hermes is standing naked, without a base, holding his *kerykeion* and purse. Wings are present on his head between his curls. It is a type commonly depicted on the coins of the region (Demirtaş, 2015) and also known from bronze figurines (e.g. Talloen, 2015, p. 331, Fig. 91). A third, headless figurine (cat. n° 8; Fig. 8) most probably belongs to the same type of Hermes as suggested by his stance and the purse in his right hand, but he is standing on a hexagonal base, wearing a pair of winged sandals in this instance.

The fourth figurine of (cat n° 9; Fig. 9) represents a somewhat exceptional type of Hermes. We see the god wearing a winged cap and *chlamys*, shouldering his *kerykeion*, and seated sidesaddle on top of a ram. Although statues and figurines of the god carrying a ram – the so-called *kriophoros* type – are widespread (Siebert, 1990, pp. 311 – 313, n° 260 – 294), the type where he is

---

7 A fragmentary figurine depicting the lower body of a standing, naked male figure from the same location may belong to the same type (Perçin, 2019, pp. 32 and 72 – 73 cat. n° 9).

8 The fragmentary figurine of a standing male figure wearing a *chlamys* from the same find context (Perçin, 2019, pp. 60 – 61 cat. n° 4) may also have belonged to this type of Hermes, but since the typical attributes are missing it was not included in this study.

seated on one is far less common (Siebert, 1990, pp. 310 – 311, n° 254 – 259). It seems to single out Hermes as the god of animal husbandry, an important aspect of the local economy<sup>9</sup>, although the damaged object in his right hand may have been a lowered torch, suggesting a funerary association as Hermes *psychopompos*.

Of the fifth figurines (cat. n° 10; Fig. 10) only the upper body is preserved, which prevents a certain identification of the type. The fragmentary object shows us the upper body of Hermes wearing a *chlamys* and a winged cap on his head crowned by a central pointed lotus leaf<sup>10</sup>. The presence of a lotus leaf suggests an identification as Hermes-Thoth, a Hellenistic syncretistic creation of Hermes with Thoth, the Egyptian god of magic and writing, which became widespread from the time of Augustus and during the mid-Imperial age (Çelik et al., 2022).

### Genre types

From the Hellenistic period onward, there is an increasing interest of artists and customers in non-religious subjects or genre types, alongside the traditional religious repertoire of gods and mythological figures (Vafopoulou-Richardson, 1991, p. 4; Merker, 2000, pp. 130 – 131). At Seleukeia, this manifests itself in the representations of human busts, musicians and gladiators.

#### A. Human busts

This category comprises two busts of (young) male figures, found in a field in the southeastern periphery of Seleukeia<sup>11</sup>. The first example (cat. n° 11; Fig. 11) depicts the bust of an adolescent boy with long curly hair, who is naked except for a *chlamys* or cloak hanging from his shoulder; the bust is placed on top of a relief-decorated hexagonal base. The *chlamys* can perhaps be identified as an ephobic cloak (*chlamyes ephobikai*), indicating his status before becoming a male citizen (de Lisle, 2020, p. 30). Together with the elaborate curly hairdo, typical for the late 2<sup>nd</sup> – early 3<sup>rd</sup> century AD (Zanker, 2016, p. 114), also the indications of the eye pupils and the relief decorated base suggest a (late) 2<sup>nd</sup> century date<sup>12</sup>. The second example is a fragment of a bare chested bust of a headless male figure (cat. n° 12, Fig. 12) which rests on foliate calyx of acanthus-leaves<sup>13</sup>. Such

---

9 See, in this volume, Gündem et al., The Preliminary Archaeozoological Report of Seleukeia Sidera Ancient City.

10 A similar figurine of Hermes-Thoth is present in the collection of the Burdur Museum, inv. n° E-554 (Talloen, forthcoming).

11 The head of a young boy with curly hair found at the same location (Perçin, 2019, p. 81, cat. n° 13) may have belonged to a similar bust but was not included here due to its very fragmentary state of preservation.

12 The sacrificial scene on the base of the bust could be traced to the relief decoration of sarcophagi dating to the 2<sup>nd</sup> century AD (Herdejürgen, 1997).

13 A comparable bare-chested bust of a youth with curly hair is kept at the Burdur Archaeological

busts set on acanthus-leaf bases are particularly common in Roman (funerary) art of the 2<sup>nd</sup> century AD (Huskinson, 2011, p. 115; Zanker, 2016, p. 157).

Shoulder busts, especially of (young) women, are a popular type of figurine in Anatolia since the Late Classical – Early Hellenistic period when they replaced the half-open *protomai* as representations of mortals represented in their different social and family status (Işın, 2007, pp. 84 – 86)<sup>14</sup>. Similar representations of boys and male adolescents are far less frequent and appear somewhat later, by the end of the Hellenistic - beginning of the Roman Imperial period (Işın, 2007, pp. 84 – 85; 2008). Through their particular headgear, hairstyles, different facial features and expressions they too show a certain degree of individuality, even if these were still serial products. Therefore, it is tempting to recognise in many of these busts ‘real’ people, something that is corroborated by the presence of similar busts representing other age groups. They appear to have been actual portraits, that stood in the place of the dedicants in votive contexts, of the deceased in funerary contexts, and of inhabitants or ancestors in domestic contexts<sup>15</sup>.

## B. Musician and child

This group consists of a woman playing the harp (or possibly a box lyre), accompanied by a young boy standing by her side (cat. n° 13; Fig. 13). Representations of a woman playing a triangular harp (*trigonon*) were widespread throughout the Mediterranean world during the Hellenistic period (Castaldo, 2018, pp. 106 – 107). In Asia Minor, two figurines from Myrina show harpists: in one the harpist is dancing, in the other, two banqueters are reclining on a couch with a female harp player seated beside them<sup>16</sup>. A group of female harp player and Eros playing the *aulos*, produced at Sagalassos, is kept at the Burdur archaeological museum<sup>17</sup>. The harp has often been linked to banquets in ancient texts and the extant representations coming from the Near East also hint that they were used in symposia (Castaldo, 2018, p. 105). But *trigonon* players are also known to have accompanied religious rituals in the eastern Mediterranean (Erlich, 2019, pp. 376 – 377). Therefore, it could also represent a woman playing a musical instrument as part of cult practices.

---

Museum, inv. n° E-2910 (Talloen, forthcoming).

14 For such busts at Priene see Raeder, 1984, n° 32; for busts from Myrina kept at the Louvre Museum see: Besques, 1963, p. 34, Myr 35 and Myrina 661.

15 On the presence of terracotta busts of inhabitants or ancestors in domestic contexts of Ephesos see: Rathmayr, 2015, pp. 273 – 274.

16 Besques, 1963, MYR 661 and 272 from Myrina (1st century BC).

17 Burdur Archaeological Museum inv. n° 79.8.83 (Talloen, forthcoming). For the figurine of a similar musician kept at the Isparta Archaeological Museum (inv. n° 6.45.95) see: Çevik, 2019, p. 197 cat. n° K65.

### C. Gladiator group

The group (cat. n° 14; Fig. 14) consists of a *retiarius* or “net man” armed only with a net and trident, and a *secutor* or “pursuer” who, with his short sword, oblong shield, metal greaves and plain, tightly closed helmet was very often matched with the *retiarius*. Gladiator figurines are representatives of a form of entertainment that was extremely popular during the Roman Imperial period in Pisidia, as elsewhere in the Empire, organised within the framework of the imperial cult (Rens & De Cupere, 2015; Talloen, 2015, pp. 225 – 226, 279, 305 – 306). *Retiarii* first appeared in the arena during the 1st century AD and had become standard attractions by the 2<sup>nd</sup> or 3<sup>rd</sup> century AD (Junkelmann, 2000, pp. 59 – 60), which gives us a likely date for the figurine group. The function of such gladiator figurines is not entirely clear. Supporters of these blood games may have kept them as souvenirs of the games in their houses. In the case of the Terrace Houses at Ephesos, a collection of such figurines belonging to the last occupation phase of the complex has been tentatively identified as toys (Rathmayr, 2015).

### III. Late Antique Period (5<sup>th</sup> – 6<sup>th</sup> century AD)

Pisidia is among the last producing regions of ancient terracotta figurines in the Mediterranean (Talloen, 2020). The Late Antique terracotta figurines from Seleukeia Sidera belong to two groups: warriors seated on horseback and animals.

#### A. Warriors on horseback

The first, fragmentary example of such a rider (cat. n° 15; Fig. 15) clearly represent a warrior. He wears chest armour, carries a small, rounded shield against the left part of his chest, and holds a sword (or a short spear?) with his right hand diagonally across his chest<sup>18</sup>. The warlike character of the second example (cat. n° 16) is less clear but he too appears to be wearing chest armour, and seemingly holds a small circular shield against the left part of his chest while the unidentifiable weapon in his right hand runs horizontally across his body. Both figurines were made from a single, frontal mould, and are very similar in terms of clay, red slip and style to the examples excavated and produced at Sagalassos (Talloen, 2006; 2011). There, such figures are known to have been placed on top of hand-shaped horses, thus forming riders on horseback groups. Here the mounts – most probably also horses – are missing, yet one example of an unidentifiable fragmentary quadruped (cat. n° 17; Fig. 17) clearly shows the lower body of such a rider.

Although originally identified as representations of the indigenous rider god Kakasbos at Sagalassos, analysis of the find contexts allowed to identify them as Late Antique figurines, belong to the late 5<sup>th</sup> and 6<sup>th</sup> centuries AD

---

18 A similar warrior figurine was also discussed by Laflı (1996, p. 53 and fig. 475).

(Talloen, 2011); a similar date can be argued for the examples from Seleukeia Sidera. Moreover, these terracotta figurines are not to be seen as a Late Antique revival of paganism or a popular continuation of an ancient local cult, for explicitly Christian figurines are present in the same stratigraphical contexts at Sagalassos. The latter represent a bearded male figure wearing a mitre decorated with a cross, which appears to identify the man as a Christian priest or perhaps even a saint. This type can be associated both chronologically and typologically with the warrior figurines mentioned above since the spread legs of these priest figures indicate that they too were originally seated on horseback. We are therefore dealing with Christian images and can argue that the terracotta figurines represent protective figures, perhaps even Christian military saints. These riders remain anonymous for the moment but may have been associated with the worship of Christian warrior saints such as Saint George, Saint Theodore, and Saint Michael. As already argued elsewhere (Talloen, 2006), these Christian holy riders were referencing and building upon traditional visual imagery associated with Anatolian rider gods such as Herakles-Kakasbos, Ares, and the Dioskouroi, who offered protection in earlier times. As such the Christian figures continued a long-standing pagan iconography. But these figurines also provide important evidence of local religious practices performed under the aegis of Christianity in an age that was characterized by the conversion of the populace to the new dominant religion.

## **B. Animals**

Among the several fragmentary figurines of hand-made animals, two heads were clearly those of horses (cat. n° 18-19; Fig. 18-19) as evidenced by the indication of the manes. The close stylistic resemblance with examples found in late 5<sup>th</sup> – 6<sup>th</sup> century contexts at Sagalassos (Talloen, 2019b, pp. 370 – 371 n° 69-71), as well as the use of characteristic clay fabric and slip indicate that these pieces were imported from Sagalassos. What is more, although only their heads are preserved, they possibly belonged to the rider on horseback type discussed above, as suggested by comparable examples from sites such as Sagalassos (Talloen, 2019b, p. 371 n° 71) and Konana (Çevik, 2019, p. 256 cat. n° K136).

Many more fragments of handmade four-legged animals were found at Seleukeia, yet they are too fragmentary to allow any identification. Having said that, the absence of horse manes in the neck or a hump of a zebu bull on the back, in combination with the popularity of handmade representations of dogs at late Antique Sagalassos (Talloen, 2011) suggest that at least some of the Seleukeia examples probably represented man's best friend, the dog (cat. n° 20; Fig. 20).

## Discussion

Although the production of the terracotta figurines is relatively easy, no positive indications for local production – such as moulds and wasters - have so far been found at Seleukeia. The range of clays and types present among these figurines indicate multiple origins, such as the nearby well-established production centre of Sagalassos, as well as other regional sources, but also more remote locations on the west coast of Anatolia. The latter were responsible for the oldest figurines retrieved from the site, dating to the Late Archaic – Early Classical period. Perhaps somewhat surprisingly, no figurines could thus far be related to the Hellenistic foundation and occupation of the city. Yet, it should be noted that also Hellenistic ceramics are limited in number so far<sup>19</sup>, this is probably due to the fact that earlier strata of occupation have not been reached by the excavations. The spectacular increase of figurines at Seleukeia during the Roman Imperial period can perhaps be explained by the start of production in the region, at Sagalassos and elsewhere (Talloen, 2020).

The terracottas provide a composite picture of the city's culture, religion and daily life, but in this case, we are severely limited in our interpretation by the lack of primary find contexts. Generally speaking, terracotta figurines can be presented as votive offerings to a god or goddess in temples and sanctuaries, sometimes as toys and cult objects in homes, and those left in tombs have many meanings for the protection or cheering of the souls of the dead (Merker, 2003, p. 236); the presence of several fragments of figurines in the robbed cist graves of the Northwest Necropolis of Seleukeia suggests that figurines were also used as grave gifts there (Hürmüzlü et al., 2022). The majority of figurines thus far recovered at Seleukeia, on the other hand, come from deposits that shed little or no light on their original uses. An exception to this dispersed, out-of-context character is constituted by a group of 19 figurines (here represented by cat. n° 3-9 and 11-14) found by a farmer while ploughing his field some 900m to the southeast of the city centre. Although these were surface finds, the fact that several of them could almost be completely restored, insinuates that they derive from a single, relatively well-protected environment. Given its peripheral location, a tomb comes to mind as a probable context of deposition, as also suggested by the architectural debris found in the same field (Perçin, 2019, pp. 42 – 43). The closed nature of such a tomb would prevent the usual fragmentation of figurines, generally broken up in many pieces before being dispersed throughout the site as part of secondary depositional processes. Indeed, there are also other indications that the figurines most probably belonged together. They could all be dated to the (second half of the) 2nd century AD and except for the female harp player, the subject matter of the assemblage is exclusively male: two male busts, three Eros figurines, four Hermes figurines, a boy beside the harp player, and a gladiator group. What is more, their subject

---

19 See, in this volume, Kaşka, Hellenistic Pottery from Seleukeia Sidera in Pisidia.

matter demonstrates a striking subject-related coherence which can be related to the *Gedankenwelt* of boys and young male adolescents: child-gods Eros and Harpokrates as well as Hermes, as the protectors of young children and youths, shoulder-busts of boys or adolescents, and a group of gladiators – toys for boys and admired by youths. The lowered torches of Eros (cat. n° 3; Fig. 3) and possibly Hermes (cat. n° 9; Fig. 9) would also fit a funerary context.

In many regions of the ancient Mediterranean, terracotta figurines are associated with the graves of children and young people<sup>20</sup>. These instances have demonstrated that it is possible to make associations between the figurines and the gender and social status of the deceased. These future citizens are presented in different ages, in different roles and activities, from childhood to adolescence, from play to violent contests<sup>21</sup>. With these multiple stages sanctioning the moments of construction of the social identity of a man, each time ritualized by feasts, are associated a hero or a divinity, who accompany the mortal, protect him, or serve him as an example and a model, in this case Eros/Harpokrates and Hermes. We can therefore envision that this group of figurines embodies the stages of a development that a premature death has interrupted, sometime during the second half of the 2<sup>nd</sup> century AD.

### Catalogue

**Cat. n° 1** (Fig. 1): *Protome* (find n° SLV93.18.pt.2; unpublished).



Find context: unknown (found in one of the areas excavated in 1993 by the team of Orhan Bingöl).

Fragmentary preservation: the left edge and bottom right edge are broken off.

---

20 See the different contributions in Huysecom-Haxhi and Muller (2015).

21 For a similar group of figurines from Myrina see: Mathieux, 2015, p. 252.

Dimensions: 13.3 cm high, 10.6 cm wide, 6.1 cm thick.

Clay fabric: Reddish yellow (5YR 6/8) clay fabric, which is quite powdery, with mica and limestone inclusions, and few small pores.

Paint or slip: There are no traces of slip or paint.

Production technique: the object was made using a single, frontal mould. A handmade suspension loop attached to the backside, indicating that it was intended for suspension.

Description: Mask-shaped *protome* with the schematic rendering of the face of a human (possibly female) figure with bulbous eyes and long, outward standing ears. The face is elongated with a high forehead, a short, triangular nose, and a small straight mouth with thin lips.

Date: Late 6<sup>th</sup> or early 5<sup>th</sup> century BC (based on typological parallels).

Parallels: Çokay-Kepçe & Özden-Gerçeker, 2011, p. 64, cat. n° 10 (early 5th century BC); Şare-Ağtürk & Aslan, 2015 (Assos, ca. 400 BC); Burdur Archaeological Museum inv. n° K-176.60.75 (Talloen, forthcoming; late 6th century BC).

Cat. n° 2 (Fig. 2): Double *Protome* (find n° SLV93.18.pt.3-4; unpublished).



Find context: unknown (found in one of the areas excavated in 1993 by the team of Orhan Bingöl)

Fragmentary preservation: composed of two fragments; top part of the right figure and the bottom edge of the *protome* are missing.

Dimensions: 8.8 cm high, 9.65 cm wide, 3.2 cm thick.

Clay fabric: Reddish yellow (5YR 6/6) clay fabric which is soft and powdery, with very small pores and inclusions of very small limestone and mica.

Slip or paint: There are no traces of slip or paint.

Production technique: hand-shaped, with pellet-shaped appliques to indicate the eyes.

Description: Two headed *protome* with the faces of two human figures side by side. The facial details of both figures are highly schematized and roughly rendered. The eyes are big, in the form of flattened ovals, the nose is quite large and straight, and the chin is shown as a simple, rectangular form.

Date: 4<sup>th</sup> century BC (based on a typological parallel).

Parallels: Çevik, 2019, pp. 274 – 275 cat. n° K124 (Tymbriada, Zindan Cave; 4th century BC).

Cat. n° 3 (Fig. 3): Eros holding a torch (Isparta Museum inv. n° 9.3.10; Perçin, 2019, pp. 66 – 69 cat. n° 7).



Find context: Surface of cadastral plot 318, parcel 2, in the village of Bayat.

State of preservation: The right arm and wing are broken off at the biceps; the garment piece hanging from the right arm is broken off and missing up to the hip level. The right side and back part of the base are broken and missing.

Dimensions: 30.6 cm high, 16 cm wide, 9.2 cm thick.

Clay fabric: Reddish yellow (5 YR 6/6) medium hard fired clay with few small pores and sand, few limestone and mica inclusions.

Paint or slip: There are traces of white engobe on the back side of the figurine; no traces of paint.

Production technique: The hollow figurine was made from a double mould (front and back). The base appears to have been pressed from a separate mould and joined to the figure. The junction points of the pedestal and the figure can be

seen through the mould. The backside of the figure features a round ventilation hole in the middle of the waist.

Description: Eros is standing naked, facing the front. His head is slightly tilted to his right. The cheeks are plump, the eyes are large, the nose and mouth are petite. The front part of the hair is divided into two on the forehead and knotted together and raised in two curls on top of his head. Two antithetic forelocks are left in the form of parentheses on the forehead. The long hair goes down to the neck by making three ringlets on the sides of the face. The hair is braided in a fish tail at the back of his head, down to the nape. The ends of the hair on the nape are in the form of four ringlets arranged side by side. He is wearing a choker with pendant around his neck, an anklet on each ankle and a *periskelis* knotted in front of the left thigh. While his right leg is set back, supporting the body weight, his left leg is slightly bent at the knee and placed forward. His left arm is extended downwards and to the side. He is holding a torch with the flame pointing downwards in his left hand. A garment, which is wrapped around his left wrist, hangs behind his legs and rises towards the raised right arm. The top feathers of the bent wing rising from his left shoulder are short and thick, while the feathers at the tip of the wing are long. He is standing on top of a high, hexagonal base, which is flat at the back. The front part is divided into three separate friezes bordered by multiple mouldings. They depict scenes of stylized Eros figures serving a reclining male figure, leaning on a stick or club<sup>22</sup>.

Date: The relief decoration on the hexagonal base argues for a date in the 2<sup>nd</sup> century AD (Herdejürgen, 1997).

Parallels: Papantoniou et al., 2019, p. 16 and fig. 1.9 (Eros with lowered torch; Nea Paphos, 2<sup>nd</sup> – 3<sup>rd</sup> century AD); Besques, 1976 and Herdejürgen, 1997 (hexagonal base with relief decoration; Asia Minor, 2<sup>nd</sup> century AD).

---

22 Fragments of identical relief-decorated bases have been excavated at the Rock Sanctuary at Sagalassos (Talloen et al., 2020; inv. n° SA2014RS-1-1).

**Cat. n° 4** (Fig. 4): Eros throwing a ball (Isparta Museum inv. n° 9.3.10; Perçin, 2019, pp. 64 – 65 cat. n° 6).



Find context: Surface of cadastral plot 318, parcel 2, in the village of Bayat.

State of preservation: The lower body is broken off diagonally below the chest, and the left arm is broken off below the elbow.

Dimensions: 10.5 cm high; 15.2 cm wide; 4.8 cm thick.

Clay fabric: Reddish yellow (5 YR 6/6) hard fired clay with many small pores and of mica, sand, and little limestone inclusions.

Paint or slip: Traces of white engobe are present on the surface, especially at the back side. There are no traces of paint.

Production technique: The hollow figurine is made from a double mould (front and back).

Description: The fragment depicts the upper naked body of Eros. His head is slightly turned to the left. The long wavy hair is braided in a fish tail at the top of his head, down to the nape. He wears a jewel with a drop motif, hung from his hair on the forehead. The hair, which ends at the neck level on the sides, covers the ears by making three wave motifs. His cheeks are full, eyes are large and pupils are indicated. The nose and mouth are petite. He has a ring-shaped choker on his neck. He is holding a ball in his raised right hand, ready to throw in the direction he is looking. Although the left arm is broken, it is understood that it was hanging down beside his body. Wings emerge from his shoulders. The wings are bent and pulled towards the head. The top feathers of the wings are thick and short, while those at the tip are depicted in the form of spikes.

Date: The hollowed structure indicating the pupils of the eye is often seen as a dating criterion, placing the figurines in the period after the reign of Hadrian (117-138 AD) (Kasapoğlu, 2018, p. 251).

Parallels: Winter, 1903, vol. II, 344 n° 3 (Falerii)<sup>23</sup>.

---

<sup>23</sup> An unpublished fragmentary Eros figurine from the Rock Sanctuary at Sagalassos (inv. n° SA2017RS-15-44) has a similar this hairstyle and jewelled forehead and can be dated to the 2nd century AD (Talloon et al., 2020).

**Cat. n° 5** (Fig. 5): Eros-Harpokrates (Isparta Museum Study Piece; Perçin, 2019, pp. 70 – 71 cat. n° 8).



Find context: Surface of cadastral plot 318, parcel 2, in the village of Bayat.

State of preservation: The figurine is fragmentarily preserved; the head, left part of the chest, left arm and wing of the figure are missing, as well as the right leg and left lower leg.

Dimensions: 12.5 cm high; 11.2 cm wide; 5.0 cm thick.

Clay fabric: Light red (2,5 YR 6/6) hard fired clay with small pores and few little limestone inclusions.

Paint or slip: Traces of a white engobe can be seen on the back. There are no traces of paint.

Production technique: The hollow figurine is made from a double mould (front and back). The wings were made in a separate mould and added afterwards.

Description: Eros-Harpokrates is depicted as a standing naked winged boy. His right leg is placed backwards, supporting the body weight. His left leg is slightly bent forward. Skin folds are indicated with lines in the groin area, on the arms and legs. Together with his prominent belly, they suggest a rendering of Eros as a chubby boy. A rolled garment is wrapped around his waist, the extremities hanging from both sides of the hips. His right arm is held against his chest and bent at the elbow, as he brings his right hand to his face. Because of the way the index finger is raised to the mouth, Eros can be associated with Harpokrates. A wing extends behind his right shoulder. While the top feathers are short, the feathers towards the tip of the wing are elongated.

Parallels: Besques, 1963, Myr805 (Myrina, 100-50 BC); Besques, 1972, pp. 281 – 282; Tinh et al., 1988, pp. 415 – 445; Çokay-Kepçe & Özden-Gerçeker, 2011, p. 181 cat. n° 103 (2nd century AD).

Date: 2<sup>nd</sup> century AD.

Cat. n° 6 (Fig. 6): Standing Hermes with purse and *kerykeion* (Isparta Museum inv. n° 9.1.10; Perçin, 2019, pp. 54 – 55, cat. n° 1).



Find context: Surface of cadastral plot 318, parcel 2, in the village of Bayat.

State of preservation: Complete.

Dimensions: 21.6 cm high, 11.3 cm wide, 3.7 cm thick.

Clay fabric: Reddish yellow (5 YR 6/6) medium hard fired clay with very little pores; quite refined with very little mica inclusions.

Paint or slip: On the right thigh of the figure, traces of dark red skin colour were found; traces of white engobe are also present.

Production technique: The hollow figurine is produced using a front and back mould. A trimming knife was used on the edge of the whole body up to the head. With the trimming knife, retouches were made between the fingers, face and genital margins and clothing folds.

Description: A young looking Hermes is standing in contrapposto, placing his weight on his right leg, and bending his left which is slightly placed forward. Two small, open wings appear from his half-long curly hair covering his ears like a wig. The head is slightly turned to his right. His beardless face has a short, broad nose and a small mouth with thick lips. He has no clothing, except for a *chlamys* hanging from his left shoulder and draped over his left arm. With his left hand he holds a *kerykeion* against his left shoulder. The wand is completely spiral-patterned and it has two small wings below the two entwined snakes that form the end of the *kerykeion*. In his lowered right hand, held slightly in front of his body, he is holding a purse. A support bar is present between the wrist of the right arm and the right hip. Although the feet are set apart, they are connected to each other by a piece on which the double wings emerging from

his ankles are indicated.

Date: 1<sup>st</sup> - 2<sup>nd</sup> century AD (based on typological parallels).

Parallels: Besques, 1972, n° 2302 pl. 355b and n° 2304 pl. 355c; Siebert, 1990, no. 915-918 (Antonine period).

**Cat. n° 7** (Fig. 7): Standing Hermes with purse and *kerykeion* (Isparta Museum inv. n° 9.2.10; Perçin, 2019, pp. 56 – 57, cat. n° 2).



Find context: Surface of cadastral plot 318, parcel 2, in the village of Bayat.

State of preservation: The right arm is broken off at the elbow (but the fragment was found). The toes of the right foot are broken off and missing.

Dimensions: 26.5 cm high, 13 cm wide, 4 cm thick.

Clay fabric: Light red (2,5 YR 6/8) medium hard-fired clay with very few pores; refined with few mica and limestone inclusions.

Paint or slip: Traces of a white engobe are present on the surface. Traces of dark red paint can be seen on different parts of the body.

Production technique: The hollow figurine was made using a front and back mould. In the middle of the back side, a small, round ventilation hole (diameter: 0.6cm) is present. Details such as belly button, nipples, genitals, toenails are either added or incised.

Description: A mature looking Hermes is standing in *contrapposto* leaning on his left leg, his right leg bent and right foot is placed backwards. His head is turned to his right. He has a winged diadem on his head. The ribbon or *taenia* of the diadem, which carries two wings open on both sides, is tied at the nape and the ends are hung from both shoulders. The short curly hair is arranged in rows on the forehead. His beardless face has a short broad nose and a small mouth. The eyebrows are thick, the eyelids are indicated. He wears a *chlamys* wrapped

around his left arm, with one end on the left shoulder and one end hanging down to the middle of his left calf. He is holding a *kerykeion* in the crook of his left arm. The wand is completely spiral-patterned and has two small leaf-shaped wings below the two entwined snakes that form the end of the *kerykeion*. In his extended right hand he holds a purse. The two heels are connected by a support bar.

Date: 2<sup>nd</sup> century AD (based on typological parallels).

Parallels: Goldman, 1950, p. 333, fig. 169 (Tarsus, Roman Imperial Period).

**Cat. n° 8** (Fig. 8): Standing Hermes with purse and *kerykeion* (Isparta Museum Study Piece; Perçin, 2019, pp. 58 – 59, cat. n° 3).



Find context: Surface of cadastral plot 318, parcel 2, in the village of Bayat.

State of preservation: A total of four joining parts have been preserved. The head, the left part of the upper body up to the level of the abdomen and the left arm are missing. The lower part of the base on which the figure stands is also missing.

Dimensions: 22.7 cm high, 9.6 cm wide, 4.75 cm thick.

Clay fabric: Reddish yellow (5YR 7/6) hard-fired clay with few pores and few mica and limestone inclusions.

Paint or slip: Traces of white engobe are present on the surface of the figurine; there are no traces of paint.

Production technique: The hollow figurine was made using a front and back mould. The base is also included in the mould. The back mould is more rudimentary. In the middle of the back side, a small, round ventilation hole (diameter: 0.78 cm) is present.

Description: The naked Hermes is standing in *contrapposto*, placing his

weight on his right leg, his left leg bent forward. Small wings appear from his ankles. A *chlamys* is draped over his left arm. The right arm is beside his body, and he holds a purse in his right hand which is slightly extended forward. The backside shows only rudimentary anatomical detail and some folds of the *chlamys* hanging behind his legs. The base on which he is standing, is semi-circular, with a concave profile on the front and flat at the back.

Date: 1<sup>st</sup> - 2<sup>nd</sup> century AD (typological parallels).

Parallels: Goldman, 1950, p. 333, fig. 169 (Tarsus, Roman Imperial period); Çevirici Coşkun et al., 2019, cat. n° 37-39 (Afyon Museum, 1st -2nd century AD).

**Cat. n° 9** (Fig. 9): Hermes seated on a ram (Isparta Museum inv. n° 9.8.10; Perçin, 2019, pp. 62 – 63 cat. n° 5).



Find context: Surface of cadastral plot 318, parcel 2, in the village of Bayat.

State of preservation: Three joining parts of the figurine are preserved. Except for the front part of the lower legs and the backside of the lower body, the figure of Hermes is complete; the object in his right hand is partly damaged. Of the ram only the right side of the fore part is preserved, lacking the nose and lower front leg.

Dimensions (of the group): 16 cm high, 11 cm wide, 6.5 cm thick.

Clay fabric: Very pale brown (10 YR 7/4) medium hard fired clay with many small pores and sand, limestone and mica inclusions.

Paint or slip: Traces of white engobe are present on the surface of the ram; dirty dark saffron paint under the belly, neck and chin of the ram figure.

Production technique: The hollow figurine group of Hermes and ram was produced as a whole, using a double mould (front and back).

Description: The ram is advancing to the viewer's right. Locks of wool

cover its entire body except for the legs and face. Its tapering right horn curves forward, ending at the edge of the right eye. The right ear extends outward/downward through the horn spring. Hermes is seated side-saddle on the back of the ram, facing the viewer. His crossed legs are hanging from the right side of the animal. His face is beardless, with a small nose and a small, closed mouth. The god is wearing a winged *pilos* on his head. He is naked but for a *chlamys* which is hanging from his neck behind his back, tied with a fibula on his right shoulder, and draped over his lower right arm. The *kerykeion*, which he holds in his left hand, extends along his left arm, and leans against his left shoulder. The right arm is slightly bent at the elbow and held beside his body. The object in his right hand may have been a money bag, but a short torch pointing downwards is equally possible.

Date: Late Hellenistic – Roman Imperial period.

Parallels: Burn & Higgins, 2001, p. 285, n° 2957 (Salamis, 1st century BC).

Cat. n° 10 (Fig. 10): Hermes-Thoth (find n° SLD21.TS.Y.PT.1; unpublished).



Find context: Surface find at the Theatre.

State of preservation: Only the right shoulder, upper part of the chest and head of the figure are preserved.

Dimensions: 8.10 cm high, 3.2 cm wide, 1.8 cm thick.

Clay fabric: Reddish yellow (5 YR 6/6) hard fired clay with few pores, and few mica and limestone inclusions.

Paint or slip: There are no traces of slip or clay.

Production technique: The hollow figurine was made using a front and back mould.

Description: Hermes is represented wearing a *chlamys* that crosses his upper body diagonally from his right shoulder. His head with short hair is covered by a winged cap with a central lotus leaf. Hermes has a beardless, youthful face with a broad nose, small mouth with thick lips; his eyebrows and upper eye lid are indicated. His exposed right upper arm is beside his body.

Date: 2<sup>nd</sup> century AD (typological parallels).

Parallels: Çevik, 2019, pp. 213 – 214 cat. n° K67 (Isparta Museum; 2nd century AD); Çevirici Coşkun et al., 2019, cat. n° 37-39 (Afyon Museum, 1st -2nd century AD).

**Cat. n° 11** (Fig. 11): Bust of a male youth (Isparta Museum inv. n° 9.6.10; Perçin, 2019, pp. 78 – 80, cat. n° 12).



Find context: Surface of cadastral plot 318, parcel 2, in the village of Bayat.

State of preservation: Reconstructed from 17 fragments; the lower part of the chest and lower left corner of the base are missing.

Dimensions: 22.5 cm high, 12,2 cm wide, 6,7 cm thick.

Clay fabric: Reddish yellow (5YR 7/8) hard-fired clay with many small pores and few limestone inclusions.

Paint or slip: Traces of a white engobe can be seen on the surface, especially on the back of the figurine. No traces of paint.

Production technique: Hollow figurine made from a double mould (front and back). The curls of hair are handmade and added as appliques to the head. The hexagonal base supporting the bust was made from a separate mould and joined afterwards. The backside features a round ventilation hole (diameter: 1.4 cm) between the shoulders.

Description: Bust of a male youth. His head is turned slightly to the left. His face has full cheeks, big eyes, a long straight nose, and a small mouth

with full lips. He has long hair falling down to his shoulders, with snail curls arranged in rows. A *chlamys*, hanging from his left shoulder across his chest is tied with a fibula on his right shoulder. The bust probably rested on foliate calyx of acanthus-leaves. It is supported by a hexagonal base which is flat at the back. The three parts of the front part carry three scenes bordered by multiple mouldings, depicting erotes in sacrificial scenes. Architectural decoration of the base is suggested with vertical dashed lines on the mouldings of its upper profile.

**Date:** An identical relief-decorated hexagonal base is present underneath a figurine of Aphrodite *prudica* kept at the Louvre Museum (inv. n° CA 6033). Based on parallels from sarcophagi, it could be dated to the second half of the 2nd century AD (Besques, 1976; Herdejürgen, 1997). Together with the stylistic characteristics (hairstyle) and indications of pupils, a same date can be argued for this bust.

**Parallels:** Goldman, 1950, p. 360, Pl. 243, 420-423 (Tarsus, Flavian period); Besques, 1972, Pl. 425-426g (Tarsus, 1st century AD); Talloen, forthcoming; Burdur Museum inv. n° E-2910 (2nd century AD).

**Cat. n° 12** (Fig. 12): Bust of a male youth (Isparta Museum Study Piece; Perçin, 2019, pp. 83 – 84, cat. n° 14).



**Find context:** Surface of cadastral plot 318, parcel 2, in the village of Bayat.

**State of preservation:** Only the right front part of the bust is preserved.

**Dimensions:** 5.9 cm high, 9.7 cm wide; the thickness could not be determined.

**Clay fabric:** Light red (2,5 YR 7/8) hard-fired clay with few pores and limestone inclusions.

**Paint or slip:** Traces of white engobe are present on the surface. No paint preserved.

**Production technique:** The hollow figurine must have been made from a double mould (front and back) as indicated by the traces of a joint on the inside of the left edge and the bottom right edge of the fragment.

**Description:** Bust of a bare-chested male figure, depicted down to the level

of the biceps and the abdomen under the chest. The bust is supported by a foliate calyx of three acanthus-leaves.

Date: 2<sup>nd</sup> century AD (typological parallels).

Parallels: Talloen, forthcoming; Burdur Museum inv. n° E-2910 (2nd century AD).

**Cat. n° 13** (Fig. 13): Group of female harp player and boy (Isparta Museum Study Piece; Perçin, 2019, pp. 87 – 88, cat. n° 16).



Find context: Surface of cadastral plot 318, parcel 2, in the village of Bayat.

State of preservation: The figurine is reconstructed from three pieces, but the lower legs of the female figure and the right part of the group are broken off and missing.

Dimensions: 13.6 cm high, 9.5 cm wide, 4 cm thick.

Clay fabric: Reddish yellow (5 YR 6/6) hard-fired clay with many pores and sand, limestone and mica inclusions.

Paint or slip: Traces of white engobe are present on the surface, especially on the backside; no traces of paint.

Production technique: The hollow figurine-group was made from a double mould (front and back); the details of the back mould are rudimentary.

Description: A woman is seated to the front on a stool with her feet resting on a footstool. Her hair is tied in a bow-knot on top of her head. Her face is round with full cheeks, a small mouth, and piercing eyes with heavy eyelids. She is wearing a long chiton with a v-shaped neck and short sleeves. Against her left shoulder she is holding a harp (or box lyre?) with a flat base supporting one bowed and one acute angled arm, which she plays with both hands, the right hand in front of the object, the left one behind it. Standing on her right side with

crossed legs is a naked boy with half-long wavy hair, parted in the middle; his facial characteristics are similar to that of the woman. His right hand is raised to his left cheek, his head leaning against the woman. To the left of the harp, a third figure may have been present.

Date: 2<sup>nd</sup> century AD (typological parallels).

Parallels: Burn & Higgins, 2001, pp. 269 – 270, cat. n° 2899-2900 (Cyprus, 2nd - 1st century BC); Ägyptisches Museum Berlin inv. n° 21433 (4th century AD; URL 1); Talloen, 2019b, p. 527, n° 326 (Sagalassos, 1st - 2nd century AD); Talloen & Özden-Gerçeker, 2020, pp. 17 – 19 (Sadberk Hanım Museum, 2nd century AD).

**Cat. n° 14**, (Fig. 14): Group of fighting gladiators (Isparta Museum Study Piece; Perçin, 2019, pp. 89 – 90, cat. n° 17).



Find context: Surface of cadastral plot 318, parcel 2, in the village of Bayat.

State of preservation: The standing figure of the group is reconstructed from two fragments, his lower left arm, along with the tip of the trident, is broken off and missing. Of the kneeling figure to his left only the left leg and his rectangular shield remains.

Dimensions: 11.5 cm high, 11cm wide, 2.2cm thick.

Clay fabric: Reddish yellow (5YR 6/6) medium hard-fired clay, with few small pores and few limestone inclusions.

Paint or slip: No traces of slip or paint were found.

Production technique: The hollow group, together with its base, is made from a double mould (front and back). Only the upper part of the back mould is modelled in detail. Two small round ventilation holes (diameter of 0.4 cm and 0.5 cm) are present in the back side, at the level of the waist of the two gladiator figures.

Description: The group of gladiators consists of a standing male figure on the left side and a kneeling male figure on the right. The standing gladiator can be identified as a *retiarius* or “netman”, a gladiator who fought with equipment styled on that of a fisherman: a weighted net and three-pointed trident. He is standing towards the right, facing the second gladiator. His hair is short and wavy. He wears a loincloth (*subligaticum*) and a thick belt (*balteus*) on his waist. His right leg is stretched backwards, the left leg is bent at the knee, his left foot placed forward. Thick bandages (*spongiae*) are visible on his left arm and a shoulder guard (*galerus*) rises over his left shoulder to protect his neck. With his right hand he is holding the shaft of a trident; the front part of the weapon held by his left hand is broken off. The kneeling gladiator on the right side is probably a *secutor* or “chaser” armed with a heavy shield (*scutum*) and short sword (*gladius*), who was normally paired with a *retiarius*. He is seated on his knees towards the left and shielding himself from the trident of the *retiarius* with his large rectangular shield with a lozenge-shaped projection in the middle.

Date: 2<sup>nd</sup> - 3<sup>rd</sup> century AD (based on the popularity of the scene).

Parallels: No identical groups are known as terracotta figurine. For the figurine of a *secutor* at the Metropolitan Museum of Art in New York, dating to the 1<sup>st</sup> - 2<sup>nd</sup> century AD see URL 2; the group of *retiarius* and *secutor* is known from relief-decorated ware: Talloen & Poblome, 2005, p. 60 (relief-decorated handle from Sagalassos, 2<sup>nd</sup> century AD); Corbeill, 1997, pp. 10 – 12 (terracotta medaillon from Arles, late 2<sup>nd</sup> – 3<sup>rd</sup> century AD).

Cat. n° 15 (Fig. 15): Warrior figure (find n° SLD18-AA23-16-3-PT1; unpublished).



Find context: (find n° SLD18-AA23-16-3-PT1)

State of preservation: The head and lower body of the figure are broken off.

Dimensions: 4.2 cm high, 3.3 cm wide, 1.1 cm thick.

Clay fabric: Reddish yellow (5YR 6/6) hard-fired clay with few pores and limestone inclusions.

Paint or slip: Partly worn red slip (10R 4/6); no traces of paint.

Production technique: The solid figurine was made from a single, frontal mould.

Description: The upper body of a male figure in a frontal pose, wearing a tunic or some coat of mail with short sleeves. He is holding a short spear with his right hand diagonally against his body, and a small circular shield with central boss with left hand against the left part of his chest.

Date: late 5<sup>th</sup> - 6<sup>th</sup> century AD (based on typological parallels).

Parallels: Waelkens et al., 1993, p. 338 (Sagalassos, late Roman); Talloen, 2019b, pp. 368 – 369 cat. n° 65-68 (Sagalassos, 5th - 6th century AD).

**Cat. n° 16** (Fig. 16): Warrior figure (find n° SLV93.18.pt.1; unpublished).



Find context: Unknown (found in one of the areas excavated in 1993 by the team of Orhan Bingöl).

State of preservation: The lower body of the figure is missing.

Dimensions: 6 cm high, 3.4 cm wide and 1.1 cm thick.

Clay fabric: Light red (2.5YR 6/6) hard-fired clay with few pores and very few limestone inclusions.

Paint or slip: Red slip (10R 5/8); no traces of paint.

Production technique: The solid figurine was made from a single, frontal mould.

Description: The upper body of a bearded male figure wearing some coat of mail, holding a sword horizontally across his abdomen with his right hand, and a small circular shield with a central boss against the left part of his chest.

Date: late 5<sup>th</sup> - 6<sup>th</sup> century AD (based on typological parallels).

Parallels: Talloen, 2011, p. 593 – 594 (Sagalassos, late 5th - early 6th century AD); Talloen, 2019b, pp. 368 – 369 cat. n° 65-68 (Sagalassos, 5th - 6th century AD), 371 cat. n° 71 (Sagalassos, 5th - 6th century AD).

**Cat. n° 17** (Fig. 17): Rider on horseback (find n° SS22-Y23-TN3-PT-1; unpublished).



Find context: The metal workshop on the northeast slope of Hisar Tepe (Pl. 2: 21)<sup>24</sup>.

State of preservation: The legless and tailless rear part of a horse and the legs of a rider on its back are preserved.

Dimensions: 3.9 cm high, 3.45 cm wide, 5 cm long.

Clay fabric: Light red (2.5 YR 6/6) hard-fired, refined clay fabric with no inclusions.

Paint or slip: Partly worn reddish brown (5YR 4/1) slip; no traces of paint.

Production technique: The horse and legs of the rider are hand-shaped; the (missing) upper body is generally mould-made from a single, frontal mould. The two figures (horse and rider) were joint before the group was covered with slip and fired.

Description: Rider seated with spread legs on the back of a horse.

Date: Late 5<sup>th</sup> - 6<sup>th</sup> century AD (based on typological parallels and the contextual date of the workshop).

Parallels: Talloen, 2011, pp. 593 – 594 (Sagalassos, late 5th - 6th century AD); Talloen, 2019b, p. 371, cat. n° 71 (Sagalassos, 5th - 6th century AD).

---

<sup>24</sup> See, in this volume, Hürmüzlü et al., Production and Economy in Seleukeia Sidera in the Roman Imperial Period: Blacksmithing Practices.

**Cat. n° 18** (Fig. 18): Horse (find n° SS21-Y23-TN3-PT1; unpublished).



Find context: The metal workshop on the northeast slope of Hisar Tepe (Pl. 2: 21).

State of preservation: Only the head of the horse is preserved, with one of its ears missing.

Dimensions: 4.1 cm long, 1.5 cm wide, 3 cm high.

Clay fabric: Reddish yellow (5YR 6/6) hard-fired clay with very few pores and limestone inclusions.

Paint or slip: Yellowish red slip (5YR 5/6); no traces of paint.

Production technique: Hand-shaped figurine with incised indication of the manes and mouth, and eyes indicated by using a round punch.

Description: Head of a horse.

Date: 5<sup>th</sup> - 6<sup>th</sup> century AD (based on typological parallels and the contextual date of the workshop).

Parallels: Talloen, 2019b, pp. 370 – 371, cat. n° 69-71 (Sagalassos, late 5<sup>th</sup> – 6<sup>th</sup> century AD).

**Cat. n° 19** (Fig. 19): Head of a horse (find n° SS22-Y23-TN1a-PT-1; unpublished).



Find context: The metal workshop on the northeast slope of Hisar Tepe.

State of preservation: Only the head of the animal is preserved; the top of the head is missing.

Dimensions: 4.4 cm high, 1.6 cm wide, 4.65 cm long.

Clay fabric: Reddish yellow (5YR 6/6) hard-fired clay with few limestone inclusions.

Paint or slip: Reddish brown (5YR 5/4) slip; no traces of paint.

Production technique: Hand-shaped figurine, with incised details such as manes and mouth.

Description: Head of a horse.

Date: 5<sup>th</sup> - 6<sup>th</sup> century AD (based on typological parallels and the contextual date of the workshop).

Parallels: Talloen, 2019b, pp. 370 – 371, cat. n° 69-71 (Sagalassos, late 5<sup>th</sup> – 6<sup>th</sup> century AD).

**Cat. n° 20** (Fig. 20): Quadruped (find n° SLV93.18.pt.21; unpublished).



Find context: Unknown (in one of the areas excavated in 1993 by the team of Orhan Bingöl).

State of preservation: The head, the forelegs, and lower part of the hind legs of the animal are broken off and missing.

Dimensions: 2.05 cm high, 3.4 cm wide, 6.3 cm long.

Clay fabric: Reddish yellow (5YR 6/6) hard-fired clay with few pores and small limestone inclusions.

Paint or slip: Very worn red slip (2.5YR 4/8); no paint.

Production technique: The figurine is hand-shaped and slipped.

Description: The body of a four-legged standing animal.

Date: 5<sup>th</sup> - 6<sup>th</sup> century AD (based on typological parallels).

Parallels: Talloen, 2011, pp. 596 – 597 (Sagalassos, 5<sup>th</sup> - 6<sup>th</sup> century AD).

## **Figure List**

- Fig. 1. Terracotta protome (Seleukeia Sidera Excavation Archive).  
Fig. 2. Double Terracotta protome Seleukeia Sidera Excavation Archive).  
Fig. 3. Terracotta Figurine of Eros Holding a Torch (Isparta Museum).  
Fig. 4. Terracotta Figurine of Eros Throwing a Ball (Isparta Museum).  
Fig. 5. Terracotta Figurine of Eros-Harpokrates (Isparta Museum).  
Fig. 6. Terracotta Figurine of Hermes Holding a Purse and kerykeion (Isparta Museum).  
Fig. 7. Terracotta Figurine of Hermes Holding a Purse and kerykeion (Isparta Museum).  
Fig. 8. Terracotta Figurine of Hermes Holding a Purse (Isparta Museum).  
Fig. 9. Terracotta Figurine of Hermes Seated on top of a Ram (Isparta Museum).  
Fig. 10. Terracotta Figurine of Hermes-Thoth (Isparta Museum).  
Fig. 11. Terracotta Bust of a Male Adolescent (Isparta Museum).  
Fig. 12. Fragmentary Terracotta Bust of a Naked Male Figure (Isparta Museum).  
Fig. 13. Terracotta Group of a Female harp-player and boy (Isparta Museum).  
Fig. 14. Terracotta Group of Gladiators (Isparta Museum).  
Fig. 15. Terracotta Figurine of a Warrior (Seleukeia Sidera Excavation Archive).  
Fig. 16. Terracotta Figurine of a Warrior (Seleukeia Sidera Excavation Archive).  
Fig. 17. Terracotta Group a Rider Seated on the Back of a Four-legged Animal (Seleukeia Sidera Excavation Archive).  
Fig. 18. Terracotta Head of a Horse (Seleukeia Sidera Excavation Archive).  
Fig. 19. Terracotta Head of a Horse (Seleukeia Sidera Excavation Archive).  
Fig. 20. Terracotta Figurine of a Four-legged Animal (Seleukeia Sidera Excavation Archive).

## **Bibliography**

### **Ancient Source**

Apoll. *Argon*

Apollonius' *Argonautica*. Hunter, R.L. (Ed.) (1989) *Apollonius of Rhodes: Argonautica Book III*, Cambridge.

## Modern Sources

- Besques, S. (1963). *Catalogue raisonné des figurines et reliefs en terre-cuite grecs, étrusques et romains II*. Myrina. Réunion des Musées Nationaux.
- Besques, S. (1972). *Catalogue raisonné des figurines et reliefs en terre-cuite grecs, étrusques et romains, III*. Epoques hellénistique et romaine. Grèce et Asie Mineure. Éditions des Musées Nationaux.
- Besques, S. (1976). Un groupe d'Aphrodite au dauphin. *RA*, 1, 121-132.
- Burn, L. & Higgings, R. A. (2001). Catalogue of Greek Terracotta Figurines in the British Museum, III. British Museum Press.
- Castaldo, D. (2018). Musical Themes and Private Art in the Augustan Age. *Greek and Roman Musical Studies*, 6, 96-114.
- Castiglione, M. (2020). Pleasure before Duty: Playing and Studying in the cultic Context of Kharayeb, *Pallas*, 114, 97-126. <https://doi.org/10.4000/pallas.18947>
- Corbeill, A. (1997). Thumbs in Ancient Rome: "Pollex" as Index. *MAAR*, 42, 1-21. <https://doi.org/10.2307/4238745>
- Çelik, A., Kılınç, M. & Özcan Özlü, B. (2022). Antalya Müzesinden Bir Grup Bronz Hermes (Merkür) Figürini. In M. Demirel, M. Arslan, S. Atalay & U. Orhan (Eds.), *Antalya Müzesi 100 Yaşında: Antalya'nın Arkeolojik Mirası* (pp. 247-264). T.C. Kültür ve Turizm Bakanlığı.
- Çevirici Coşkun, F. et al., (2019). *Afyonkarahisar Müzesi Terrakotta Figürinleri*. Bilgin Kültür Sanat.
- Çevik, N. (2019). *Isparta Müzesi'nde Bulunan Pişmiş Toprak Figürinler* [Unpublished master thesis]. Süleyman Demirel Üniversitesi.
- Çokay-Kepçe, S. & Özden-Gerçeker, S. (2011). *Images in Terracotta: Ancient Terracotta Figurines in the Sadberk Hanım Museum Collection*. Ege Yayınları.
- Degryse, P. & Poblome, J. (2008). Clays for mass production of table and common wares, amphorae and architectural ceramics at Sagalassos. In P. Degryse & M. Waelkens (Eds.), *Sagalassos VI. Geo- and Bioarchaeology at Sagalassos and in its Territory* (pp. 231-254). Leuven University Press.
- De Lisle, C. (2020). The Ephebate in Roman Athens: Outline and Catalogue of Inscriptions, *Attic Inscriptions Online Papers 12*. (<https://www.atticinscriptions.com/papers/aio-papers-12/>)
- Demirtaş, N. (2015). Pisidia Bölgesi Şehir Sikkeleri Üzerindeki Hermes Tasvirleri, *Tarih Araştırma Dergisi*, 34(57), 41-63. [https://doi.org/10.1501/Tarar\\_0000000597](https://doi.org/10.1501/Tarar_0000000597)
- Erlich, A. (2019). Towards a Levantine Koine: Ties between Hellenistic Terracottas from Coele Syria and Cyprus. In G. Papantoniou, D. Michaelides

- & M. Dikomitou-Eliadou (Eds.), *Hellenistic and Roman Terracottas* (pp. 371-382). Brill.
- Goldman, H. (1950). *Excavations at Gözlü Kule, Tarsus, I: The Hellenistic and Roman Periods*. Princeton University Press.
- Herdejürgen, H. (1997). Kleinasiathe Terrakotten und stadtrömische Sarkophage – Marginalie zur Typenüberlieferung in der kaiserzeitlichen Kunst. *AntK*, 40(1), 40-47.
- Hermany, A., Cassimatis, H. & Volkommer, R. (1986). *Eros*. In *Lexicon Iconographicum Mythologiae Classicae III.1* (pp. 850-942). Artemis and Winkler Verlag.
- Higgings, R. A. (1967). *Greek Terracottas*. Methuen.
- Huskinson, J. (2011). Bad Deaths, Better Memories. In V. M. Hope & J. Huskinson (Eds.) *Memory and Mourning: Studies on Roman Death* (pp. 113-125). Oxbow Books.
- Huysecom-Haxhi, S. & Muller, A. (2007) Déesses et/ou mortelles dans la plastique de terre cuite. Réponses actuelles à une question ancienne. *Pallas*, 75, 231-247.
- Huysecom-Haxhi, S. & Muller, A. (Eds.) (2015). *Figurines grecques en context: Présence muette dans le sanctuaire, la tombe et la maison*. Presses universitaires du Septentrion.
- Hürmüzlü, B. & Sönmez, B. (2021). A New Member of the Late Roman D Koinè? A New Red-Slipped Pottery Group Found at Seleukeia Sidera. *Olba*, 29, 349-362.
- Hürmüzlü, B., Mörel, A., Sönmez, B., Schenk, T., Browne, A. & De Jong, L. (2022). Seleukeia Sidera Antik Kenti 2019-2020 Yılları Kazı, Temizlik ve Jeofizik Çalışmaları. *2019-2020 Kazı Çalışmaları*, 1, 343-354.
- Işın, G. (2007). *Patara Terrakottaları: Hellenistik ve Erken Roma Dönemleri*. Ege Yayınları.
- Işın, G. (2008). Patara'dan Terrakotta bir Portre-Büst. In İ. Delemen, S. Çokay-Kepçe, A. Özdizbay & Ö. Turak, (Eds.), *Euergetes. Festschrift für Prof. Dr. Haluk Abbasoğlu zum 65. Geburtstag* (pp. 587-599). Suna- İnan Kırac Akdeniz Medeniyetleri Araştırma Enstitüsü.
- Junkelmann, M. (2000). Familia Gladiatoria: The Heroes of the Amphitheatre. In E. Köhne, E. Cornelia & J. Ralph (Eds.), *Gladiators and Caesars: The Power of Spectacle in Ancient Rome* (pp. 31-74). University of California Press.
- Kasapoğlu, H. (2018). Parion Theatre Terracotta Figurines. In C. Başaran & H. E. Ergüner (Eds.), *Roman Theatre of Parion: Excavations, Architecture and Finds from the 2006-2015 Campaigns* (pp. 237-276). İçdaş.

- Kaşka, M. (2020). Burdur Arkeoloji Müzesi İthal Seramik Koleksiyonu. In A. Mörel, G. Kaşka, H. Köker, M. Kaşka, M. Fırat & S. O. Akgönül (Eds.), *Production, Trade and Economy in Pisidia and its Surrounding Areas. International Symposium Proceeding Pisidian Studies II, 31 October – 03 November 2018 Isparta, Turkey* (pp. 215-242). Süleyman Demirel University Press.
- Lafli, E. (1996). *Seleukeia Sidera 1993 Kazısında Bulunmuş Olan Pişmiş Toprak Eserler* [Unpublished master thesis]. Ankara Üniversitesi.
- Lafli, E. (1998). Les figurines en terre cuite de Seleuceia Sidera en Pisidie (Turquie). *Orient Express. Notes et Nouvelles d'Archéologie Orientale*, 1998/3, 73-77.
- Mathieux, N. (2015). Jouet, attribut ou symbole ? Le motif du raisin dans les figurines des tombes de Myrina. In S. Huysecom-Haxhi & A. Muller (Eds.), *Figurines grecques en context: Présence muette dans le sanctuaire, la tombe et la maison* (pp. 245-263). Presses universitaires du Septentrion.
- Merker, G. (2000). *The Sanctuary of Demeter and Kore: Terracotta Figurines of the Classical, Hellenistic and Roman Periods*. The American School of Classical Studies at Athens. <https://doi.org/10.2307/4390707>
- Merker, G. (2003). Corinthian Terracotta figurines: The Development of an Industry. In C.K. Williams II & N. Bookidis (Eds.) *Corinth: The Centenary, 1896-1996* (pp. 233-245). The American School of Classical Studies at Athens. <https://doi.org/10.2307/4390726>
- Michaelides, D. (2015). Aphrodite at the House of Orpheus in Nea Paphos. *Cahiers du Centre d'Etudes Cypriotes*, 45(1), 329-337. <https://doi.org/10.3406/cchyp.2015.1646>
- Muller, A. (2009). Le tout ou la partie. Encore les protomés : dédicataires ou dédicantes. In C. Prêtre (Ed.), *Le donateur, l'offrande et la déesse : Systèmes votifs dans les sanctuaires de déesses du monde grec* (pp. 81-95). Presses universitaires de Liège.
- Nicholls R. V. (1952). Type, Group and Series: A Reconsideration of Some Coroplastic Fundamentals. *BSA*, 47, 217-226. <https://doi.org/10.1017/S0068245400012351>
- Neils, J. (2003). Children and Greek Religion. In J. Neils & J. H. Oakley (Eds.), *Coming of Age in Ancient Greece: Images of Childhood from the Classical Past* (pp. 139-162). Yale University Press.
- Papantoniou, G., Michaelides, D. & Dikomitou-Eliadou, M. (2019). Terracottas in a Domestic Context: The Case of the House of Nea Paphos, Cyprus. In G. Papantoniou, D. Michaelides & M. Dikomitou-Eliadou (Eds.), *Hellenistic and Roman Terracottas* (pp. 7-43). Brill.

- Perçin, Ö. (2019). *Seleukeia Sidera Terrakota Figürinleri* [Unpublished master thesis]. Süleyman Demirel Üniversitesi.
- Raeder, J. (1984). *Priene: Funde aus einer griechischen Stadt in Berlin im Berliner Antikenmuseum*. Gebr. Mann.
- Rathmayr, E. (2015). Terrakotten aus dem Hanghaus 2 in Ephesos. In A. Muller & E. Lafli (Eds.), *Figurines de terre cuite en Méditerranée grecque et romaine. 2 Iconographie et contextes. Actes du Colloque international d'Izmir, juin 2007* (pp. 267-280). Pu Septentrion.
- Rens, R. & De Cupere, B. (2015) Blood, sweat, tears ... and fun! Gladiators and animal fights in Pisidia. In H. Metin, A. Polat Becks, R. Becks & M. Fırat (Eds.) *Pisidia Yazıları: Hacı Ali Ekinci Armağanı* (pp. 123-133). Ege Yayınları.
- Savvopoulos, K. (2019). Popular divine imagery in Hellenistic and Roman Alexandria: The terracotta figurines collection of the Patriarchal Sacristy in Alexandria. *BSA*, 114, 317-368. <https://doi.org/10.1017/S0068245419000091>
- Siebert, G. (1990). *Hermes*, In *Lexicon Iconographicum Mythologiae Classicae*, V, (pp. 285-386). Artemis and Winkler Verlag.
- Şare-Ağtürk, T. & Aslan, N. (2015). *A Terracotta Treasure at Assos*. Ege Yayınları.
- Talloe, P. (2001). The Egyptian connection. The cult of Nilotic deities at Sagalassos, *Ancient Society*, 31, 289-327.
- Talloe, P. (2006). Pious neighbours. Pisidian religious ties with Lycia. The case of the rider deities. In K. Dörtlük & T. Kahya (Eds.), *The IIIrd International Symposium on Lycia, 07 - 10 November 2005, Antalya. Symposium Proceedings, II*, (pp. 747-759). Ege Yayınları.
- Talloe, P. (2011). From Pagan to Christian. Religious Iconography in Material Culture from Sagalassos. In L. Lavan & M. Mulryan (Eds.), *The Archaeology of Late Antique Paganism* (pp. 575-607). Brill.
- Talloe, P. (2015). *Cult in Pisidia. Religious Practice in Southwestern Asia Minor from Alexander the great to the Rise of Christianity*. Brepols Publishers.
- Talloe, P. (2019a). The Rock Sanctuary: Nature, Cult and Marginality in the Periphery of Sagalassos. In B. Engels, S. Huy & C. Steitler (Eds.), *Natur und Kult in Anatolien* (pp. 177-197) (Byzas 24). Ege Yayınları.
- Talloe, P. (2019b). Catalogue. In J. Poblome, E. Torun, P. Talloe & M. Waelkens (Eds.) *Sagalassos: Meanwhile in the Mountains* (pp. 362-375). Yapı Kredi Culture and Art.
- Talloe, P. (2020). Introducing the smaller brother: The production of terracotta figurines at Sagalassos. In A. Mörel, G. Kaşka, H. Köker, M. Kaşka, M. Fırat & S. O. Akgönül (Eds.), *Production, Trade and Economy in Pisidia and its Surrounding*

Areas. *International Symposium Proceeding Pisidian Studies II*, 31 October – 03 November 2018 Isparta, Turkey (pp. 166-181). Süleyman Demirel University Press.

Talloen, P. (forthcoming). *Terracotta Figurines of the Burdur Museum*.

Talloen, P., Bes, P., Albayrak, M., De Cupere, B., Van de Vijver, K. & Poblome, J. (2020). A Place on the Fringe of Sagalassos: The Excavations at the Rock Sanctuary, *Anatolica*, 46, 249-290.

Talloen, P. & Özden-Gerçeker, G. S (2020) Out of the rock? Terracotta figurines from Sagalassos kept at the Sadberk Hanım Museum in Istanbul. *Carnets de l'ACoSt*, 21. <https://doi.org/10.4000/acost.2601>

Talloen, P. & Poblome, J. (2005). What were they thinking of? Relief decorated pottery from Sagalassos. A cognitive approach. *MÉFRA*, 117(1), 55-81. <https://doi.org/10.3406/mefr.2005.10940>

Tran Tam Tinh, V., Jaeger, B. & Poulin, S. (1988). Harpocrates, *In Lexicon Iconographicum Mythologiae Classicae IV* (pp. 415-445). Artemis and Winkler Verlag.

Uhlenbrock, J. (1990). The Coroplast and His Craft. In J. Uhlenbrock (Ed.), *The Coroplast's Art: Greek Terracottas of the Hellenistic World* (pp. 15-21). Melissa Media.

Vafopoulou-Richardson, C. E. (1991). *Ancient Greek Terracottas*. Ashmolean Museum Publications.

Waelkens, M., Hasendonckx, A., Owens, E. & Arıkan, B. (1993). The Excavations at Sagalassos 1991. *Kazı Sonuçları Toplantısı*, 14(2), 325-353.

Winter, F. (1903). *Die Typen der figürlichen Terrakotten*, II. Berlin-Stuttgart. W. Spemann III olma ihtimali?. <https://digi.ub.uni-heidelberg.de/diglit/winter1903>

Zanker, P. (2016). *Roman Portraits: Sculptures in Stone and Bronze in the Metropolitan Museum of Art*. Metropolitan Museum of Art.

### Webpage on a Website References

URL 1: <https://smb.museum-digital.de/index.php?t=objekt&oges=198> (06 June 2023).

URL 2: <https://www.metmuseum.org/art/collection/search/248365> (07 June 2023).



## The Inscriptions of Seleukeia Sidera

### *Seleukeia Sidera Yazıtları*

Gülcan Kaşka\*

Büyük İskender'in ölümüyle kurduğu imparatorluk parçalanmış ve birçok Hellenistik krallık ortaya çıkmıştır. İskender'in generallerinden biri olan Monophtalmos lakabıyla tanınan Antigonos'a karşı İskender'in diğer generalleri olan Ptolemaios, Lysimakhos ve Seleukos bir ittifak yapmış ve ardından MÖ 301 yılında Afyon sınırları içerisinde bulunan Ipsos'ta Antigonos ve oğlu Demetrios'u yenilgiye uğratmışlardır. Ardından Lysimakhos'un oğlunu öldürtmesinden sonra krallığında huzursuzluklar baş göstermeye başlamıştır. Giderek artan huzursuzluklar I. Seleukos Nikator'un müdahalesini zorunlu kılmış ve Lysimakhos'un ordusu ile Seleukos'un ordusu Magnesia ad Sipylum yakınlarında bulunan Korupedion'da karşı karşıya gelmiştir. Savaşın galibi I. Seleukos Nikator Suriye'den başlayarak Anadolu'nun önemli bir kısmına sahip olmuştur. Geniş bir coğrafyada hüküm süren I. Seleukos Nikator ve ondan sonra gelen ardılları buldukları bölgede hâkimiyetlerini korumak için birçok koloni kenti kurmuşlardır. Bu amaçla kolonileşme faaliyetlerine ağırlık veren Seleukoslar Anadolu'da birçok koloni inşa etmişlerdir. I. Seleukos Nikator ve ardılları kurdukları kolonilere genellikle kendi adını ya da hanedan üyelerinden birinin adını vermişlerdir. MÖ 3. yüzyılda stratejik nedenlerden dolayı Kuzey Pisidia'da kurulan Seleukeia da hanedan üyelerinden birinin adını taşımakla birlikte kurucusunun kim olduğu kesin olarak bilinmemektedir. Seleukoslar kentlerini inşa ederken genellikle koloniye dışarıdan nüfus transfer etmişlerdir. Antik dönem müverrihleri Seleukos kolonilerinin çok uluslu olduğuna dikkat çekmektedir. Hellenistik Dönem'de kurulan ve bir Seleukos kolonisi olan Seleukeia'da Hellenistik Dönem'e ait sadece bir yazıt (MÖ 2 – 1) kent içinde ele geçmiştir. Bunun dışında ele geçen diğer yazıtlar milattan sonraya tarihlendirilir. Kentte ele geçen yazıtlar içinde özellikle mezar yazıtlarının çok yoğun olduğu görülmektedir. Mezar yazıtlarında adı geçen kişiler genellikle alt tabakaya mensup şahıslardır. Bu yazıtlarda bazı antik dönem sivil toplum kuruluşlarının adına rastlanmaktadır. Mezar yazıtları kentin kültürel kimliğini de yansıtmaktadır. Yazıtlarda adı geçen şahıslar yerel, Yahudi, Pers, Grek, Makedon isimlerini taşımaktadır. Pisidia Bölgesi MÖ 188 yılında yapılan Apameia Antlaşması ile önce Pergamon egemenliğine, ardından ise Galat kralı Amyntas'ın (MÖ 39 – 25) egemenliğine geçmiştir. Amyntas'ın, Homonadeis adlı kavme yenilip öldürülmesinden sonra bölgenin önemli bir kısmı MÖ 25 yılında organize edilen Galatia Eyaleti'ne bırakılmıştır. Bu dönemde iç savaştan çıkan Augustus, veteran askerleri için egemenliği altındaki topraklarda birçok koloni

\* Süleyman Demirel University, Faculty of Arts & Sciences, Department of Archaeology, 32260 Isparta/TR, kaskagulcan@gmail.com, ORCID: 0000-0003-0566-3965.

organize etmeye başlamıştır. Bu kolonilerden bazıları da Pisidia Bölgesi'nde kurulmuştur. Ancak Seleukeia bu dönemde koloni olarak organize edilmemiştir. Claudius Dönemi'nde (MS 41-54) kentin adı değiştirilmiş ve Klaudioseleukeia adıyla anılmaya başlanmıştır. Kent yazıtlarında bazı Roma isimleri de karşımıza çıkmaktadır. Bunun dışında ele geçen yazıtlar mil taşı ve Hristiyanlık Dönemi'ne ait yazıtlardır.

MS 1. yüzyılda Hristiyanlık tarihinin en önemli figürlerinden biri olan, Hristiyan olmadan önce Saul adını taşıyan Aziz Paulus, Hristiyanlığı yaymak amacıyla Anadolu'nun birçok yerine geziler düzenlemiştir. Bu geziler esnasında Pisidia Bölgesi'ne de gelmiş, bölgenin önemli kentlerinden biri olan Antiokheia'yı ziyaret etmiş ve buradaki Yahudi cemaatini yeni dine davet etmiştir. Bölgenin diğer bir kenti olan Seleukeia Sidera'yı da ziyaret etmiş, müridi Artemon'u kentte Hristiyanlığı yaymak için görevlendirmiştir. Kentte Artemon'un Hristiyanlığı yayma çabaları sonuç vermiştir. Bu durum hem kent yazıtlarıyla hem de antik kaynaklarla kanıtlanmaktadır. Hristiyanlık Dönemi'ne ait dört yazıt kentten ele geçmiştir, bu yazıtlar özellikle MS 5-8. yüzyıllar arasına tarihlendirilmektedir. Bu yazıtlardan üç tanesi İmparator Diokletianus Dönemi'nde (284-305) şehit edilen ve Hristiyanlık tarihinde önemli bir yere sahip olan Aziz Georgios ile ilgilidir. Yazıtlardan birinde Aziz Georgios'a adanmış bir kiliseden, diğer iki yazıtta ise Aziz Georgios adına kurulan bir dernekten ve onun üyelelerinden bahsedilmektedir.

Kent, MS 4. yüzyıldan itibaren Hristiyanlar arasında başlayan görüş ayrılıkları nedeniyle düzenlenen konsillere temsilciler göndermeye başlamıştır. Bu konsiller arasında Nikaia Konsili, Kalkhedon Konsili, MS 692 Constantinopolis'te toplanan Trullo Konsili (quinisextum), II. Nikaia Konsili ve MS 869-70 düzenlenen Constantinopolis Konsili bulunmaktadır. Kentin Hristiyanlık dönemiyle ilgili bilgi veren başka kaynaklar da bulunmaktadır. Bu kaynaklar Hierokles'in *synekdemios* adlı eseri ve *notitia episcopatum* listeleridir. Hem *synekdemios* hem de *notitia episcopatum* adlı eserde kent Pisidia'nın *metropolis*'i olan Antiokheia'nın altında anılmıştır.

Seleukeia was founded by Seleukos I. Nikator or Antiokhos I to control the military roads in northern Pisidia<sup>2</sup>. With the Apameia Treaty signed with Rome in 188 BC, the Seleukid domination over the region ended and the dominance of the region became the Pergamon Kingdom (Waelkens, 2002, p. 314; Kosmetatou, 1997, p. 28). The city's name was changed to Klaudioseleukeia in the first century AD<sup>3</sup>. It was known that in the first century AD. the Christianization activities started in the city with Paulus' student Artemon (BHG III no. 2047; Mullen, 2004, p. 105). In the sixth century AD. the name of the city was mentioned with the Sidera epitheton (Seleukeia Sidera) in the work of Hierokles called Synekdemios

2 Tscherikower, 1927, p. 175; Bracke, 1993, pp. 17, 21, dn. 54; Cohen, 1995, p. 350; Bingöl, 2012, p. 459, dn. 7; Hürmüzlü, 2015, p. 175. Kosmetatou claimed that the city was founded by Seleukos II. Kosmetatou, 1997, p. 21.

3 Cohen, 1995, p. 249; Drew-Bear & Labarre, 2002, p. 73; Talloen, 2015, p. 38.

(Hierok. Synek. 673.8).

The localization of the ancient city of Seleukeia in Atabey district of Isparta was made by Hirschfeld in 1874 (Hirschfeld, 1874). Thanks to an inscription he saw here, Hirschfeld determined that the city was Seleukeia. Later, the area was visited by Sterrett. Sterrett published the inscriptions in two separate works he collected in the region (Sterrett, 1888a; Sterrett, 1888b). Later, Ergün Lafli (Lafli, 2002) and Durmuş Kaya (Kaya, 1999a; Kaya, 1999b), Drew-Bear – Labarre (Drew-Bear & Labarre, 2002), Iversen (Iversen 2015), Aytaçlar (Aytaçlar, 2010a; Aytaçlar, 2010b) worked on the city inscriptions.

### Inscriptions

The earliest inscription of the city was dated to the 2<sup>nd</sup> -1<sup>st</sup> century BC. The inscription was dated to these centuries based on the letter characters (Lafli, 2001, p. 81).

(SEG 49: 1862(1); Lafli, 1999, p. 60, 3; SEG 52: 1398)

[— — — — —]ΡΗΣΤΙΑ[— — — — — — — — — — —]

[— δια τήν εὐ]νοίαν καὶ δια τήν.[φιλίαν — — — — —]

[— — — — —]εσθαι τήν ἐν ΤΟ[— — — — — — — — — — —]

[— — — — —]ἀξίαις τιμαῖς ὅπω[ς — — — — — — — — — — —]

5 [— — — — —]ῶριστον ὄντα κα[ὶ — — — — — — — — — — —]

[— — — — —]αὐτὸν ζηλωτα[— — — — — — — — — — —]

[— — — — —]Ο[.]ΥΣ εἰς πάντα τὰ [— — — — — — — — — — —]

[— — — — —]ωὶ ἐπηνῆσθαι τε Παπ[— — — — — — — — — — —]

[— — — — —]καὶ στεφανῶσαι αὐτ[ὸν — — — — — — — — — — —]

10 [— — — — —]ἀνδρ[α]γ[α]θί[α]ς ἔνεκεν καὶ ἀν[δρ]είας(?) — — — — —]

[ἐν ᾧ ἂν προ]αιρῆται τόπωι, ὑπάρχε[ιν — — — — — — — — — — —]

[— — — — —]ἔφοδον ἐπὶ τήν βουλὴν κ[αὶ τὸν δῆμον]

[καλειῖσθαι] δὲ αὐτὸν καὶ εἰς προε[δρίαν — — — — — — — — — — —]

[— — — — —]εως καὶ στεφα[ν — — — — — — — — — — —]

15 [— — — — — — — — — — —]...ΘΑΔ[— — — — — — — — — — —]

The inscription is unreadable because it is broken. The person mentioned in the inscription was a leading member of the community. As can be understood from the text, he was honored for his goodwill and friendship, and was given the right to sit in the front (*prohedria*). *Prohedria* is the privilege of watching the games in the privileged seats at the very front of the cavea (URL 1; Ferrero, 1990, p. 82; Özdilek, 2022, p. 233). This privilege was given to the prominent citizens and from time to time to their heirs, city administrators, priests, foreigners who had a special feeling of gratitude, or people who benefited in the city by a council decision (Özdilek, 2022, p. 233). Persons with the privilege of *prohedria* had the right to preview performances in the theatre. Persons with the right to *prohedria* did not pay any fees to enter the theater (Roselli, 2011, p. 78).

Apart from this example, the inscriptions were dated to the 1<sup>st</sup> - 8<sup>th</sup> centuries AD.

Hirschfeld, 1879, p. 313; Sterrett, 1888a, p. 334, no. 446; IGR III. 328; Kaya, 1999b, 37; Kaya, 1999a, pp. 163 – 165 (SEG 49. 1863); Lafli, 1999, p. 60, no. 2; Lafli, 2002, 317 – 318, no. 68; Iversen, 2015, p. 45, no. 39

[- - - - -]κὸν	Τιβέριον Κλαύδιο[ν]
[- - - Θεὸν Ἐπιφανῆ	Καίσαρα Σεβαστὸ[ν]
[- - - φιλοπ]ατρὶς	Γερμανικὸν
[- - - - -]αυτοῦ	Θεὸν Ἐπιφανῆ.
[- - - - -]πιόδωρος	
[- - - - -]ΠΟΚΛ[- -]	

Line 3: [- - φιλοπ]ατρὶς, Kaya.

Line 4: Possibly [- - ἐ]αυτοῦ, (Iversen, 2015, p. 46, no. 39)

Line 5: [Σαρα]πιόδωρος [Ἀσκλη]πιόδωρος [Ὀλυμ]πιόδωρος

Line 6: [Ἀνδ]ροκλ[έους] [Ἰατ]ροκλ[έους] [Κυδ]ροκλ[έους] (Kaya, 1999a, p. 164 – 165; Kaya, 1999b, p. 37).

The inscription was dated to the 1<sup>st</sup> century AD. Iversen claimed that the inscription was dedicated to Caligula and suggested that the first and second lines of the first column could be completed as follows.

#### Column I

Block 1	Block 2	Block 3
1 [Γάι]ον Καίσαρα Σεβαστὸν Γερμαν[ι]κὸν		
2 [Θεο]ῦ Σεβαστοῦ ἔκγονον, Θεὸν Ἐπ[ι]φανῆ.		

## Epitaphs of Seleukeia

Most of the inscriptions found in Seleukeia are tomb inscriptions. In most of the inscriptions, grey limestone material specific to the region was used (Dijkstra et al., in press). Greek, Roman, local and Persian names appear in the inscriptions. Very few marble inscriptions were used in these inscriptions.

### 1. Aytaçlar, 2010a, p. 228, no.11

οί φράτο-

ρες Εὐκ-

άρπω

*“Comrades of the association (set up this stele) for Eukarpos”* (Aytaçlar 2010a: 228 no.11).

### 2. Dijkstra et al., in print, cat. no. 33.

[---]ηνύφαντον ΣΑΣ[---]ΝΤΟ[---]

[φρ]άτορες μνήμης χάριν.

*“Comrades of the association (erected it) for .... in remembrance”.*

In both inscriptions, the group called phratores was mentioned. Phratores were a group with both a religious and a social aspect. In Saittai, the group calling itself phratores philoi had a tomb built for Aleksandros (SEG 49, 1673), a linen worker who died young, just like in Seleukeia. The existence of the group was also mentioned in an inscription found in Takina in Pisidia. Here the *phratra* appears as a cult association<sup>4</sup>.

### 3. Aytaçlar, 2010a, p. 229, no. 12

[ό δεινα τοῡ δεινα Βα-]

Βει εὐ[σ] χημον[αεστά]

Τη γυναικὶ καὶ ἐ[αυ] –

τῶ ζῶν

*“(...son of) ....(erected it) for his very respectable wife Babeis and for himself, whilst he was alive”* (Aytaçlar, 2010a, p. 229).

The name Babeis in the inscription was one of the local names of Phrygian origin, which was frequently used in Anatolia (Zgusta, 1964, p. 115, 133-1). It was also widely used in Pisidia<sup>5</sup>.

---

4 Labarre et al. 2010, pp. 74 – 77, no. 3; Corsten, 2011, pp. 135 – 140; Peker, 2022, pp. 90 – 92.

5 MAMA VIII: 365; MAMA VIII: 375; SEG 41: 1248.

**4. Aytaçlar, 2010b, p. 16, no. 11**

Στρατών Λα-  
είδι μνήμη-  
ς [χ]άριν.

*“Straton erected (it) for Lais in remembrance”* (Aytaçlar, 2010b, p. 16).

Zgusta classifies the name Lais as a Greek name (Zgusta, 1964, p. 786-4).

**5. Aytaçlar, 2010b, p. 16, no. 12**

[...]ανῶ vac. Ἐλπ-  
[ις] ἡ σύνιβιος  
[ μ]νήμης χά[ριν].

*“Elpis, his wife, (erected it) for (...)anus. For the sake of remembrance!”* (Aytaçlar, 2010b, p. 16).

Since the inscription was broken, the name of the person to whom the inscription was erected cannot be read. The name Elpis in the inscription is Greek.

**6. Aytaçlar, 2010b, p. 16 no. 13**

Ἀθηναῖς Ζω-  
τικῶ μνήμης χάριν.

*“Athenais, (set this up) for Zotikos. For the sake of remembrance!”* (Aytaçlar, 2010b, p. 16).

The names of Athenais and Zotikos mentioned in the inscription were Greek.

**7. Aytaçlar, 2010b, p. 16 no. 14.**

Γαλάτης Ματείδι θυ-  
γατρὶ γλυκυτάτη μνήμη[ς]  
χάριν.

*“Galates erected (it) for her very sweet daughter Mateis in remembrance”* (Aytaçlar, 2010b, p. 16).

Galates and its female form Galatis were known in Pisidia<sup>6</sup>. Although the name Mateis was of Phrygian origin, it is one of the local names used in the

---

<sup>6</sup> Sterrett, 1888a, p. 353, no. 500; MAMA IV: 197; Sterrett, 1888a, p. 398, no. 580; Aytaçlar, 2010b, p. 16.

region of Pisidia (SEG 2: 747; TAM III.1: 597; Zgusta, 1964, p. 882-2).

**8. Aytaçlar, 2010b, p. 17, no. 15**

Δούλου Τροφίμου

“Doulos, son of Trophimos”

Both Doulos and Trophimos are names of Greek origin.

**9. MAMA VI: 384<sup>7</sup>; Hürmüzlü, 2007, Pl. 6; Aytaçlar, 2010b, p. 17, no. 16.**

Κόνωνι Τατεις ἢ θρεπ[τή] /

μνήμης χάρις.

“Tateis, his foster mother, (erected it) for Konon. For the sake of remembrance!” (Aytaçlar, 2010b, p. 17).

Tateis is Phrygian<sup>8</sup> and Konon is a name of Greek origin. (TAM III,1 370; SEG 57:1502). Examples of both names were seen in Pisidia.

**10. Aytaçlar, 2010b, p. 18, no.17; SEG 60: 1492.**

Χαρίτιον Συνφόρω

μνήμης χάρις.

“Kharition erected (it) for Synphoros. For the sake of remembrance” (Aytaçlar, 2010b, p. 18).

The names Kharition and Synphoros were of Greek origin and Kharition. Kharation was a feminine name (Aytaçlar, 2010b, p. 18).

**11. Dijkstra et al., in press, cat. n° 20.**

Λαις Βάβι θρέψ[..]

μνήμης χάρις

“Laeis (set this up) for Babis, who brought her up, in remembrance”

**12. Dijkstra et al., in press, cat. n° 28.**

Ἰλαρος Τ[---]

μν[ή]μης χά[ρις]

“Hilaros erected (it)...., in remembrance”

The name Hilaros was of Greek origin.

---

7 MAMA VI mentions that the inscription was found near Burdur.

8 Ramsay, 1897, p. 308, 120/1[1]; SEG 6: 576 also see Zgusta, 1964, p. 1517-5.

**13. Dijkstra et al., in press, cat. n° 29.**

Μέμνων[καὶ] Ζώ-  
σιμος ἰδ[ίω] μήτρω-  
νι μνήμης χάριν

*“Memnon and Zosimos (set this up) for their maternal uncle, in remembrance”*

**14. Dijkstra et al., in press, cat. n° 30.**

Αγέμωνος Υ[---]

**15. Dijkstra et al., in press, cat. n° 32.**

Εἰδομενεὺς καὶ Μενέμαχος  
οἱ Μενεδήμου τὸν ἑαυτῶν εδε[.]  
[.]ον Ἀντιφάνη μνήμης ἔνεκεν

*“Eidomeneus and Menemakhos, the sons of Menedemos (honoured with this monument) their own brother (?). For Antiphanes, for the sake of remembrance”.*

**16. Dijkstra et al., in press, cat. n° 33.**

Παμμένης Ὀνήσων.  
μνήμης χάριν

*“Pammenis Oneson, in remembrance”.*

**17. Dijkstra et al., in press, cat. n° 37.**

Αὐξάνοντι ἡ σύνβιος Κορινθία [---]  
[--- μνή]μης χάριν

*“For Auxanon, the wife Korinthia (set this up), in remembrance”.*

The names Auxanon and Corinthia mentioned in the inscription were of Greek origin. Because of the inscription letter characters and the stylistic features of the was dated to 2<sup>nd</sup> – 3<sup>rd</sup> century AD.

**18. Dijkstra et al., in press, cat. n° 38.**

Ρ  
ΓΕΜΑ[---]Μ[---μν]ήμην.

Because of the inscription letter characters and the stylistic features of the was dated to 2<sup>nd</sup> – 3<sup>rd</sup> century AD.

**19. Dijkstra et al., in press, cat. n° 41.**

[---]ιανῆς Γῆς

[μνήμη]ς χάριν

(Monument of) (...)iani Ge, in remembrance (Dijkstra et al., cat. n° 41; in print.).

Because of the inscription letter characters and the stylistic features of the was dated to 2<sup>nd</sup> – 3<sup>rd</sup> century AD.

**20. Dijkstra et al., in press, cat. n° 3.**

[---] Α [---] Ω [---] αὐτῆς ἀνδρὶ Αὐρ. Α[---]

[---] ἐπενβάλη πτωμα δώσει τ[---]

(A certain woman made this) for her husband Aur(elius ...) (...) if someone places a body upon it (s)he shall pay (...).

The inscription is located on the cover of the sarcophagus. However, it cannot be read completely because it is broken. The verb δώσει (δίδωμι = to give) is located in the second line of the inscription. The inscription mentions a penalty to be imposed upon the person who would damage the tomb. However, since the inscription in question is damaged, the amount of the penalty is not clear (Dijkstra et al., in press). Tomb owners could either curse the person who would damage the tomb (Sterrett, 1888b, p. 158, no. 144) or sometimes threatened to impose a fine on them to protect the graves<sup>9</sup>. In some cases, it is seen that both methods were applied together (Hommole, 1894, pp. 199 – 200; IGR 3: 340). On the lid of the sarcophagus a lion is represented. It was thought that the tomb was protected from evil by depicting the lion figure. (Er Scarborough, 1991, p. 187; Vermeule, 1972, p. 59; Acuce, 2018, p. 38; Dijkstra et al., in press). Due to the first name Aurelius, the inscription must be dated to the 3<sup>rd</sup> century AD.

**21. Labarre et al., 2010, p. 82.**

Αὐρ(ήλιος) Γαζατης Ἀτάλου δῖς

Ἀζαρέτου καὶ Αὐρ(ηλία) Παπιανῆ Πά-

Που ἢ γυνὴ αὐτοῦ ζῶντες ἑαυτ(ῶ)ν

τὸ ἐν πέτρᾳ κατεσκε[ύα]σαν..

“Aurelius Gazates, son of Atalos, son of Azaretos, son of Azaretos, and his wife, Aurelia Papiane, daughter of Papos, built a tomb in the rock for themselves while they were living”.

Labarre suggested that the names Azaretos and Gazates might be of Persian origin (Labarre et al., 2010, p. 83). The name Papiane in the inscription is the equivalent of the Latin name Papiana. However, this name may be derived from

9 TAM III, 1: 217; TAM III, 1: 323; TAM III,1: 380; TAM III,1 421: SEG 41:1282.

the father's name, Papos, which was frequently used in Anatolia and mentioned in the inscription (Labarre et al., 2010, p. 83). Inscription was dated after 212 AD.

### Milestone

Iversen, 2015, p. 77, no. 65

[[[---]ΚΛ[-----]]]  
[[[---]. ΑΒ[-----]]]  
[[[---]ΔΕ. [-----]]]  
[[[-----]]]

The inscription was probably the text of a milestone. It cannot be deciphered because the inscription was broken (Iversen, 2015, p. 77).

### Christian Period Inscriptions

1. Sterrett, 1888a, p. 333, no. 465; Weber, 1908, p. 351, no. 12; SEG 52:1398[2]: Kaya, 1999b, p. 37.

1 [ἔτο]υς υν' <sup>10</sup>. ἔρ[γον Χ]ριστ(ιανὸν) καὶ ἄ[γιον](?).

τοῦ ἁγίου Γεωργίου πρώτ[η]

συνοδία ἐρ(γεπιστατήσαντος)(?) Ἀβραμίου καὶ [—?—]

ὑποπροάγοντα Ἀντίπατρο[ν].

5 Πορφύρις, Ἀντιφῶν, Ἄρις, Παῦλος,

Ἡράκλις, Μενεμά[χ]ις, Παῦλος,

Κυριακὸς, Στρατόνικος, Αὐξάνων,

Ζωτικὸς, Τιμόθις, Ἄτταλος,

Ἰωάννης, Κοτόνης, Γ{εσ}ενέσ[ιος](?) {Γενέσιος} <sup>11</sup>,

10 Παῦλος τεχνίτης, Φίλιππος,

Κόνων, Χρυσανθία, Ἀλέξανδ[ρος],

Φίλιππος.

*“By the he[lp] of God [and Ch]rist and the H[oly Spirit]. The (...) association (synodia) of Saint George. When Abramios was the superintendent of works (er(gepistates)) and*

10 Weber says that such a completion is not possible because there is no room for [ἔτο]υς υν' in the inscription. Weber, 1908, p. 351, no. 12.

11 Weber corrected the name to ΣΕΧΕΝΝΕΣΙΣ. Weber, 1908, p. 351, no. 12; Later, D. Feissel corrected the name to Σεσεννες, claiming that it came from the Persian name Sisinnios. AE 2002: 1480.

[ - - ] *Antipatro[s]*, junior village head man (*hypoproagon*). *Porphyris*, *Antiphon*, *Aris*, *Paulos*, *Heraklis*, *Menema[kh]is* (?), *Paulos*, *Kyriakos*, *Stratonikos*, *Auxanon*, *Zotikos*, *Timothis*, *Attalos*, *Ioannes*, *Kotones*, *Genes[ios]* (?), *Genesios*, artisan *Paulos*, *Philippos*, *Konon*, *Khrysanthia*, *Alexand[ros]*, *Philippos*." (URL 2).

The inscription was dated to 5<sup>th</sup> – 8<sup>th</sup> centuries AD (Iversen, 2015, fn. 68). In the inscription, the members of an association of worshippers of Saint Georgios were mentioned. Abramios and Iohannes mentioned in the inscription are names of Jewish origin. Kotones was one of the local names used in Anatolia. (Zgusta, 1964, p. 708-1; Kaya, 1999b, p. 38).

**2. Sterrett, 1888b, p. 118, no. 89; Sterrett, 1888a, p. 333, no. 465; Robert, 1955, pp. 239 – 245.**

- 1 [ἐ]το]υς υν'. ἔρ(γον) καὶ Χρισ(τοῦ) καὶ ἁγίου .N[— — —]  
 τοῦ ἁγίου Γεοργίου συνο-  
 δία Ἑστναηνῶν Εἰωάννης  
 πρεσβύτερος, ἐρ(γεπιστήσας) Ἄβράμις,  
 5 [προ]άγων Ἀντῶνις·  
 Εἰωάννης, Ἀρτέμων,  
 Μ[α]ϊκίς, Ζωτικός, Φίλιππο[ς],  
 Κλήμεντ[ος], Κ]υριακός,  
 Θ[ε]όδου[λος], Α]ρτέμων,  
 10 Μαρτύρις, [Ζ]ωτικός,  
 Ἀλέξανδρος, Διμίτριος,  
 Ἄτταλος, Ζωτικός,  
 Φίλιππος, Πατ[ρίκιος(?)].

"By the help of God and Christ and the Holy Spirit. The association (*synodia*) of Saint George of the inhabitants of Estya: presbyter *Ioannes*, *Abramios* who was superintendent of works (*er(gepistates)*), *Antonios* who is village [head] man (*[pro]agon*). *Ioannes*, *Artemon*, *M[a]ikis*, *Zotikos*, *Philippo[s]*, *Klement[os]*, *K]yriakos*, *Th[e]odou[los]*, *A]rtemon*, *Martyris*, *[Z]otikos*, *Alexandros*, *Demetrios*, *Attalos*, *Zotikos*, *Philippos*, *Pat[rikios* (?)]" (URL 2).

Although the first inscription and the second inscription are very similar to each other, there are differences between them. For this reason, it is a matter of debate whether both inscriptions were erected by the same group. In the first inscription was written, the group's name was "τοῦ ἁγίου Γεωργίου ΠΡΩΤΟΙΙΙΙ συνοδία". The word following the name of St. Georgios was

read as “πρωτή” (first) by Sittington Sterrett. This situation caused us to deduce the meaning of the first association of St. Georgios from the content of the inscription. However, another researcher, Hans Rott, who examined the inscription, noticed the trace of one more letter in the word under discussion (ΠΡΩΤC| | | |) while examining the stone. Weber also completed the name of the group as τοῦ ἁγίου Γεωργίου πρωτο[μάρτυρος] συνοδία (Association of St. Georgios the First Martyr) (Weber, 1908, p. 352; URL 2). However, Weber did not explain why Georgios was given the nickname of the first martyr. Later, another expert, Henri Grégoire, who examined the inscription, suggested that the inscription was misunderstood by its author, who used the meaning of the word to mean great martyr (μεγαλομάρτυς) (Grégoire, 1908, p. 281; URL 2). In the second inscription the name of the group is written in full. “τοῦ ἁγίου Γεωργίου συνοδία Ἐστιαηῶν” / St. Georgios association of the inhabitants of Estya. Since the group name in the second inscription contains the name of a village, in the first inscription ΠΡΩΤC| | | | word starting with must be a place name. Probably as “τοῦ ἁγίου Γεωργίου Πρώτο[υ] (κώμης) | συνοδία” can be completed (URL 2). In the first inscription, a total of 22 people, one of which is female, were mentioned in the second inscription, in total 17 men.

The inscription mentions members of the Saint Georgios<sup>12</sup> association (συνοδία) of the inhabitants of Estya. Apart from that, the participium ἐργεπιστήσας in the inscription comes from the verb ἐργεπιστατέω. This civil service, which appears in the inscriptions as this ἐργεπιστάτης in ancient times, was responsible for the execution of the building activities in the cities. They could control the erection of a structure, statue, or honorific inscription. Ergepistates used the city’s money to control these activities. However, there were examples that are also financially supported by Ergepistates (Ünver, 2012, pp. 86 – 88). Line 5 contains the expression προάγων. Probably it was the headman (URL 2). The inscription mentions a religious functionary called presbyteros. Presbyteros is a religious official in the church<sup>13</sup>.

---

12 Saint Georgios was martyred during the reign of Emperor Diocletian. In 1964, an incomplete manuscript was found under the column of Qasr Ibrim Cathedral. The documents are dated to 350-500 years after Jesus. According to these documents, he was born during the reign of Emperor Aurelianus (270-275), as the son of Gerontios of Cappadocia, who lived in Nubia in Egypt. His mother was Polychronia. See: Morgan, 2006, pp. 16 – 20 for detailed information.

13 In ancient Rome, the word Senator was derived from the name senex and meant elders. In the Jewish community, zaken corresponded to this word. Presbyters in early Christian congregations were apparently consist of elders from Jewish congregations. The translation of Zaken into Greek gave presbyteros a technical meaning (Ferguson, 1999, p. 945, s.v. Presbyter). In ancient Greek this word meant elder and was rarely used as a civil service. With the spread of Christianity, it took on different meanings. The first presbyters had functions of overseeing community matters, resolving problems, and preserving teaching. In the absence of the bishops, they deputized for them. As assistants to the bishops, they assisted in the performance of religious services (Coleman, 1852, p. 154). They undertook the duties of teachers and preachers belonging to the Bishop. They acted with the authority given by the bishops. They helped to conduct the rituals.

**3. Iversen, 2015, p. 44, no. 38**

[ἐκα]ληεργήθη ὁ ναὸς	The naos .
[τ]οῦ ἁγίου Γεωργίου	of Hagios Georgios was renovated
[ῆν]δηκτῆνος κς'	in the 26th Indiction
[-]ΕΠΑΠΑ Νηκῆταν ΤΟΓΛ.Ο. . . .	Neketas. . . .

The inscription was dated to the 7<sup>th</sup> -8<sup>th</sup> centuries AD (Iversen, 2015, p. 44). The church dedicated to St. Georgios.

**4. Sterrett, 1888a, p. 333, 465[2]**

θ(εο)ῦ συνερ[(γία) καὶ Χ]ριστ(οῦ) καὶ Α[γίου Πν(εύματος)]

**5. Sterrett, 1888a, p. 334, 467**

[Ϟ] εὐχὴ Μητροδώρου ἐπισ[κόπου].

Inscription was dated to the 5<sup>th</sup> – 6<sup>th</sup> centuries AD (Belke & Mersich, 1990, p. 378 s.v. Seleukeia Sidera; Hürmüzlü et al., 2021, p. 341). Bishop Metrodoros<sup>14</sup> was mentioned in this inscription. He is the most important person in the city because of his power<sup>15</sup> .

**1. Unidentifiable (Fig. 1)**

AΤΕΡ

NTIΘ

Unpublished.

It cannot be identified because the inscription was broken. On the basis of the shape of the letters the inscription can be dated to the 2<sup>nd</sup> – 3<sup>rd</sup> century AD.

---

14 The inscription was found in İslamköy (near Atabey/Agrai).

15 The Bishop, the spiritual leader of the church, conducts rites, lectured, excommunicated, and confessed. It was their responsibility to appoint and dismiss priests. Since the Kadıköy Council, he manages the church's properties and charitable works with the help of a financier. He indirectly holds power in the foundations and monasteries in his region. Since Constantine, he has a say in the cases involving the clergy (Flusin, 2014, p. 134).



Fig. 1

### Conclusion

Most of the inscriptions in Seleukeia were funerary and carved in limestone. The grave inscriptions give us information about the demography of the city. People living in the city carried Phrygian, Jewish (Talloe, 2015, p. 203; Kaşka, 2019, p. 144), Persian (Labarre et al., 2010, p. 82), Greek and Latin names. Based on these inscriptions, it is possible to say that the urban population had a rather cosmopolitan composition<sup>16</sup>. The materials used in the tombstones were limestone specific to the region. Most tomb inscriptions were plain. This shows that the people mentioned in the inscription belonged to the lower strata. Fines were mentioned in one of the funerary inscriptions to prevent tomb robbery and the burial of other individuals than those for whom the grave was intended. However, the amount of money to be paid and the institution collecting the fine are not clear. Apart from that, an ancient association of *phratores* is known from the inscriptions; this group is known to have had religious and civic aspects.

There is only one inscription that can be related to the elite of the city at the moment. This is an honorary inscription, and it is broken. Therefore, the name of the honored man in the inscription cannot be read. However, it is understood

---

16 Hürmüzlü & Tanrıver, 2016, p. 42; Tanrıver, 2016, p. 24; Kaşka, 2019, p. 144.

from the text that he held an important position in the city.

Finally, five inscriptions belonging to the Early Christian period have been documented so far. Three of these inscriptions concern Saint Georgios. In the first and second inscriptions, members of the association of Saint Georgios are listed. The third inscription mentions a repair in the Church of Saint Georgios. The last inscription mentions Metrodoros, who was a bishop in Seleukeia. Metrodoros held the most important position in the city during his lifetime.

### Figure List

Fig. 1. Fragmentary inscription found in blacksmith's workshop (Seleukeia Sidera Excavation Archive).

### Bibliography

#### Abbreviations

AE., L' année épigraphique. Paris.

IGR., Inscriptiones Graecae ad res Romanas Pertinentes. R. Cagnat & J. Toutain. (Eds.) I-IV. Paris 1906-1928.

MAMA *Monumenta Asiae Minoris Antiqua*, Manchester 1928-.

SEG *Supplementum Epigraphicum Graecum*, Leiden et al., 1923-.

BHG., Halkin F., Bibliotheca Hagiographica Graeca vol. 3 (Société des Bollandistes), Brussels 1957

TAM., Tituli Asiae Minoris I-V, Viyana 1901-1981.

#### Ancient Source

Hierok. *Syneke*.

Hieroclis. *Synecedemus et Notitiae Graecae Episcopatum*. (Ed. G. Parthey), Amsterdam, 1967, I. 381.

#### Modern Sources

Acuce, İ. (2018). *Pisidia Bölgesi Ostothekeleleri* [Unpublished master thesis]. Süleyman Demirel Üniversitesi.

Aytaçlar, Ö. (2010a). Some Unpublished Inscriptions in the Isparta Museum, *Adalya*, XIII, 223-237.

Aytaçlar, Ö. (2010b). Some Inscriptions in the Isparta Museum. *Gephyra*, 7, 11-21.

Belke, K. & Mersich, N. (1990). *Tabula Imperii Byzantini 7, Phrygien und Pisidien*. Verlag der österreichischen Akademie der Wissenschaften.

Bingöl, O. (2012). Seleukeia Sidera. In O. Bingöl, A. Öztan & H. Taşkıran (Eds.),

- Anatolia (Anadolu) DTCF 75. *Yıl Armağanı* (pp. 457-470). Ankara Üniversitesi Dil Tarih ve Coğrafya Fakültesi.
- Bracke, H. (1993). Pisidia in Hellenistic Times (334-25 B.C.). In M. Waelkens (Ed.), *Acta Archaeologica Lovaniensia Monographiae 5, Sagalassos I, First General Report on the Survey (1986-1989) and Excavations (1990-1991)* (pp. 15-35). Leuven University Press.
- Cohen, G. M. (1995). *Hellenistic Settlements in Europe, the Islands, and Asia Minor*. University of California Press.
- Coleman, L. (1852). *Ancient Christianity Exemplified in the Private, Domestic, Social and Civil Life in the Primitive Christians and in the Original Institutions, Offices, Ordinances and Rites of the Church*. Forgotten Books.
- Corsten, T. (2011). Zu Inschriften aus Kleinasien II. *Gephyra*, 8, 133-142.
- Dijkstra, T. M., Lidewijde, D. J., Hürmüzlü, B., Kaşka, G. & Slawisch, A. (in press), Dealing with the Dead in Roman Seleukeia Sidera. Reconstructing funerary culture from ex situ material.
- Drew-Bear Th. & Labarre G. (2002). Les trois statues de la Concorde à Antioche de Pisidie. *Epigraphica Anatolica*, 34, 71-92.
- Er Scarborough, E. (1991). *The Funerary Monuments of Clizia Tracheia*. [Unpublished doctoral dissertation]. Cornell University
- Ferguson, E. (1999). Presbyter. In E. Ferguson (Ed.), *Encyclopedia of Early Christianity* (pp. 945-946). Routledge.
- Ferrero, D. D. B. (1990). Batı Anadolu'nun Eski Çağ Tiyatroları. İtalyan Kültür Heyeti Arkeoloji Araştırmaları.
- Flusin, B. (2014). İmparatorluk Kilisesinin Yapısı. In C. Morrison (Ed.), *Bizans Dünyası Doğu Roma İmparatorluğu 330- 641 (A. Bilge, Trans.)* (pp. 130-160). Ayrıntı Yayınları.
- Grégoire, H. (1908). Notes épigraphiques. *Revue de l'instruction publique en Belgique*, 51, 277-281.
- Hirschfeld, G. (1874). *Reise nach dem südlichen Kleinasien*, *Zeitschrift für geistes Eigentum*, 14.
- Hirschfeld, G. (1879). *Vorläufiger Bericht über eine Reise im südwestlichen Kleinasien III*. Monatsberichte der Königlich Preussische Akademie des Wissenschaften zu Berlin, 299-237
- Hommole, T. (1894). Nouvelles et correspondance. *BCH*, 17, 175-200. <https://doi.org/10.3406/bch.1893.3744>
- Hürmüzlü, B. (2007). Pisidia Bölgesi'nde Ele Geçen Anthemion Tipi Steller. *Colloquium Anatolicum*, 6, 97-114.

- Hürmüzlü, B. (2015). Pisidia Bölgesi'nde Seleukoslar Dönemi Yerleşim Politikaları. *Colloquium Anatolicum*, 14, 167-185.
- Hürmüzlü, B. & Tanrıver, Ö. (2016). Antik Kaynaklar, Epigrafik ve Arkeolojik Veriler Işığında Kuzeybatı Pisidia Bölgesi'nin Kültürel Kimliği. *Süleyman Demirel Üniversitesi Fen Edebiyat Fakültesi Sosyal Bilimler Dergisi*, 37, 27-49.
- Hürmüzlü, B., Sönmez, B., Mörel, A. & Kaşka, G. (2021). Seleukeia Sidera'da Geç Antik Dönem Hakkında Ön Sonuçlar. *Süleyman Demirel Üniversitesi Fen-Edebiyat Fakültesi Sosyal Bilimler Dergisi*, 54, 317-340.
- Iversen, P. (2015). Inscriptions from Northwest Pisidia. *EpigAnat*, 48, 1-85.
- Kaşka, G. (2019). Pisidia'da bir Seleukos Yerleşimi: Seleukeia Sidera. *Eskiçağ Yazıları* 13, 135-151.
- Kaya, D. (1999a). Die theaterausgrabung von Seleukeia Sidera (Klaudioseleukeia). *Asia Minor Studien*, 34, 163-174.
- Kaya, D. (1999b). Seleukeia Sidera. In *I. Uluslararası Pisidia Antiocheia Sempozyumu Bildiriler Kitabı*, 2-4 Temmuz 1977 (pp. 35-46). Kocaeli Ofset Matbaacılık.
- Kosmetatou, E. (1997). Pisidia and the Hellenistic Kings from 323 to 133 B. C. *Ancient Society*, 28, 5-37.
- Labarre, G., Özsait, M. & Özsait N. (2010). Monuments funéraires et inscriptions de Pisidie (Burdur-Isparta). *Anatolia Antiqua*, 18, 59-88. <https://doi.org/10.3406/anata.2010.1302>
- Laflı, E. (1999). Greek Inscription and Inscription Fragments from Seleuceia Sidera in Pisidia (South-Western Turkey), *Orient Express. Notes et nouvelles d'archéologie orientale*, 2, 59-62.
- Laflı, E. (2001). Seleuceia in Pisidia in the Hellenistic Period. *Orbis Terrarum*, 7, 55-98.
- Laflı, E. (2002). Notes on the history of Seleuceia Sidera in Pisidia (South-western Turkey): second preliminary report on the inscriptions. In P. Freeman, J. Bennett, Z. T. Fiema, B. Hoffmann (Eds.), *Limes XVIII - Proceedings of the XVIIIth International Congress of Roman Frontier Studies held in Amman, Jordan (September 2000). A Conference held under the auspices of the Department of Antiquities of the Hashemite Kingdom of Jordan, The Council for British Research in the Levant and the Department of Archaeology at the University of Liverpool. Volume I*, BAR International Series, 1084(1) (pp. 313 – 236). BAR Publishing.
- G. Morgan. (2006). *Knight, Martyr, Patron Saint and Dragonslayer St. George*. Pocket Essentials.
- Mullen, R. L. (2004). *The Expansion of Christianity A Gazetteer of its First Three Centuries*. Brill.

Özdilek, B. (2022). Lykia Tiyatrolarında Rezerv Oturma Alanlarının Sosyal Statü ile İlişkisi: Prohedria, Bisellium, Pulvinar, Tribunalia, Locus, Sella Curilis. *Cedrus*, 10, 229-258.

Peker, G. (2022). *Lykia – Pamphylia Eyaletinde Sosyal Gruplar ve Dernekler (İS: 1-3. Yüzyıl)* [Unpublished doctoral dissertation]. Akdeniz Üniversitesi

Ramsay, W. M. (1897). *Cities and Bishoprics of Phrygia being an Essay of the Local History of Phrygia from the Earliest Times to the Turkish Conquest I–II*. Calderon Press.

Robert, L. (1955). *Hellenica. Recueil d'épigraphie, de numismatique et d'antiquités grecques*. Librairie Adrien-Maisonneuve

Roselli D. K. (2011). *Theater of the People: Spectators and Society in Ancient Athens*. University of Texas Press. <https://doi.org/10.7560/723948>

Sterrett, J. R. S. (1888a). *The Wolfe Expedition to Asia Minor*. Kessinger Publishing.

Sterrett, J. R. S. (1888b). *An Epigraphical Journey in Asia Minor*. Damrell and Upham.

Tanrıver, Ö. (2016). *Antik Kaynaklar, Epigrafik ve Arkeolojik Veriler Işığında Kuzeybatı Pisidia'nın Kültürel Kimliği* [Unpublished master thesis]. Süleyman Demirel Üniversitesi.

Talloon, P. (2015). *Cult in Pisidia. Religious Practice in Southwestern Asia Minor from Alexander the great to the Rise of Christianity*. Brepols Publishers.

Vermeule, C. (1972). Greek Funerary Animals, 450-300 B. C. *AJA*, 76(1), 49-59

Ünver, G. (2012). *Yazıtlar Işığında Karia Kentlerinde Yurttaşların Kent İmarına Katılımları (MÖ I. – MS III. Yüzyıl)* [Unpublished doctoral dissertation]. Akdeniz Üniversitesi.

Tscheriower, V. (1927). *Die Hellenistischen Staedgründungen von Alexander dem Grossen bis auf die Römerzeit*. Arno Press.

Waelkens, M. (2002). Romanization in the East. A Case Study: Sagalassos and Pisidia. *IstMitt*, 52, 311-368.

Weber, W. (1908). In H. Rott (Ed.), *Kleinasiatische Denkmäler aus Pisidien, Pamphylien, Kappadokien und Lykien*. Dieterich.

Zgusta, L. (1964). *Kleinasiatische Personennamen*. Tschechoslowakischen Akademie der Wissenschaften.

### Webpage on a Website References

URL 1: <https://logeion.uchicago.edu/Prohedria> (15 February 2023)

URL 2: <http://csla.history.ox.ac.uk/record.php?recid=E00923> (15 February 2023).

## The Preliminary Archaeozoological Report of Seleukeia Sidera Ancient City

*Seleukeia Sidera Antik Kenti Arkeozooloji Çalışmaları Ön Raporu*

Can Yümni Gündem\* – Sultan Sarı Ertaşan\*\* – Ebru Gündem\*\*\*

Seleukeia Sidera antik kenti kazıları henüz genç bir kazıdır ve Bilge Hürmüzlü'ün başkanlığında devam etmekte olup, 2022 yılı kazı sezonu ile arkeozoolojik çalışmalar Arkeozoolog Can Yümni Gündem'in gözetimi ve danışmanlığında başlamıştır. Seleukeia Sidera antik kentinin (Bayat Köyü) bulunduğu platoda bereketli topraklara sahip olan stratejik yerleşimlerin günümüzden yaklaşık MÖ 3. bine kadar geriye gittiği tespit edilmiştir.

İki farklı alandan toplamda yaklaşık 9 kilogram hayvan kemik kalıntısı veri bankasına girilmiştir. Bu çalışmada 2020-2021 kazı sezonları sırasında Demirci İşlik Alanı olarak tespit edilen alandan (Y-23 Açması, Pl. 2: 21) çıkarılan fakat mekânın henüz arkeolojik kazıları sona ermediğinden, burada öncü arkeozoolojik sonuçlar tanıtılacaktır.

Tüm bilim dallarında olduğu gibi Arkeozooloji Bilimi'nin de evrensel kabul edilen metotları vardır. Yukarıda tanıtılan temel hedeflere ulaşabilmek için Arkeozooloji Bilimi'nin "Görsel Tanımlama Metotları" kullanılmıştır. Bu metotlar aslında Arkeozooloji Biliminin temel metotları olup, C. Y. Gündem tarafından bir başlık altında toplanmışlardır. Bu metotların kullanılmadığı çalışmaların sonuçları bilim dünyasına yalnız eser miktarda katkı sağlayacaktır (Gündem, 2015; Gündem, 2020).

Arkeolojik kazıların devam ettiği Demirci İşliği'nden (Pl. 2: 21) toplamda yaklaşık 1600 adet hayvan kemik kalıntısı incelenmiş ve bunların yaklaşık ¼'nin boyutlarının küçüklüğü veya tanımlanmasına ışık tutacak anahtar özelliklerin eksikliğinden dolayı türüne tanımlanamayan olarak kaydedilmiştir.

Koyun kemikleri ile keçi kemikleri arasındaki yüksek derecede benzerlik, iskelet kalıntıları tür bazında ayırmayı zorlaştırır ve bu yüzden tanımlanamayan evcil küçükbaş geviş getirenlerin kemikleri OVIS/CAPRA olarak tanımlanarak veri bankasına girilmiştir. OVIS/CAPRA'yı bir hayvan türünü temsil ediyormuş gibi görülemeyeceğinden, "kesin" olarak tanımlanmış koyun kemikleri ile "kesin" olarak tanımlanmış keçi kemiklerinin arasındaki oran hesaplandıktan sonra, bu oran OVIS/CAPRA toplamına uygulanarak tekrar hesaplanmıştır

\* Batman University, Faculty of Arts and Sciences, Department of Archaeology, 720100 Batman/TR, CanYumni.Gundem@batman.edu.tr, ORCID: 0000-0002-6369-0913.

\*\* Batman University, Faculty of Arts and Sciences, Department of Archaeology, 720100 Batman/TR, sltn\_sari@yahoo.com, ORCID: 0000-0003-0584-4125.

\*\*\* Batman University, Faculty of Arts and Sciences, Department of Archaeology, 720100 Batman/TR, ebrualtgundem@gmail.com, ORCID: 0000-0002-1710-0505.

(Gündem, 2019a, p. 33; formül için bkz. Emlük, 2021: Formül 4.1). Seleukeia Sidera'da kesin tanımlanan keçi kalıntısı, kesin olarak tanımlanan koyuna göre ~2,8 oranından daha fazla olup, bu da ağırlıkta kendini ~2.2 gibi bir oranda göstermektedir.

Demirci İşliği'nden tespit edilen hayvan kemik kalıntılarının %95'i evcil (sermaye) hayvan kalıntlarına aitken, geri kalan kısım da yerleşime dışarıdan farklı tafonomik yollar ile gelmiş türlere aittir. Demirci İşliği'nden tespit edilen evcil (sermaye) hayvan kalıntıları aslında arkeolojik dönemine uygun olan ve çiftçinin besleyeceği türlerdir; tavuk, köpek, koyun, keçi, sığır, domuz ve eşektir.

En çok tanımlanan sermaye hayvanına ait kemik kalıntıları keçi ve koyuna aittir. Keçi ve koyun kalıntıları toplamda beslenen hayvanların neredeyse %80'ini oluştururken, onları çok geriden sığır ve domuz kalıntıları izler. Geri kalan sermaye hayvanlarına ait kalıntılara eser miktarda rastlanmıştır ve bu yabani hayvanlar kalıntıları için de geçerlidir.

	Demirci İşliği	Adet	Ağırlık
Genel	Tanımlanan Fauna Kalıntısı	1125	5941
	Tanımlanamayan Fauna Kalıntısı	432	1508
		<b>Adet %</b>	<b>Ağırlık %</b>
Evcil Faunası	Tavuk, GALLUS GALLUS DOMESTICUS	0,4	0,1
	Köpek, CANIS	0,1	0
	Koyun, OVIS	20,5	19,1
	Keçi, CAPRA	57,6	42,2
	Sığır, BOS	11,8	29,5
	Domuz, SUS	5,3	5,1
	Eşek, ASINUS	0,2	0,8
	Equid	0,2	0,3
Yabani Faunası	Tavşan, <i>Lepus europaeus</i>	0,4	0,1
	Kızılgeyik, <i>Cervus elaphus</i>	0,2	0,5
	Alageyik, <i>Dama dama</i>	0,4	0,7
	Kızılgeyik/Alageyik	0,4	0,7
	Diğerleri (Kuş/AVES, Kaplumbağa/TESTUDINES, vb.)	2,5	0,9
		<b>Adet %</b>	<b>Ağırlık %</b>
Toplam %	Tanımlanan Fauna	72,3	79,8
	Tanımlanamayan Fauna	27,7	20,2
	<b>TOPLAM FAUNA</b>	<b>100</b>	<b>100</b>

**Tablo 1.** Demirci İşliği'nden incelenen ve türüne tanımlanan hayvan kalıntıları.

Keçiler, yerleşim ve çevresinde beslenen hayvanların ~2/3'ini oluşturmaktadır ve onu koyunculuk takip ederken, sığır besiciliği beslenen sermaye hayvanlarının 1/10'den biraz daha fazla olup, domuzlar sığırların yarsı kadar bes-

lenmiştir. Arkeozoolojik çalışmalar devam etmekte olup, henüz kesim yaşları ve boyutları hesaplanmayan sermaye hayvanlarının, ilk etapta birincil ürünleri için (eti, derisi, vb.) beslendiklerini düşünmek lazımdır. Et tüketimi için de burada yalnızca Demirci İşliği'nin henüz bitmemiş ön sonuçları yorumlanabilir ve o da burada çalışan/yaşayan insanların tükettikleri her 100 kilogram etin 42,2 kilogramı keçi etiye, 29,5 kilogramı sığır ve 19,1 kilogramı ise koyundur. Beslenen ve tüketilen domuz, genel yelpazenin yalnızca yaklaşık %5'ine yayılmıştır. Az miktarda bulunan tavuk kemikleri, yapı sakınlarının çok az da olsa beyaz et tükettiklerini gösterir. Tüm hayvan kemik koleksiyonundan tanımlanan eser miktarda yabancı hayvan kemikleri, bize tüketilen yabancı hayvan etinin yaklaşık 2,9/100 kilogram olduğunu göstermektedir.

Sermaye hayvanları ağırlıklı olarak keçi ve koyun sürülerinden oluşmakta olup, özellikle keçiler diğer hayvanlara göre büyük sayılarda beslenmiş ve tüketilmiştir. Keçinin, sürü ekonomisinde bu kadar önemli bir rol oynama sebebini birincil olarak çevre faktörlerine bağlamamız gerektiğidir. Seleukeia Sidera antik kentinin içinde bulunduğu doğal ortamda dağlık, sarp ve ormanlık alanlar öne çıkmaktadır ve bu coğrafi özellikler keçi besiciliğini makul ve kolaylaştıran faktörlerdir. Tabii buna bağlı olarak keçi besiciliğinin getirisi et, protein değeri yüksek süt ve tiftik olacaktır. Kentin etrafındaki düzlük ve eğimi çok dik olmayan tepelik alanlar koyun ve sığırların otlamalarına uygun alanlar yaratmaktadır.

Elimizdeki incelenen arkeozoolojik malzemedan yola çıkarak, Demirci İşliği'nden çıkarılan hayvan kemik kalıntılarının bir işletme menüsü olarak düşünmek gerekmektedir ve işte belki bu yüzdendir ki, avlanmaya vakti olmayan çalışanların işletmesinden av hayvanlarına ait kalıntılara çok az rastlanmış ve belki çalışanlar pazarda en çok bulunan keçi etine eğilim göstermişlerdir. Atgillere ait kalıntılar bize insanların iş yükünü azaltmak için beslendiklerini göstermektedir.

Geyik kalıntıları, bize bölgenin o dönemlerde içerisinde açıklık ile bataklık/çamur alanların bulunduğu ormanları işaret etmektedir. Bugüne kadar yapılan arkeozoolojik çalışmalarda çok az av hayvanına rastlanmasının sebebi belki de tam bir ticari ve üretim merkezi olan Seleukeia Sidera antik kentinde yaşayan sakınların av aktivesi için yeterli zamanları olmadığını gösterir.

Demirci İşliği'nden çıkarılan hayvan kalıntıları içinde yoğun şekilde boynuzlara rastlanmıştır. Tanımlanan boynuzların çoğu keçi ve koyunlara ait olup, bazılarının üzerinde satır ve kesik izlerine rastlanmıştır. Bu buluntu grubu bize burada bulunan boynuzların bir kısmının bitmemiş ürünlerin hammaddesi olduğunu göstermektedir. Olasılıkla bitmiş boynuzlar, bıçak veya benzer aletlere kabza olarak monte edilip yeni sahiplerine satılmışken, bizim elimizde olanlar hammadde veya bitmemiş kategorisindedir. Aletlerin, demir aksamının ve de ona bağlı kabzalarının son halinin verildiği bu yer aslında üreticiden halka satış veya belki de toptan satış yapılan bir işletme olarak düşünülmelidir.

Arkeozoolojik çalışmalar ilerledikçe, Seleukeia Sidera antik kentinin sonuçları diğer Anadolu'nun Akdeniz kıyılarındaki ve dağlık kesimlerindeki Roma Dönemi yerleşimlerinin sonuçları ile karşılaştırılıp, daha geniş alanlarda daha sağlıklı sonuçlara varıp, Doğu Akdeniz'de Roma Dönemi hayvana dayalı ekonomi ile topluma olası etkileri araştırılacak ve tartışılacaktır.

## **Introduction**

Excavations at the Seleukeia Sidera Ancient City are quite recent and led by Bilge Hürmüzlü. The archaeozoological study of the faunal remains yielded by the excavations at Seleukeia Sidera started during the 2022 excavation season, under the supervision of archaeozoologist Can Yümni Gündem. The strategic settlements were determined on the plateau with fertile lands where the Ancient City of Seleukeia Sidera (Bayat Village) are located which are dated to 3000 BC. Early Chalcolithic and Early Bronze Age ceramics, obsidian fragments and traces of settlement were found in Kızılhöyük, while Early Bronze Age (EBA) and Roman Imperial period materials were found in Demirci and Gündürle Mounds. Small-scale settlements belonging to the Iron Age, Hellenistic and Roman Imperial periods in Atabey District should actually be rural (or satellite) settlements within the borders of Seleukeia Sidera (Hürmüzlü, 2019; Hürmüzlü et al., 2022, pp. 219 – 222).

Claudius Ptolemaios, one of the ancient writers of the Hellenistic period, refers to the settlement as “Seleukeia Pisidias” (Σελεύκεια Πισιδίας), that is, Seleukeia of Pisidia. Based on the inscriptions and the coins, the city gained importance during the reign of Roman Emperor Claudius I (41-54 AD), and the city's name was changed to “Klaudioseleukeia” after the inscriptions<sup>4</sup>. In the light of the archaeological excavations carried out today indicate the reconstruction activities, which were carried out by the Roman Empire in the Province of Asia in the 2<sup>nd</sup> century AD, were also carried out in the city of Seleukeia Sidera. In the 6<sup>th</sup> century AD, Hierocles mentions the name of the city as Seleucia Sidera (Σελεύκεια ἡ σιδηρᾶ) and “sidera” means “iron” (Hürmüzlü et al., 2022, p. 210).

## **Materials and Methods**

As in all branches of science, Archaeozoology has universally accepted methods. The “Visual Identification Methods”<sup>5</sup> of the discipline were used to achieve the basic aims introduced above (Gündem, 2015; Gündem, 2020). Animal bone remains are examined by archaeozoological experts and recorded in the databases. If possible, species (taxonomy) and anatomical identification (skeletal element) of each animal bone fragment are determined. The degree of completeness, weight, slaughter age of the individual, human modifications

---

4 For detailed history of the settlement, see, in this volume, Hürmüzlü & Sönmez, The Research History of Seleukeia Sidera.

5 Common title where different steps of basic archaeozoology methods are collected after Gündem.

(butchery, burns, etc.) and metric measurements of the identified archaeological animal bone remains are recorded. These excavated faunal remains not only show us the animal species that were kept in the settlement, but also help to identify the species brought from outside the settlement<sup>6</sup>.

Since the bone weight is proportional to the meat carried by the bone, the weight of the examined bone is recorded after weighing each fragment on a digital scale. In order to achieve sound results, each animal bone fragment must be weighed. These data give us the most important information on the scale and variety of meat consumption in local society (Uerpmann, 1973; Gündem, 2019b; Gündem, 2020).

Information on the slaughter age of the livestock is calculated and recorded on the basis of the dental wear and closure of the joints. While the aging of sheep and goat bones according to joint condition and tooth wear was based on Zeder's study (2006) and Gündem's doctoral thesis (2010a). Habermehl's study (1975) and Gündem's doctoral thesis (2010a) were used for determining the killing age of cattle and pig bone remains. Slaughter ages of individuals give us ideas about the function of livestock in the agricultural economy, general livestock management and possible goals<sup>7</sup>.

In archaeological excavations, animal bones are often unearthed in an incomplete form, so there are very few measurable bones. Measuring animal bones can shed light on the periodic physical development of the species (especially during domestication) and indicate whether a species has been replaced by a different genus introduced from other regions (Gündem, 2010b). The methodology used for the measurements of bones was published by von den Driesh (1976) and her study is used as a leading guide by archaeozoologists around the world.

Pathological traces detected on animal bones and teeth are recorded and photographed; these traces show us the diseases and living/working conditions of animals during their lifetime. These traces actually define the relationship between humans and their livestock in the strongest way (Gündem, 2010a; 2015; 2020).

The traces occurring on the skeletal elements during and after the killing of the animals also give us important information about the rituals and butchery habits of societies, and how they preferred to consume meat (Gündem, 2015; 2020).

Given the recent start of the studies, the information presented here is based on a limited set of archaeozoological material. The material was studied under the supervision of Batman University faculty member Can Yümni Gündem, with the contributions of PhD students Sultan Sari Ertaştan and Ebru Gündem.

---

6 Schmid, 1972; Hillson, 2016; Fisher, 1995; O'Connor, 2000; Reitz & Wing, 2008; Peres, 2010; Gündem, 2020.

7 Uerpmann, 1971; Uerpmann, 1973; Deniz & Payne, 1982; Hillson, 1986; Gündem, 2020.

Süleyman Demirel University undergraduate student Mustafa Sarişahin took his first theoretical and practical lessons on Archaeozoology during the studies carried out in the excavation house.

A total of approximately 9 kg of animal remains from two different trenches were analyzed and entered into the database. In this study, the archeozoological results obtained from the area identified as “Blacksmith Workshop Area” (Pl. 2: 21; Trench Y-23) excavated during the 2020-2022 seasons will be presented. The first goal of this study is to understand the general fauna and the diet of the people who lived in the settlement<sup>8</sup>.

### Composition of the Archeozoological Material

A total of approximately 1600 animal remains were recorded from the Blacksmith’s Workshop, where archaeological excavations continue. About ¼ of them were recorded as unidentified due to their small size or lack of key features.

		Blacksmith Workshop	Number	Weight
General	Identified Faunal Remains		1125	5941
	Unidentified Faunal Remains		432	1508
			Number %	Weight %
Domestic Animals	Chicken, GALLUS GALLUS DOMESTICUS		0,4	0,1
	Dog, CANIS		0,1	0
	Sheep, OVIS		20,5	19,1
	Goat, CAPRA		57,6	42,2
	Cattle, BOS		11,8	29,5
	Pig, SUS		5,3	5,1
	Donkey, ASINUS		0,2	0,8
	Equid		0,2	0,3
Wild Animals	Hare, <i>Lepus europaeus</i>		0,4	0,1
	Red Deer, <i>Cervus elaphus</i>		0,2	0,5
	Fallow Deer, <i>Dama dama</i>		0,4	0,7
	Red/Fallow		0,4	0,7
	Others (Bird/AVES, Turtle/TESTUDINES, vb.)		2,5	0,9
			Number %	Weight %
Total %	Identified Faunal Remains		72,3	79,8
	Unidentified Faunal Remains		27,7	20,2
	<b>TOTAL</b>		<b>100</b>	<b>100</b>

**Table 1.** Animal remains identified from the Blacksmith’s Workshop.

8 For the workshop, see, in this volume, Hürmüzlü et al., Production and Economy in Seleukeia Sidera in the Roman Imperial Period: Blacksmithing Practices.

The high similarity between sheep bones and goat bones makes it difficult to distinguish skeletal remains by species. In addition, the strong fragmentation of the bones of domestic ovine ruminants makes it impossible for us to separate the bones of sheep from goats. Well-known distinctive parts of the bones are often damaged or no longer present on the bone, and thus the bones of unidentified domestic ovine ruminants were entered in the database as OVIS/CAPRA. This group constitutes a large part of the bone assemblage, both in number and weight. OVIS/CAPRA cannot be seen as representing an animal species. Therefore, after calculating the ratio between “definitive” sheep bones and “definitive” goat bones, this ratio was applied to the total OVIS/CAPRA and recalculated. This new calculation was used in the division of “Sheep and Goat” in terms of quantity and weight in order to obtain more reliable data from the remains entered in the database in Seleukeia Sidera (Gündem, 2019a, p. 33; for the formula, Emlük, 2021: Formula 4.1). With this new calculation, the percentage of definitely identified goat remains in Seleukeia Sidera are more than 2.8 times the percentage of definitively identified sheep remains; in weight this ratio is 2.2 to 1.

While 95% of the faunal remains found in Blacksmith’s Workshop belong to domestic animals, the rest belong to species that came from outside the settlement, via different taphonomic routes. Livestock remains found in the Blacksmith’s Workshop are chicken, dog, sheep, goat, cattle, pig and donkey.

The bone remains of the most identified livestock are ruminant ovines, i.e. goats and sheep. Goat and sheep remains made up almost 80% of the total livestock, leaving cattle and pig remains far behind. Remains of other livestock were found in small amounts, and this is also true for the remains of wild animals.

### **Herding and Meat Consumption Economy in the City**

The herding economy of the settlement is clearly based on small ruminants; especially goats make up ~2/3 of the animals kept in and around the city, followed by sheep, while cattle is slightly more than 1/10 of the kept livestock and pigs made up only half as much as cattle.

Although archeozoological studies are continuing, it can be surmised that the livestock, of which the slaughter age and size have not been calculated yet, were mainly kept for their primary products (meat, skin, etc.). For meat consumption, only the preliminary results of the Blacksmith Workshop can be interpreted here; while 42.2 kg of every 100 kg of meat consumed by the workers/inhabitants was goat meat, 29.5 kg was beef and 19.1 kg was mutton. Pork consumption accounted for only about 5% of the overall spectrum. The small amounts of chicken bones indicate that people consumed very little white meat. The relatively few wild animal bones show us that the amount of wild animal meat consumed was approximately 2.9/100 kg.

## **Conclusion**

In light of the archeozoological studies carried out so far at Seleukeia Sidera, it is not possible yet to reach clear and sound results. Therefore, this study should be considered as a preliminary report and an ongoing project of a context archaeological.

Goats and sheep were clearly predominant in the local livestock and especially goats were kept and consumed in large quantity compared to other animals. The reason why goat played such an important role in the pastoral economy was primarily due to environmental factors. The natural environment of the territory of Seleukeia Sidera consists to a large extent of mountainous, steep, and forested areas. These geographical features were the main factors that made goat breeding reasonable, profitable, and easy. Accordingly, the gains of goat breeding will be meat, milk with high protein value, and mohair. The plain and hilly areas immediately around the city, on the other hand, provide areas suitable for sheep and cattle grazing. 1/3 of the red meat consumed in the area of the Blacksmith's Workshop was beef and 1/5 was mutton.

Based on the examined archeozoological material, the animal remains from the Blacksmith's Workshop can be considered as kitchen waste from a working place. Perhaps for this reason, the remains of game from the workshop are few, as the employees will not have had the time to hunt. Therefore, the employees tended to use goat meat since which it was the most abundant on the local market. It would be a false inference to claim that the Equine remains belonged to this workshop, but ultimately it shows us that people kept them in the settlement to reduce their workload.

Deer remains indicate open forests in the region, in which marshy areas were present at that time. The reason why few game remains have been found in the archeozoological material is undoubtedly due to the low amount of material studied and the limited archaeological areas excavated so far. At the same time, it could indicate that the inhabitants of the ancient city, which was a commercial and production centre, did not have enough time for hunting activities.

Horns were prominent among the animal remains unearthed at the Blacksmith's Workshop. Most of the identified horns belong to goat and sheep, and some of them have chop and cut marks. These remains show us that some of these horns were raw material for worked bone objects. The finished horns were likely to be mounted on knives or similar tools as hilts. This location, where the tools, iron parts and the handles attached to it were finalized, should be considered as a workshop, where the objects were sold from the manufacturer to the public or maybe to wholesalers.

Considering that the archeozoological studies at Seleukeia are still in an early stage, future research will either reinforce the preliminary results of this study or lead in another direction. In addition to archaeometrical study of

the faunal remains, one of the important research topics will be the seasonal movement of goats and other herds, and whether this movement was vertical or horizontal.

As archeozoological studies progress, the results of Seleukeia Sidera will be compared with those of other Roman Imperial period settlements on the Mediterranean coasts and in the mountainous parts of Anatolia. These studies will not only help us to achieve better and more sound results, but also shed light on to the animal-based economy of the Roman Imperial period and its possible effects on society in the Eastern Mediterranean.

### Bibliography

Deniz, E. & Payne, S. (1982). Eruption and wear in the mandibular dentition as a guide to ageing Turkish Angora goats. In B. Wilson, C. Grigson, & S. Payne (Eds.), *Ageing and Sexing Animal Bones from Archaeological Sites* (pp. 155-205). British Archaeological Reports Oxford Ltd.

Emlük, E. (2021). *Arkeozoolojik Buluntular Işığında Küllioba İlk Tunç III Çukurları* [Unpublished master thesis]. Batman Üniversitesi.

Fisher, J. W. (1995). Bone surface modifications in zooarchaeology. *Journal of Archaeological Method and Theory*, 2(1), 7-68.

Gündem, C. Y. (2010a). *Animal based economy in Troia and the Troas during the maritime Troy culture (c. 3000-2200 BC.) and a general summary for west Anatolia* [Unpublished Doctoral dissertation]. Universität Tübingen.

Gündem, C. Y. (2010b). Animal Based Subsistence Economy of Emar during the Bronze Age. In U. Finkbeiner (Ed.), *Emar after the Closure of the Tabqa Dam. The Syrian German Excavations 1996-2002. Volume I: Late Roman and Medieval Cemeteries and Environmental Studies* (pp. 125-176). Brepols.

Gündem, C. Y. (2015). Arkeozooloji Biliminin Arkeoloji Dünyasındaki Önemi Bölüm I. *Batman Üniversitesi Yaşam Bilimleri Dergisi*, 5(1), 125-138.

Gündem, C. Y. (2019a). MÖ 7. Binyılda Tepecik-Çiftlik Höyük'te Hayvan Ekonomisinin Gelişimi ve Evcil Sığırın İç Anadolu Platosu'nda Ortaya Çıkışı. *TÜBA-AR Türkiye Bilimler Akademisi Arkeoloji Dergisi*, 25, 27-45.

Gündem, C. Y. (2019b). Derekutuğun Yerleşimi Arkeozoolojik Çalışmaları Işığında Hayvan Kalıntılarının Tartılmasının Önemi. *Antropoloji*, 38, 118-125.

Gündem, C. Y. (2020). *Uzun Yürüyüş: Arkeolojik Hayvan Kalıntılarının Hikâyesi Arkeozooloji Bilimi Nedir?*. Ege Yayınları.

Habermehl, K. H. (1975). *Altersbestimmung bei Haus-und Labortieren*. Paul Parey.

Hillson, S. (1986). Teeth and age. In S. Hilson (Ed.), *Teeth* (pp. 176-230). Cambridge University Press. <https://doi.org/10.1017/CBO9780511614477>

- Hillson, S. (2016). *Mammal Bones and Teeth: An Introductory Guide to Methods of Identification*. Routledge.
- Hürmüzlü, B. (2019). Seleukeia Sidera Antik Kenti. B. Hürmüzlü, H. Köker & A. Mörel (Eds.), *Antik Dönemden Günümüze Isparta'nın Kültürel Mirası* (pp. 100-103). Süleyman Demirel University Press.
- Hürmüzlü, B., Sönmez, B., Mörel, A., Kılınc, G., & Uslu, H. (2022). Paleo-Kuleönü Gölü Çevresi Antik Dönem Yerleşimleri. In Ç. Şenkul & B. Hürmüzlü (Eds.), *Doğal ve Kültürel Mirasın Paleo-Kuleönü Gölü'ndeki İzleri 50 Bin Yıllık Öyküsü* (pp. 208-247). Süleyman Demirel Üniversitesi Yayınları.
- O'Connor, T. (2000). *The Archaeology of animal bones* Sutton Publishing. The History Press.
- Peres, T. M. (2010). Methodological issues in zooarchaeology. In A. M. VanDerwarker & T. M. Peres (Eds.), *Integrating zooarchaeology and paleoethnobotany: A consideration of issues, methods, and cases* (pp. 15-36). Springer.
- Reitz, E. J. & Wing, E. S. (2008). *Zooarchaeology*. Cambridge University Press.
- Schmid, E. (1972). *Atlas of Animal Bones: For Prehistorians, Archaeologists and Quaternary Geologists*. Elsevier Publishing Company.
- Uerpmann, H. P. (1971). Die Tierknochenfunde aus der Talayot- Siedlung von S'illot (San Lorenzo/Mallorca). *Studien über frühe Tierknochenfunde von der Iberischen Halbinsel* 2. Inst. f. Palaeoanatomie, Domestikationsforschung u. Geschichte d. Tiermedizin d. Univ. München.
- Uerpmann, H. P. (1973). Animal bone finds and economic archaeology: a critical study of 'osteological' method. *World Archaeology*, 4(3), 307-322.
- Von den Driesch, A. (1976). *A Guide to the Measurement of Animal Bones from Archaeological Sites*. Harvard University Press.
- Zeder, M. A. (2006). Reconciling rates of long bone fusion and tooth eruption and wear in sheep (Ovis) and goat (Capra). In D. Ruscillo, D. (Ed.), *Ageing and Sexing Animals from Archaeological Sites* (pp. 87-118). Oxbow Press.