ARCHAEOLOGY ACROSS FRONTIERS AND BORDERLANDS

FRAGMENTATION AND CONNECTIVITY
IN THE NORTH AEGEAN AND THE CENTRAL BALKANS
FROM THE BRONZE AGE TO THE IRON AGE

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SONDERDRUCK

AUSTRIAN
ACADEMY
OF SCIENCES
PRESS

Stefanos Gimatzidis – Magda Pieniążek – Sila Mangaloğlu-Votruba (Eds.)
Archaeology Across Frontiers and Borderlands
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from the Bronze Age to the Iron Age

Österreichische Akademie der Wissenschaften
Philosophisch-historische Klasse

Oriental and European Archaeology

Volume 9

Series Editor: Barbara Horejs

Publications Coordinator: Ulrike Schuh

Stefanos Gimatzidis – Magda Pieniążek –
Sila Mangaloğlu-Votruba (Eds.)

Archaeology Across Frontiers and Borderlands

**Fragmentation and Connectivity
in the North Aegean and the Central Balkans
from the Bronze Age to the Iron Age**

VERLAG DER
ÖSTERREICHISCHEN
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WISSENSCHAFTEN

Accepted by the Publication Committee of the Division of Humanities
and the Social Sciences of the Austrian Academy of Sciences:
Michael Alram, Bert Fragner, Hermann Hunger, Sigrid Jalkotzy-Deger, Brigitte Mazohl, Franz Rainer,
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This publication has undergone the process of anonymous, international peer review.
The paper used for this publication was made from chlorite-free bleached cellulose
and is aging-resistant and free of acidifying substances.

English language editing: Kelly Gillikin
Graphics and layout: María Antonia Negrete Martínez, Angela Schwab
Coverdesign: Mario Börner, Angela Schwab

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ISBN: 978-3-7001-8029-6
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Austrian Academy of Sciences, Vienna

Printing: Prime Rate kft., Budapest
Printed and bound in the EU

<https://epub.oeaw.ac.at/8029-6>
<https://verlag.oeaw.ac.at>

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Iron Age Cultural Interactions, Plant Subsistence and Land Use in Southeastern Europe Inferred from Archaeobotanical Evidence of Greece and Bulgaria

*Soultana Maria Valamoti*¹ – *Eugenia Gkatzogia*² – *Ivanka Hristova*³ – *Elena Marinova*⁴

Abstract: This paper brings together old and new archaeobotanical evidence from 20 archaeological sites from Iron Age contexts spanning from the end of the 2nd millennium BC up to the end of the 4th century BC in northern Greece and southern Bulgaria. The sites are Karabournaki, Thessaloniki Toumba and Polichni in central Macedonia in northern Greece and Bresto, Malenovo, Dolno Cherkovishte, Kapitan Andreevo, Svilengrad and Dana Bunar in the region of south Bulgaria. A variety of cereals and pulses, already cultivated since Neolithic and Bronze Age times, are identified as potential culinary ingredients in both regions, yet the list of crops from northern Greece includes a wider diversity than that from the Bulgarian sites, especially regarding the fruit remains. Continuities and discontinuities of plant ingredients in space and time are discussed in relation to potential taphonomic biases. This new evidence from the region indicates that during the Iron Age this part of southeastern Europe shared common traditions in terms of the plant species consumed, with some differences already visible during the Late Bronze Age.

Keywords: archaeobotany, culinary choice, Iron Age cuisine, arboriculture, plant food imports, Aegean, Thrace

Introduction

Iron Age agriculture in southeastern Europe has been little explored – unlike other parts of Europe – and likewise little is known about the area's plant economy and cuisine in terms of its plant ingredients. Cuisine can be revealing for identities, contacts and differentiation within and among communities. Thus, we will attempt an approach of regional culinary trajectories within the wider context of southeastern Europe – in particular, northern Greece and Bulgaria – based on a recently available archaeobotanical record. We will present and discuss the results of 20 Iron Age sites in northern Greece and Bulgaria. Eight of the sites are located in northern Greece, three unpublished⁵ and five published,⁶ and 12 sites are in Bulgaria, five⁷ in process of publication and eight⁸ already published (Fig. 1). The northern Greek sites discussed in this presentation are located in the region of central Macedonia. The Bulgarian sites discussed here are situated in the southern part of the country – ten in the Thracian plain and two in the Strymon/Struma valley.

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⁵ The three unpublished sites are currently under study as part of E. Gkatzogia's PhD thesis, see Gkatzogia – Valamoti 2013 and Valamoti – Gatzogia 2010 for preliminary results.

⁶ Published results in the area of northern Greece come from the following five sites: Kastanas: Kroll 1983. Agios Mamas: Becker – Kroll 2008. Assiros: Halstead – Jones 1980. Krania Pierias: Margaritis 2007. Sindos/Anchialos: studied by M. Mangafa, in Tiverios 1996.

⁷ Hristova et al. 2017.

⁸ The other published sites from Bulgaria are the following: Bresto: Athanassov et al. 2015. Koprivlen: Popova 2005b. Malko Tranovo: Tonkova – Bozkova 2008. Svilengrad: Popova 2006; Popova 2008. Kumsala: Tonkova – Savatinov 2001. Dvora: Tonkova – Savatinov 2001. Vratitsa and Krastina: Popova 2005a.

Fig. 1 Map of northern Greece and Bulgaria showing location of twenty Iron Age archaeobotanical assemblages discussed in the text (modified after Hristova et al. 2017)

These 20 sites span from the 11th to 4th centuries BC. In southern Greece, the equivalent centuries correspond to the Protogeometric, Geometric, Archaic and Classical periods, during which the evolution of city-states is in progress. The evidence from our study area will be discussed within the wider context of southeastern Europe, including the Aegean, in order to explore the cultural interactions, innovations, and regional and supraregional patterns of the Iron Age plant economy.

Iron Age Habitation in Southeastern Europe

Settlement pattern in the study region follows similar trajectories towards the development of settlement hierarchy and population increase, although regional differences in types of habitation and intra-settlement spatial organisation are observed. In northern Greece, Early Iron Age habitation is characterised, from the 10th century BC onwards and especially during the 8th century BC, by demographic increase expressed in the establishment of new extended settlements, or the horizontal expansion of pre-existing Late Bronze Age tells in a settlement type known as ‘trapeza’/table, some of which formed substantial areas of occupation (Fig. 2).⁹ Small, flat agricultural sites near and around the tables and the development of settlements on hilly/mountain areas form new elements of habitation of the landscape.¹⁰ A number of settlements in central Macedonia in northern Greece might have formed loose aggregations sharing common identities and a sense of belonging.¹¹ This was probably the case with the ‘city’ of Thermi in the Thermaic Gulf, where several settlements developed to be later unified in the 4th century BC by Kassander in the city of Thessaloniki.¹² To this group of settlements probably belonged the sites discussed here in detail: Karabournaki, Thessaloniki Toumba and Polichni.

During the Iron Age, organised settlement planning is observed with discrete spaces for domestic, industrial and communal activities showing well-organised communities.¹³

⁹ Andreou – Kotsakis 1986; Andreou – Kotsakis 1994; Soueref 2004; Soueref 2009; Koukouli-Christanthaki 2014; Andreou forthcoming.

¹⁰ Kotsakis 1989; Kotsakis – Andreou 1992; Wardle 1997; Soueref 2004.

¹¹ E.g. Wardle 1997; Soueref 2004; Kotsakis 2008; Andreou forthcoming.

¹² Tiverios 1997; Soueref 2003; Soueref 2007.

¹³ Hänsel 1989; Andreou – Kotsakis 1996, 370–371; Soueref 2004; Soueref 2007; Wardle – Wardle 2007; Soueref 2009; Koukouli-Christanthaki 2014, 163.

Fig. 2 Photo of the prehistoric settlement of Thessaloniki Toumba: arrow shows the tell part of the settlement and encircled area corresponds to the expansion in the form of a 'trapeza'/table (Site photograph after Rey 1917–1919)

Between the 8th and 6th centuries BC, slow socio-economic processes, already visible during the Late Bronze Age – e.g. clusters of settlements with internal hierarchical systems, led to an increased inequality and social stratification forming afterwards, in the Late Iron Age, 'state' institutions framed by local authorities and regional principalities that controlled wealth and mobilised labour and resources.¹⁴ At the same time, there is increasing evidence for contacts with the rest of the Mediterranean, visible in ceramic imports and the foundation of colonies by southern groups in the coastal parts of the region during the 8th century BC.¹⁵

In Bulgaria, based on limited excavation data, settlement pattern is characterised by increasing settlement density from the start of the Early Iron Age (11th–10th century BC) and dominated mainly by short-lived settlements in southern Bulgaria. The settlement pattern in the Early Iron Age on the territory of Bulgaria shows a hierarchy among the settlements (main settlements and satellites), and most probably specialisation in different fields of economic activity (metallurgy, ceramic production, etc.), although agriculture and stock-breeding were the main occupation of the prehistoric population of Bulgaria. Transhumant economy, based on stock-breeding with seasonal movements, may well have been practised.¹⁶ Architecture is represented mainly by 'meagre dwellings'. Social stratification is a slow process, following the Late Bronze Age traditions it reaches its peak in the middle of the 1st millennium BC. Sites on high peaks were, on rare occasions, protected by defensive walls of large stones. During the later Iron Age centuries (7th–6th century BC), the first fortified, bigger settlements and cities emerged.¹⁷ After the end of the 8th century

¹⁴ Kotsakis – Andreou 1992; Andreou 2001; Soueref 2004; Kotsakis 2008; Andreou forthcoming.

¹⁵ E.g. Tiverios 1999; Tiverios 2004; Tiverios 2007; Tiverios 2009a; Gimatzidis 2011a; Gimatzidis 2011b; Koukouli-Christanthaki 2014.

¹⁶ Alexandrov – Nikov 2007; Popov 2007.

¹⁷ Alexandrov – Nikov 2007; Athanassov – Krauß 2015; Athanassov – Stockhammer in this volume.

BC, contacts with adjacent regions (Near East and the Aegean) could be clearly traced thanks to finds of imported objects (ceramics, jewellery). The foundation of Greek colonies, mainly on the Black sea coast (end of the 8th to the 6th century BC), intensifies the process of the Greek influence on the Iron Age cultures of Bulgaria. In both Greece and Bulgaria, Iron Age cemeteries were organised in tumuli, representing in some cases ‘clan’ burials, as well as in flat cemeteries, where a variability in burial practice and wealth is observed.¹⁸

The Archaeological Sites

The eight sites from northern Greece discussed here are Kastanas, Nea Philadelphia, Agios Mamas, Karabournaki, Krania, Sindos, Polichni and Thessaloniki Toumba. Of these, Karabournaki, Polichini and Thessaloniki Toumba are presented here in more detail. Karabournaki during its Iron Age occupation phases, succeeding perhaps a Bronze Age occupation for which little is known, is situated on the coast of the Thermaic Gulf in the north Aegean. It is a settlement of an indigenous population with no evidence for being a colony or a colonial trade station. Yet, the numerous imports suggest that it was a cosmopolitan port during the Iron Age, where amphorae and other pottery types from the eastern Aegean indicate imports of wine and olive oil as well as drinking sets. The site comprises a network of dug out pits – some of which are found in pairs, sometimes with an opening connecting each other. Pits form the main Iron Age architectural feature of the site and contain a wide range of finds, including pottery, bones, destroyed cooking facilities, plant remains, the remains of pottery making activities, etc. Other settlement remains are the rectangular and stone built houses that were partially preserved and dated to the Archaic period.¹⁹ Thessaloniki Toumba, also considered a ‘native’ site, during the Iron Age evolved into a *trapeza* site, while occupation on top of the Bronze Age tell continued.²⁰ Polichni, to the north/northwest of both Toumba and Karabournaki, is yet one more of the many Iron Age sites situated around the Thermaic Gulf.²¹ This site, like Toumba and Karabournaki, was also a native settlement that, unlike Sindos further to the west,²² had restricted contacts with the central and south Aegean during the 8th century BC. Twelve archaeological sites from Bulgaria are considered in the current paper. With the exception of Bresto and Koprivlen, all other sites are field pit sites located in the Thracian plain of southeastern Bulgaria. Bresto is situated in the Struma Valley and Koprivlen in Mesta Valley in southwestern Bulgaria. Their time span is in the interval between the 12th to the 1st half of the 4th century BC.²³ The Iron Age pit fields are one of the most common traces of human occupation in the Thracian plain and one of the main sources of archaeological information for that period. The pit-field sites differ in the number of pits, their size and shape. Some of the pits are quite rich in archaeological and archaeobiological (botanical, zoological, and in some cases anthropological) material, which gives reason to some archaeologists to connect the pits with rituals²⁴ or interpret them as storage facilities. At the same time, numerous pits contain materials that could be interpreted as refuse remains²⁵ and could even be related with the disposal of refuse from specific activities, like cooking.²⁶

¹⁸ Wardle 1997; Gergova 2007; Kisiov 2009; Koukouli-Chrysanthaki 2014.

¹⁹ E.g. Tiverios 2009b; Tsiafakis 2010.

²⁰ For Thessaloniki Toumba see Andreou – Efkleidou 2007. For Thessaloniki *trapeza*/table see Soueref 2001.

²¹ Karliambas et al. 2009.

²² Tiverios 2009c; Gimatzidis 2010.

²³ Athanassov – Stockhammer in this volume.

²⁴ Georgieva 1999; Tonkova – Savatinov 2001.

²⁵ Popov 2007.

²⁶ For a recent interpretation of the contents of an Iron Age pit in northern Greece see Tiverios et al. 2013.

Iron Age Vegetation in Southeastern Europe: the Pollen Record

Pollen diagrams from the region under study indicate that by the 10th century BC, deforestation, already gradually visible during the course of the Late Bronze Age, was characterising significant parts of the landscape.²⁷ The dense mixed oak forests of the Neolithic were long gone as a result of diversification and intensification of agropastoral activity and a population increase, which is attested by the proliferation of settlements as mentioned above in both northern Greece and Bulgaria. More specifically, during the Iron Age, anthropogenic indicators concern mainly pasture and it seems that the upper tree line was artificially lowered in order to extend the high mountain pastureland.²⁸ Around 500–400 BC, human impact on the vegetation of south Bulgaria becomes clearly pronounced and continuous on a large scale; this is also visible in adjacent areas.²⁹ Sweet chestnut (*Castanea sativa*), walnut (*Juglans regia*) and plane tree (*Platanus orientalis*) were introduced into northern Greece around 3000 BP³⁰ and there is positive evidence for their presence in Bulgaria, too, around the same time. Recent palynological evidence indicates that chestnut (*Castanea sativa*) and walnut (*Juglans regia*) survived the glaciation in some Bulgarian mountains, expanding and becoming more prominent in the pollen records around 3000 BP due to human agency and presumably new subsistence strategies involving expansion into mountainous terrain and a gradual introduction of arboriculture.³¹

High percentages of *Vitis*-pollen in northern Greece indicate its systematic cultivation at the beginning of the 1st millennium BC.³² Its presence, however, fluctuates from region to region.³³ In Bulgaria, *Vitis*-pollen from the Thracian plain shows peaks from the Late Bronze Age onwards,³⁴ which could also be a sign of grapevine cultivation in the Thracian plain.

Plant Macro-Remains from Iron Age Settlements in Southeastern Europe

The available archaeobotanical record from the 20 sites from Iron Age Greece and Bulgaria offers an opportunity to investigate, for the first time, crop cultivation, arboriculture and the use of wild plants together with trends over time, regional differences and similarities in agriculture and plant food ingredients.

Cereals

The evidence on cereals for the Greek sites shows that the most common species is six-row hulled barley found at all eight sites in many samples, often as pure concentrations of grain. Free-threshing wheat (*Triticum aestivum/durum*), is represented mainly by grains and less so by rachis internodes and is also encountered at many of the sites under study. The latter has not been found as a pure crop and is usually found mixed with grains of other cereals, with barley for example, as is the case with the pit fills at Karabournaki. Among glume wheats, important, especially at Karabournaki, is einkorn (*T. monococcum*), which is represented mainly by glume bases

²⁷ For Bulgaria see: e.g. Tonkov et al. 2008; Marinova et al. 2012; Connor et al. 2013. For southern Greece see: e.g. Kouli 2012; Lazarova et al. 2012. For northern Greece see: e.g. Bottema 1974; Athanasiadis 1975; Athanasiadis 1988; Athanasiadis et al. 1998.

²⁸ For Bulgaria see: Marinova et al. 2012. For northern Greece see: Athanasiadis 1975; Bottema 1982; Athanasiadis 1988.

²⁹ Athanasiadis, 1975; Gerasimidis – Athanasiadis 1995, 113; Athanasiadis et al. 1998, 173; Marinova et al. 2012.

³⁰ Bottema – Woldring 1996, 243, 257, 260.

³¹ Marinova et al. 2012; Tonkov – Possnert 2014.

³² Bottema 1982, 257–289; Bottema – Woldring 1996, 260; Athanasiadis et al. 1998, 175; Bottema 2000, 41.

³³ Athanasiadis et al. 1998.

³⁴ Chapman et al. 2009.

Fig. 3 Einkorn wheat glume bases and spikelet forks from Karabournaki (7th–6th century BC) (© S. M. Valamoti and E. Gkatzogia)

(Fig. 3), for sure a crop in this site. At Polichni, emmer prevails; it is found both as grain and chaff but always, however, in small numbers, mixed with other crops. New glume wheat, spelt (*T. spelta*) and two-row hulled barley are present only in very low numbers, and therefore their significance as crops cannot be evaluated on present evidence. Millet, a well-known Bronze Age crop for both study regions,³⁵ is not so frequent at Iron Age sites from Greece, yet some sites have yielded rich caches, as is the case at Kastanas, Kalapodi³⁶ and Anchialos.³⁷ Cereals constitute the most prominent crop category among the archaeobotanical assemblages

from the Bulgarian sites. Most popular among them in all sites are the hulled wheats (especially einkorn), followed by barley and millet (*Panicum miliaceum*), whose presence in Iron Age Bulgaria as a crop is clearly indicated.

The processing of cereals/pulses for food is evidenced from Bulgaria. A few porridge/bread like fragments with preserved cereal pericarp and an amorphous charred matter resembling bread/gruel or fruit flesh is found in one of the pits from the site of Kapitan Andreevo (Fig. 4).

Fig. 4 Evidence for food preparation at Kapitan Andreevo: micrograph by scanning electron microscopy of part of a type of bread/gruel or fruit flesh (© I. Hristova, PLANTCULT Project)

³⁵ Valamoti 2013; Marinova – Valamoti 2014.

³⁶ Kroll 1983; Kroll 1993.

³⁷ Studied by late Maria Mangafa, in Tiverios 1996.

Pulses

The predominant pulses at the Greek sites are bitter vetch (*Vicia ervilia*) and lentils (*Lens* sp.) and, less so, grass pea (*Lathyrus sativus* L.), all three found as pure caches. Other pulse species present in Iron Age deposits that are presented here – whose significance in Iron Age diet and economy cannot be estimated due to their small quantities – are chickpea (*Cicer arietinum*), common pea (*Pisum sativum*) and Celtic bean (*Vicia faba*). In Bulgaria, pulses are also presented in the archaeobotanical record, but they are found in very low amounts. Most common are lentil (*Lens culinaris* Medik), bitter vetch (*Vicia ervilia* L.) and grass pea (*Lathyrus sativus* L.). Rich concentrations of bitter vetch and lentils and less so of grass pea suggest their deliberate cultivation and consumption. Peas are cultivated in Bulgaria but limited finds in northern Greece could be a result of archaeological preservation and retrieval. In central Greece, however, rich concentrations of peas from Xeropolis-Lefkandi³⁸ show that peas were grown in the region. Limited evidence for the other species found does not allow for an evaluation of their significance for Iron Age communities of the north.

Oil Plants

A wide range of oil plants has been encountered, mainly at the sites situated in northern Greece. *Lallemantia* sp. is present by a few seeds at Agios Mamas, Polichni and Karabournaki. It is represented by only a few seeds, which renders interpretation of the sporadic finds problematic. At Polichni, 42 seeds have been found in total, at Karabournaki less than ten and at Thessaloniki Toumba only one probably identified as *Lallemantia*.³⁹ Yet, these flimsy remains could be an indication of cultivation, given the limited chances of preservation of oil-rich seeds in charred archaeobotanical assemblages.⁴⁰ Only a few seeds of *Lallemantia* have been retrieved in Dolno Cherkovishte (Early Iron Age) and Dana Bunar (Late Iron Age). As *Lallemantia* is not part of the natural vegetation of Europe and its oil-rich seeds are vulnerable to charring, it is more likely that the seeds correspond to a cultivated crop rather than a crop weed. *Lallemantia*, originally appearing in the Early Bronze Age in northern Greece⁴¹ of central Asian/Anatolian origin, becomes later established further north in the Balkans, at sites such as Feudvar,⁴² Hissar⁴³ and Dabene-Sarovka.⁴⁴ More prominent are the seeds of gold of pleasure (*Camelina* sp.), found in an impressive concentration at Kastanas. Gold of pleasure (*Camelina* sp.) is also represented by a few seeds at Agios Mamas and Karabournaki, at the latter site possibly by a small seeded type of gold of pleasure (*Camelina sativa*) or by the native species of *Camelina microcarpa*.⁴⁵ In Bulgaria, linseed and gold of pleasure (Fig. 5) are found as cultivated crops. Linseed (*Linum usitatissimum*) has been found at Kastanas and Agios Mamas but is absent from the other Greek sites examined here. Another potential oil plant is opium poppy (*Papaver somniferum*), represented at these sites by a few seeds and a capsule segment (Fig. 6). No opium poppy is reported for the time being from Bulgaria. The olive (*Olea europaea*) is detected at Iron Age sites from northern Greece, represented only by very few finds at Thessaloniki Toumba from a pit dating to the 6th century BC (Fig. 7) and from the late Geometric/early Archaic level at Krania (c. 700 BC),⁴⁶ while a rare find is the single stone of olive (*Olea europea* L.) found at the site of Kapitan Andreevo in Bulgaria (see discussion below).

³⁸ Livarda – Kotzamani 2006.

³⁹ In a sample dating around 8th century BC (personal communication with the excavators).

⁴⁰ Märkle – Rösch 2008.

⁴¹ Jones – Valamoti 2005.

⁴² Kroll 1998.

⁴³ Medović 2012.

⁴⁴ Marinova – Valamoti 2014.

⁴⁵ The problem of distinction between these two species has been discussed in Riehl 1999, 93.

⁴⁶ Margaritis 2007, 123, 125; on the chronology of the site see Gimatzidis 2017.

Fig. 5 Seed of gold of pleasure from Bresto (EIA, 11th–8th cent. BC.), scale 1mm
(© E. Marinova)

Fig. 6 Capsule segment of opium poppy with seeds attached from Karabournaki (7th–6th century BC)
(© S. M. Valamoti and E. Gkatzogia)

When oil plants are considered, some differences are observed in the range of species between northern Greece and Bulgaria. A more striking difference, however, is between the northern and the southern Aegean sites where, in the latter, olives are frequently found from the end of the Neolithic through to the Iron Age.⁴⁷ Whereas in prehistoric northern Greece during the Neolithic and the Bronze Age, the olive is totally absent in contrast to a rich variety of alternative oil-rich seeds.⁴⁸ Therefore, it seems that the extremely sporadic Iron Age finds of olive in the north Aegean reflect different traditions dating back to the Late Bronze Age.

Fruits and nuts

A wide range of fruits and nuts have been retrieved from Iron Age deposits in the study area, although it is not always possible to distinguish arboriculture from harvests from wild trees and shrubs. The range of species identified at northern Greek and Bulgarian sites comprise blackberry (*Rubus fruticosus*), strawberry (*Fragaria vesca*), fig (*Ficus carica*), grapevine (*Vitis vinifera*), Cornelian cherry (*Cornus mas*), hazel (*Corylus avelana*), pear (*Pyrus* sp.), plum (*Prunus* sp.), and a few finds of pomegranate (*Punica granatum*), melon (*Cucumis melo*) and watermelon (*Citrullus lanatus*).⁴⁹ From Greece, only a few finds of hazel are encountered from a pit dating to the Geometric period in Krania⁵⁰ and from Archaic strata (7th century BC) in Heraion of Samos,⁵¹ whereas almond (*Amygdalus communis*) is detected only in southern Greece.⁵² Furthermore, possibly pistachio has been identified at Azoria in Crete, in the southern Aegean.⁵³

The most prominent fruit in both areas is the grape. The northern Greek finds of grape are numerous and comprise also grape pressings, found at Karabournaki and less so at Thessaloniki

⁴⁷ For olive finds from southern Greece see an overview from Near Eastern and Aegean sites: Riehl – Nesbitt 2003. For Iron Age Greece: Megaloudi 2006. For Protogeometric Greek sites see overview including new data from Roman Villa Dionysus, Knossos: Livarda 2012. For Iron Age Lefkandi: Livarda – Kotzamani 2006. For Iron Age Eretria: Margaritis 2013. For Azoria: Haggis et al. 2004; Haggis et al. 2011. For Neolithic and Bronze Age Crete: recently overviewed archaeobotanical data by Livarda – Kotzamani 2006; for a key study with olives in Neolithic Crete: Sarpaki 1999.

⁴⁸ Jones – Valamoti 2005; Valamoti 2009; Andreou et al. 2013.

⁴⁹ For pomegranate (*Punica granatum*) see Margaritis 2007 (Krania). For melon (*Cucumis melo*) see Kroll 1983; Kroll 1984 (Kastanas) and for watermelon (*Citrullus lanatus*), if indeed the seeds belong to this species, see Margaritis 2007 (Krania).

⁵⁰ Margaritis 2007.

⁵¹ Kučan 1995.

⁵² Kučan 1995; Livarda 2012.

⁵³ E.g. in Azoria: Haggis et al. 2011, 11.

Fig. 7 Grape pips from Karabournaki
(© S. M. Valamoti and E. Gkatzogia)

Fig. 8 Grape pressings from Karabournaki
(© S. M. Valamoti and E. Gkatzogia)

Toumba. These finds suggest the preparation of a fermented beverage, probably wine, continuing a tradition that goes back to the Late Neolithic and 5th millennium BC Dikili Tash.⁵⁴ A continued prominence of grape pips is also observed in the archaeobotanical record from northern Greece at Late Bronze Age sites such as Kastanas, Assiros, Thessaloniki Toumba, Agios Mamas and Aggelochori.⁵⁵ The grape finds from Karabournaki consist of thousands of pips and skins (Figs. 7–8). A rich concentration of more than 1000 pips from a 6th century BC pit from Thessaloniki Toumba has been recognised as corresponding to cultivated varieties and a few pips belonging to feral grapes⁵⁶. An association of locally made amphorae and local wine has been suggested on the basis of finds from Karabournaki.⁵⁷

At Bulgarian sites grape pips occur frequently but in very low numbers. Thus, although the largest percentage of fruit finds at the Thracian plain sites are those of grape vine remains, no wine pressings or an increase in grape pip remains over time is reported.

Fig, another typical Mediterranean species, is known from Greek Neolithic sites and continues through to the Bronze Age and the Iron Age. Fig has been found at many Bulgarian sites, like Bresto (Fig. 9), Malenovo, and Dana Bunar. Although this plant does not belong to the natural vegetation of Bulgaria, archaeobotanical evidence from the area dates its consumption back to the early Neolithic.⁵⁸

Almond (*Amygdalus communis*), another Mediterranean element of interest in our exploration of fruit and nut exploitation, is only encountered at southern Greek sites. No finds of almonds are reported from Bulgaria and the north Aegean to date, but, considering the specific structures studied from the Bulgarian Iron Age, it is difficult to say whether the almonds were really less popular in the area or if only the available archaeobotanical record from pits is responsible for this picture.

Fig. 9 Fig fruitlett (mineralised) from Bresto (EIA, 12th–8th century BC), scale 1 mm. (© E. Marinova)

⁵⁴ Valamoti et al. 2007; Valamoti 2015.

⁵⁵ Kroll 1983; Jones et al. 1986; Mangafa et al. 1998; Becker – Kroll 2008; Valamoti 2010.

⁵⁶ Mangafa et al. 1998; Mangafa – Kotsakis 1996, 415–417.

⁵⁷ Tiverios et al. 2005, 192; Valamoti 2005.

⁵⁸ See Thanheiser 1997.

Cultivation Practices and the Iron Age Landscape

The available archaeobotanical evidence shows a wide range of field crops and fruits/nuts grown and we can envisage areas dedicated to their cultivation, interspersed with grazing areas and perhaps fallow. Unfortunately for the Greek sites, no information can be provided at present on agricultural practice, as the weed seeds are currently under study. Ancient sources of the transition of Early Iron Age to Archaic periods, during which Hesiod wrote *Works and Days*, refer to practices such as fallow and rotation,⁵⁹ but, to present, no solid archaeobotanical finds are yet available from either our study area or the southern sites.

Evidence on cultivation practices in the Thracian plain in southeastern Bulgaria suggests that some sites were located near open and stony places. This is indicated by the presence of plants like *Dasyphyrum* cf. *villosum*, *Stipa* sp. and *Thaeniatrum* sp. Further direct evidence of shrubland and disturbed habitats due to anthropogenic activity is also frequently provided by the archaeobotanical assemblages found in the pits. The most common weeds found are: *Chenopodium album*, *Galium* sp., *Lolium* sp., *Polycnenum arvense*, *Polygonum aviculare*, *Portulaca oleraceae*. Most of them are rather aggressive resistant species – some of them resist salinity and drought. They colonise areas of already destroyed natural vegetation and enter the cultivated fields as weeds; they can, therefore, be used as indicators of open cultivated areas.

Agriculture, Culinary Traditions and Identities in Iron Age Southeastern Europe

Archaeobotanical evidence from southeastern Europe is rather limited. Therefore, aspects of culinary identities in the region, formed on the basis of plant food ingredients, have to await future research. Yet, the data presented in this paper are sufficient to draw a coarsely grained picture and point towards paths for future exploration. The range of crops used during the Iron Age in Greece and Bulgaria is very similar in many aspects, although regional differences are also observed which are discussed in this section.

As regards cereals, finds suggest the continuation of glume wheats and barley cultivation in both regions – a long tradition going back to the Early Neolithic period. The same is largely true for millet, which appears to occur more frequently at Bulgarian sites. Differential levels of consumption, ways of cooking and use (e.g. food or fodder), as well as taphonomic factors may be responsible for the patchy distribution of millet in the study area during the Iron Age. Yet, even if not ubiquitous, the available millet finds suggest that its cultivation continued into the Iron Age, perhaps increasingly so, if the isotopic results obtained from human bones from northern Greece⁶⁰ are due to millet intake rather than the consumption of animals grazing on C4 plants. Free-threshing cereals, nearly absent from northern Greek Neolithic sites⁶¹ and present only in parts of Bulgarian ones,⁶² are encountered at some Bronze Age sites⁶³ – a situation that continues during the Iron Age in the Thermaic Gulf. In some parts of Greece, Geometric and Archaic periods finds of free-threshing wheat are abundant in terms of frequency and as dense concentrations.⁶⁴ At some sites they appear among the main crops, whereas at others they are almost absent

⁵⁹ Hesiod *Works and Days*, 463–464; for an interpretation of Hesiod verse's see Semple 1928, 70; Isager – Skyds-gaard 1992, 22.

⁶⁰ Triantaphyllou 2001.

⁶¹ Valamoti 2009.

⁶² Marinova – Valamoti 2014; Popova 2009.

⁶³ Jones et al. 1986; Valamoti 2009; Valamoti 2010.

⁶⁴ For past overviews see: Kroll 2000; Megaloudi 2006. For a more recent one for the Protogeometric period see: Livarda 2012; rich concentrations were found in Kalapodi, see Kroll 1993. Very frequent and numerous are in Karabournaki, see Gkatzogia – Valamoti 2013 and in Krania, see Margaritis 2007.

or in small quantities.⁶⁵ According to Kroll, free-threshing wheat becomes important during the Iron Age in Greece.⁶⁶ We do not know, however, whether the free-threshing wheats were of the durum or bread wheat type as the grains of these wheat species are difficult to distinguish in the archaeobotanical record. While it is possible that the cultivation of bread wheat could have been related to new ways of cereal transformation into food, bread making should not necessarily be linked to bread wheat, as bread can be prepared from different wheat and other cereal species.⁶⁷ In economic terms, as pointed out by colleagues, free-threshing cereals present certain advantages by being easier to process, less bulky in storage and more suitable to transfer and trade.⁶⁸ According to archaeobotanical studies conducted in Greek colonies and native Elymian sites in western Sicily, free-threshing wheat was probably traded and imported from indigenous Elymian sites to the coastal Greek colony of Selinunte.⁶⁹ Furthermore, free-threshing wheat is easier to process and provides food for an increasing population.⁷⁰ Thus, it is probably during the Iron Age that the social and economic conditions favouring their cultivation emerged. In the north Aegean this indeed coincides with indications for increased population levels and large settlements compared to Late Bronze Age.⁷¹

Hulled wheats keep their importance during the Early Iron Age in the territory of Bulgaria. Only sporadic finds of free-threshing wheat are found in Bulgarian sites, except for the site Bresto, from where a free-threshing wheat concentration, indicating storage, was recovered. The second half of the Iron Age is the transitional period when free-threshing wheat replaces the hulled ones. This has also been observed for Greek colonies of the Black sea, where free-threshing wheats are the prevailing cereals, especially in Crimea.⁷² It is very likely that Greek colonisation encouraged and even introduced free-threshing wheat cultivation in various locations, an issue that deserves further exploration combining archaeobotanical and textual evidence that refers to grain imports from regions such as Crimea.

Comparing our results⁷³ to evidence from the eastern and central Mediterranean, we notice differences in the representation of free-threshing and glume wheats. For the Near East, Riehl and Nesbitt suggest that even if glume wheats are so important from the Neolithic onwards, in the Iron Age “they are mostly uncommon or virtually absent, having been replaced by increased cultivation of free-threshing macaroni or bread wheat”.⁷⁴ This contrasts the continued cultivation of hulled wheats during the Late Bronze Age and the Iron Age in the northern Aegean and Bulgaria, where einkorn and emmer are still important crops. Could the continuation of glume wheats in Iron Age northern Greece and Bulgaria result from a culturally prescribed culinary preference? This may also have been the case with emmer cultivation in Egypt, which continued until Hellenistic times. The timing of the introduction of free-threshing cereals in our study area could have been greatly influenced by Greek colonisation. However, this issue deserves further study.

⁶⁵ E.g. in Iolkos seeds of free-threshing wheat are in very small quantities, see Jones 1982. The same picture is encountered in Delphi, see Luce et al. 2009 and in Kastanas, see Kroll 1983, in Lefkandi even if not yet fully studied, but based on preliminary results they seem absent, see Livarda – Kotzamani 2006.

⁶⁶ Kroll 2000.

⁶⁷ Contra Sallares 1991, 319–320.

⁶⁸ Pashkevich 1997; Halstead 2012, 26; Livarda 2012, 18.

⁶⁹ Stika et al. 2008, 147. In the Greek settlement of Selinunte, free-threshing wheat was the dominant cereal compared to its limited presence in Elymian Monte Polizzo. Nevertheless, according to the authors, “the surroundings of Monte Polizzo are much more suitable for local production of free-threshing wheat than the Selinountine region” (Stika – Heiss 2013, 83). For further arguments of the suggested interpretation based on palaeoenvironmental evidence see this last publication.

⁷⁰ Halstead 2012, 26; Livarda 2012, 18.

⁷¹ Andreou – Kotsakis 1994, 25.

⁷² Pashkevich 1997.

⁷³ For key studies of Iron Age Greek colonies and native sites from Sicily see Stika et al. 2008; Stika – Heiss 2013. For an overview for Iron Age Near Eastern archaeobotanical evidence see Riehl – Nesbitt 2003.

⁷⁴ Riehl – Nesbitt 2003, 305.

Despite common trends, differences can also be identified in the range of oil plants used in the wider study area. Compared to finds from Iron Age sites in the south of Greece, the olive, which frequently occurs in archaeobotanical assemblages there, is nearly absent from the north. The few exceptions of sporadic finds correspond in all likelihood to imports from the south, highlighting contacts with that area. Although the olive remains practically absent from the available northern Greek and Bulgarian record during the Iron Age, other plants, potentially used for oil, like opium poppy and *Lallemantia*, continue the Late Bronze Age traditions of the region.

Some interesting conclusions have emerged from our analysis about fruits. Overall, the archaeobotanical record from the study region shows that differences between the two regions exist with regard to fruit and nut exploitation, e.g. hazelnuts are more prominent at Bulgarian sites while the reverse is true for the grapevine, which is never found in dense concentrations or as pressed grapes in Bulgaria. Thus, at present, this region is lacking evidence for grape cultivation and processing related potentially to wine-making, unlike a long tradition in grape-pressing and wine making in the north Aegean with roots in the Neolithic.

This is in contrast with the picture recently available from Greek colonies in the western Mediterranean and in particular the Iberian Peninsula. There, our colleagues observe that the sporadic occurrence of the grape vine in Neolithic and Bronze Age contexts transforms into a very prominent presence after colonisation. The numerous remains of the grape vine there reflect the introduction of the systematic cultivation of the grape vine and of wine making in the western Mediterranean.⁷⁵ No such trend is visible in the archaeobotanical record of Thrace and the Black Sea regions during the Iron Age. This might reflect different types of interaction and economic activity between the colonies and indigenous people.

Fig is very prominent in the north Aegean, unlike Bulgarian sites. The evidence from Bulgaria suggests that fig was consumed in the Iron Age, yet it is unclear if its cultivation was introduced to the region or if figs, rich in sugar with a long shelf life, were imported from further south from areas along the Aegean shoreline. Alternatively, it could have been spread through humans in earlier prehistory, as figs are known from the Neolithic. In the Thracian plain and southern parts of Strymon Valley, unlike other Mediterranean species, fig can thrive in the region once introduced. Other Iron Age elements of southern Greece, like the almond and the olive, are rare in both the north Aegean and Bulgaria and seem to acquire importance a few centuries after Greek colonies are established in the region.

The role of arboriculture in the Late Iron Age and the Archaic period⁷⁶ is visible in the works of Homer; for example, in the *Odyssey*,⁷⁷ the vineyards of Laertes⁷⁸ and Meleagros⁷⁹ are mentioned. In the *Works and Days*, Hesiod describes the operations of vintage in autumn and the production of sun-dried wine.⁸⁰ It is also well documented in Linear B tablets from the south during the Late Bronze Age, in relation to fig, grape vine and olive cultivation.⁸¹ In northern Greece, arboriculture may have its roots in the Final Neolithic, according to recent archaeobotanical finds from Dikili Tash.⁸² By the Iron Age, it may well have constituted an important element of the landscape and agricultural production.

What is evidenced in our data is the near absence of the olive – a typical Mediterranean species. The olive is absent from northern Greece in the preceding Neolithic and Bronze Ages.⁸³ The find of an olive stone from Early Iron Age Kapitan Andreevo suggests imports from the

⁷⁵ Buxó 2008.

⁷⁶ See Hanson 1992, 160–161; Hanson 1995, Chapter 2; Donlan 1997, 650, 654–655.

⁷⁷ Hom. Od. 9, 108; 24, 246–247.

⁷⁸ The ‘orchatos’ of Laertes and of Alkinos (Hom. Od. 9, 108; 24, 246–247, 336–344) is a row of trees.

⁷⁹ Hom. Il. 9, 577; 20, 184–185.

⁸⁰ Hes. Op. 612–617.

⁸¹ Palmer 1995; Palmer 2001.

⁸² Valamoti 2015.

⁸³ Valamoti 2009.

south. The same we can envisage for northern Greece since few finds of olive stones have been found at Iron Age Thessaloniki Toumba⁸⁴ (Fig. 10) and Krania.⁸⁵ In most of the cases, archaeobotanical records from the south of Greece yielded olive stones accompanied by grape pips and figs.⁸⁶ These three typical Mediterranean fruit species were most likely cultivated in the southern parts of the Aegean and parts of the eastern Mediterranean in the 1st millennium BC, however, they do not appear as a ‘package’ further north. The olive is limited to the southern part of the Aegean, while fig and grape, although present in the north Aegean and parts of its hinterland, become scarce in Bulgaria. Almonds, another element of Mediterranean vegetation and diet, are absent for the time being from our study area. The finds of almonds in special burial contexts at the Necropolis of Messambria in Bulgaria may suggest that these were introduced later as imports from the south, holding perhaps a special symbolic position in relation to the afterlife.

Greek colonies could have played a role in introducing Mediterranean foodstuffs into the north Aegean and Thracian hinterland. Maritime as well as mainland routes could have brought products from the south via intensive exchange networks. Colonies from Euboea, Corinth and the Cyclades in the north Aegean and especially strong Euboean influences around the Thermaic Gulf and in Chalkidiki probably played a part in the introduction of the olive to the north. As olives are absent throughout the Neolithic and the Bronze Ages in the region, it would be very interesting to see if the foundation of Greek colonies in the north boosted the introduction of olive cultivation to ‘native’ Iron Age communities and the landscape of the north Aegean. Despite the lack of adequate archaeobotanical data for comparisons, one line of evidence may support our working hypothesis we put forward here: that olive cultivation could have been introduced through the foundation of colonies. In a later period, from the 4th/ 3rd centuries BC onwards, local cultivation of the olive and olive oil production are clearly evidenced based on finds from northern Greek sites such as Vrasna⁸⁷ and Platania,⁸⁸ which clearly show local cultivation of the olive and olive oil production. Olives are found in Near Eastern, western Sicilian Iron Age⁸⁹ and western Mediterranean (Spain) contexts, although any potential influence by Greek colonies remains obscure. At present, however, we lack published archaeobotanical information from actual Greek colonies in our study area. Bulgaria is beyond the climatic limits for olive cultivation and it is most likely that olives reached the hinterland through trading networks, perhaps as a luxury foodstuff. In the north Aegean, regions with a milder climate, like Chalkidiki and Thasos, could have offered new niches for the introduction of olive cultivation. Anthracological studies from Iron Age assemblages

Fig. 10 Olive stone from Thessaloniki Toumba (6th century BC) (© S. M. Valamoti and E. Gkatzogia)

⁸⁴ Gkatzogia forthcoming.

⁸⁵ Margaritis 2007.

⁸⁶ For a synthesis on the archaeobotanical data of the Protogeometric, Geometric and Archaic periods see Megaloudi 2006. For Villa Dionysus in Knossos and an overview of recent archaeobotanical data from Greece during the Protogeometric period see Livarda 2012. For Lefkandi see Livarda – Kotzamani 2006. For the sanctuary of Apollo Daphnophoros in Eretria see Margaritis 2013.

⁸⁷ Adam-Veleni – Mangafa 1996.

⁸⁸ Margaritis – Jones 2008a; Margaritis – Jones 2008b.

⁸⁹ E.g. Riehl – Nesbitt 2003; Stika et al. 2008; Buxó 2008.

could shed light in the investigation of the timing of olive cultivation in the north Aegean and the processes that led to the introduction of this new tree crop. To this end, both finds from indigenous sites and colonies are much needed. Such finds will further clarify whether olive was indeed introduced as a cultivated plant or as an already-processed food produce, i.e. pickled olives.

In terms of culinary preferences and identities, the Iron Age in the study area appears to be largely a continuation of Late Bronze Age traditions, with an increase in scale of land use for agropastoral activities in both regions studied here. Contacts with the south, known from other categories of material evidence, are also visible in the archaeobotanical record and are indicated by imports of Mediterranean foods to the north Aegean hinterland. Differences between north and south Aegean regions begin to emerge and we plan to further investigate them. Greek colonisation emerges through our study as a crucial factor for the introduction of new crops into our study region, as has already been suggested, due to the increased importance of free-threshing wheat to the north Aegean and the Black Sea regions, as well as the introduction of the olive to the north Aegean and its hinterland.

Conclusions

The available evidence examined here, placed in its wider regional context, suggests that complex socioeconomic factors and regional interactions led to agricultural and possibly culinary changes. These changes in the range of field and tree crops occurring in historic times do not occur on a similar scale in southeastern Europe or the eastern and western Mediterranean. This suggests that the different trajectories followed were the outcome of variable socioeconomic processes influencing culinary choices and agricultural production. Our first attempt to jointly examine the evidence from Iron Age Greece and Bulgaria has produced promising results which will be further refined with the consideration of more data from both regions in the near future.

Acknowledgements: We wish to thank Stefanos Gimatzidis, Magda Pieniążek and Sila Votruba for their invitation to participate to the session Archaeology across Past and Present Borders: Fragmentation, Transformation and Connectivity in the North Aegean and the Balkans during the Late Bronze and Early Iron Age, held under the 20th Annual Meeting of the European Association of Archaeologists in Istanbul, 10–14 September 2014. We are also grateful to Tassos Bekiaris and Nikos Katsikaridis for their help with Figures 1, 2 and 6.

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The objective of this volume is a theoretical debate on the archaeology at the crossroads of the Balkans, the Aegean and Anatolia and its interrelation with social and political life in this historically turbulent region. Modern political borders still divide European archaeology and intercept research. This is particularly evident in southeastern Europe, where archaeological interaction among neighbouring countries such as Greece, Turkey, Bulgaria, Serbia, the FYR of Macedonia and Albania is practically inactive.

Reception of the past within the local perspectives of modern nation states and changing identities are some of our focal points: Can breaks or continuities in the material culture be perceived as evidence for ethnic (dis-) continuities, migrations, ethnogeneses, etc. and what is the socio-political background of such approaches? What is the potential of material culture towards the definition of modern and past identities?

Interaction among different societies and cultures as well as the exchange of goods and ideas are another topic of this book. The area encompassing the north Aegean and the Balkans was, during the later prehistoric and early historic periods, the showplace of fascinating cultural entanglements. Domestic, cultic and public architecture, artefact groups and burial rites have always been employed in the archaeological process of defining identities. However, these identities were not static but rather underwent constant transformations. The question addressed is: How did people and objects interact and how did objects and ideas change their function and meaning in time and space?

Colleagues representing different scholarly traditions and cultural backgrounds, working in Greece, Turkey, Bulgaria, FYR of Macedonia, Albania, Serbia, Croatia and Bosnia, took part in this debate, and a total of 19 papers are now presented in this book.