



JOURNAL OF ANCIENT HISTORY AND ARCHAEOLOGY



Institute of Archeology and Art History of
Romanian Academy Cluj-Napoca
Technical University Of Cluj-Napoca



Journal of Ancient History and Archaeology

DOI: <http://dx.doi.org/10.14795/j.v10i4>

ISSN 2360 266x

ISSN-L 2360 266x



Scopus®



No. 10.4/2023

CONTENTS

STUDIES

ANCIENT HISTORY

Stanislav GRIGORIEV
INDO-EUROPEANS IN ANCIENT ANATOLIA 5

Aleksandra KUBIAK-SCHNEIDER
ALLĀT AND THE DESERT "KULTLANDSCHAFT"
OF ALLĀT IN THE EAST 32

ARCHAEOLOGY

Mohsen Heydari DASTENAEI, Kamal Adin NIKNAMI
APPLICATION OF MORAN'S I STATISTICS IN SPATIAL
ANALYSIS OF ARCHAEOLOGICAL SITES OF THE
SARFIROUZABAD PLAIN, CENTRAL ZAGROS, IRAN 41

Francisco J. ESQUIVEL
STATISTICAL PATTERN ANALYSIS OF ROMAN VILLAE
IN ANDALUSIA FROM QUALITATIVE MULTISTATE
VARIABLES 55

Davut YİĞİTPAŞA
RE-ASSESSMENT OF THE CLAUDIOPOLIS STADION
RESCUE EXCAVATION IN 2008 64

ARCHAEOLOGICAL MATERIAL

Cristian Ioan POPA
THE BRONZE AXE FROM MIHALŢ (ROMANIA)
AND SOME PROBLEMS RELATED TO HYBRID
"LARGA" TYPE AXES 86

Ioana Mihaela POTRA
OLIVE OIL IMPORTS ON THE NORTH-WESTERN
DACIAN LIMES: THE CASE OF POROLISSUM 114

Ahmad DAWA
ADDITIONAL ELEMENTS ON CANONICAL CORINTHIAN
CAPITALS IN SYRIA 125

Dana KHOULI
REPRESENTING THE HOLY GRAIL ON RELIQUARY
SARCOPHAGI IN SYRIA 133

ARCHAEOLOGICAL TOPOGRAPHY

Florin-Gheorghe FODOREAN
MAPS OF ROMAN DACIA. V. LUIGI FERDINANDO MARSIGLI
AND ROMAN DACIA IN 1726 138

NUMISMATICS

Silviu I. PURECE
BETWEEN ARCHAEOLOGY AND METAL DETECTING,
ANCIENT COINS FROM OCNİŢA-BURIDAVA 142

Marius-Mihai CIUŢĂ, George Valentin BOUNEGRU
AN ANCIENT COIN HOARD DISCOVERED,
FORGOTTEN, REDISCOVERED AND RECOVERED.
THE JIDVEI HOARD CASE 161

REVIEWS

Matthew Gray MARSH
IRFAN HABIB & VIVEKANAND JHA. MAURYAN INDIA.
9TH EDITION. A PEOPLE'S HISTORY OF INDIA VOL. 5.
NEW DELHI: TULIKA BOOKS, 2019, X + 189P,
ISBN 978-93-82381-62-4. 172

Design & layout:
Petru Ureche

Studies

ANCIENT HISTORY

INDO-EUROPEANS IN ANCIENT ANATOLIA

Abstract: Several Indo-European languages were recorded in Anatolia: Hittite, Luwian, Palaic, Phrygian, Thracian, Greek and Armenian. However, there are no archaeological or genetic traces of migrations of speakers of these languages from other areas. Recent works in archaeology, linguistics and paleogenetics have shown that the Indo-European homeland should be sought in western Asia. Archaeological materials from eastern Europe, Iran, Greece and Thrace allow migrations from Anatolia and northern Mesopotamia to be identified and linked to particular languages. But it is difficult to associate any ceramic type with a specific group. The only possibility is to study the distribution of ceramic types, genes and language contacts. This demonstrates that proto-Indo-European originated in northern Mesopotamia. In the Late Neolithic, some of its speakers migrated to the Balkans, which resulted in the separation of proto-Anatolian. In the Chalcolithic, other groups moved into eastern Anatolia, the Caucasus and Iran. In the Early Bronze Age, speakers of proto-Greek, proto-Thracian and proto-Phrygian migrated from this region to western Anatolia, and some to the Balkans. At the EBA transition, speakers of the Anatolian dialects migrated back to Anatolia. Thus, by the early 2nd millennium BC a significant part of Anatolia was inhabited by the Indo-Europeans.

Keywords: *Indo-European origins, Anatolia, Balkans, Neolithic, Bronze Age, migrations.*

INTRODUCTION

The origins and migrations of peoples who spoke the Indo-European (IE)¹ languages is one of the most important problems in archaeology, since speakers of these languages inhabited a huge part of Eurasia during the historical period. That is why their history corresponds in many respects to the Eurasian history in the Bronze Age. For many years, archeology was dominated by the hypothesis about the origin of the IE peoples in the south of Eastern Europe, the so-called Steppe (or Kurgan) hypothesis². There was also a hypothesis about their origins in Asia Minor, and the spread of the IE languages to other area was associated with the spread of Neolithic economy³. The third hypothesis suggested the localisation of the IE homeland on the Armenian Plateau⁴ or in northern Mesopotamia⁵. However, over the years, many colleagues convinced of the Steppe hypothesis have not been able

¹ Abbreviations used in the text: IE – Indo-European; PIE – proto-Indo-European; EBA – Early Bronze Age, MBA – Middle Bronze Age, LBA – Late Bronze Age, EIA – Early Iron Age; EH – Early Helladic, MH – Middle Helladic, LH – Late Helladic.

² MALLORY 1989; GIMBUTAS 1994; ANTHONY 2007.

³ RENFREW 1987.

⁴ GAMKRELIDZE/IVANOV 1995.

⁵ GRIGORIEV 2002.

Stanislav GRIGORIEV

Institute of History and Archeology, Chelyabinsk
stgrig@mail.ru

DOI: 10.14795/j.v10i4.938

ISSN 2360 – 266X

ISSN-L 2360 – 266X

to reliably show how the Indo-Europeans had come from the steppe to their southern areas (Greece, Anatolia, Iran and India). But, as it is always with a commonly accepted idea, it did not require a proof. Moreover, numerous facts indicating the opposite were ignored. In fact, during a long period from the Neolithic to the Bronze Age, culture, genes and languages spread from the Near East. Evidence of their opposite spread is either absolutely absent or is a fiction⁶. Recent generalisations of the paleogenetic and linguistic data have demonstrated the distribution of ancient genes from western Asia and very early date of the IE languages, which does not correspond to the Steppe hypothesis and points to northern Mesopotamia. However, the fascination with the Steppe hypothesis remains so great that it is assumed that there was a secondary IE homeland in the steppe after migrations from the Near East, and the main IE languages originated there. But languages of the Anatolian group (Hittite and Luwian) formed within the initial homeland and their speakers did not migrate⁷. Contrary to this, there was another scheme of IE genesis, according to which the Anatolian languages separated first as a result of the Neolithic migration to the Balkans, and their speakers returned to Anatolia by the beginning of the Bronze Age. The Indo-Iranians migrated to their historical places from the Near East, but the Greeks and Thracians, nevertheless, from the steppe⁸. However, later it has been shown that the Greeks and Thracians migrated from Anatolia⁹, which allows us to start searching for places in Anatolia where these and other IE groups lived.

It is a difficult task. In no other region with relatively systematic archaeological excavations can we find so many complaints about the poor degree of research, although this might seem strange to colleagues working in other regions. The explanation is simple: most of the excavations is connected with tell-settlements, whose studies, even within small areas, take many years. In addition to this, the main attention has been paid to the later and brighter sites of the Near Eastern civilisations. This does not mean the absence of simple settlements typical of other regions. But the places, where they could be, have been inhabited or plowed over for many thousands of years. Therefore, very often the distribution areas of a particular ceramic type are determined not by its presence in cultural layers, but by its finds on the surface. There are many other problems, including poor publications.

The second major problem is the possibility for ethnic reconstructions in Anatolia. In the case of the penetration of a new cultural complex into Greece or India we can assume the coming of Greeks or Indo-Aryans. But in the case of the penetration of a set of artefacts from one Anatolian region to another, it is more difficult to draw an unambiguous conclusion, since this can be explained (and is usually explained) by trade. Everywhere in the world, with rare exclusions, there is no way to connect any cultural or genetic type with any specific language. In the Hittite Kingdom, it

is impossible to distinguish different ethnic groups by their material culture, especially by the most mass material, ceramics. It was strongly influenced by the geography of Anatolia, divided by mountain ranges into isolated areas, in which cultural traditions were preserved for a long time and whose borders, for geographical reasons, were stable even though new people came. On the other hand, often within a cemetery in western Anatolia one can find different burial rites indicating probably different ethnic groups¹⁰. We also know from written sources that the appearance of any new group in any area does not mean that the previous population began to speak the language of the newcomers. Different languages coexisted for hundreds of years, and the process of language assimilation was extremely long. Therefore, when reconstructing ethnic history, we should take into account not only the correlation of ceramic types, but the direction of processes reconstructed on the basis of archaeology, linguistics and genetics. If the processes coincide, we may conclude that they mark the spread of a language. But it does not follow from this that this language was adopted in the new area. The identification of languages has one more problem. Compared to other regions, the situation with written sources in Anatolia looks great. But in fact it is very limited, and there is no information in many areas.

Chronology is extremely important for reconstructing these processes. But we are faced with a very serious problem here. There is a significant difference between chronologies based on the written sources and radiocarbon analyses. Within the radiocarbon chronology, it is necessary to take into account a significant difference between the old LSC and modern AMS dates. Only the use of Bayesian statistics and AMS dates makes it possible to achieve results close to historical chronology¹¹. Unfortunately, this problem is not taken into account in many papers, and I have used the dates from original publications. Therefore, it is not always possible to understand on which system many of the dates are based, with the exception of events described in written sources. The dates are conditional, and only the belonging of an event to some period is important.

Because of all these difficulties it now seems impossible to reconstruct the ethnic history of Anatolia in the Bronze Age. Therefore, the objective of the article is to identify the main processes in order to show the possibility to study the spread of Indo-Europeans in Anatolia and create a basis for future detailed studies. As a matter of fact, even overcoming the skepticism about such a possibility would mean that the task of this article has been achieved.

LINGUISTICS AND HISTORICAL GEOGRAPHY

A recently published major study on the chronology of IE languages suggests their origin ca. 6120 BC (95% highest posterior density: 7610 to 4740 BC). Initially, they existed as a complex "dialect continua", from which first separated Anatolian and Tocharian ca. 4932 BC (6613 to 3403 BC), and then before ca. 4140 BC (5880 to 2540 BC) Albanian, Greco-Armenian, Indic+Iranic, Baltic+Slavic,

⁶ GRIGORIEV 2021.

⁷ LAZARIDIS *et alii* 2022a; HEGGARTY *et alii* 2023.

⁸ GRIGORIEV 2002.

⁹ GRIGORIEV 2022a; GRIGORIEV 2023a.

¹⁰ YAKAR 2013, 216.

¹¹ GRIGORIEV 2023b; GRIGORIEV 2023c.



Fig. 1. Historical areas and places of Anatolia mentioned in the text.

Germanic, Italic and Celtic. For this work it is important that already at that time Greco-Armenian formed that split into Armenian and Greek ca. 3310 BC (4930 to 1999 BC). The split of Greek into dialects took place in ca. 2609–1218 BC. The split of Anatolian into separate languages happened ca. 2618 BC (3620 to 1857 BC)¹². Based on this chronology, it can be assumed that before the initial divergence during the 7th–5th millennia BC, the proto-Indo-European contacts with proto-Semitic, proto-Kartvelian and proto-North Caucasian took place, which has been an initial base for the idea of the IE homeland in the Near East. This is quite consistent with the chronology of these languages. It is assumed that the origin and split of proto-North Caucasian occurred in the 6th–5th millennia BC¹³, and the origins of proto-Semitic in the Northern Levant before 5400 BC¹⁴. Accordingly, already in the Neolithic all these language groups should have had the opportunity to contact, and the split of the language groups found in the Near East (Anatolian, Armenian, Greek and Phrygian) occurred in the Early Bronze Age (EBA).

Anatolian languages

All linguists recognise that the Anatolian languages had separated first, and during a long time they were isolated from the main IE massive, which resulted in their specifics and has allowed even an earlier proto-Indo-Hittite language to be discussed¹⁵. Anatolian languages include Hittite, Luwian and Palaic, known in the 2nd millennium BC, as well as languages of the 1st millennium BC: Hieroglyphic Luwian, Lycian, Lydian, Carian, Pisidian, and Sidetic¹⁶. The Hittite language separated first, and the other continued their development together, and their split took place later.

But all Anatolian languages coexisted for a long time with a previous linguistic substratum. Therefore, if one assumes migrations of their speakers to Anatolia, this happened long before their written documents¹⁷. Sometimes it is assumed that this split took place in the Balkan, and already the speakers of the pre-Hittite, pre-Palaic and pre-Luwian dialects migrated into Anatolia¹⁸. The possibility to place the proto-Anatolian origins in the Balkans may be confirmed by toponyms with the endings *-ss-*, *-nth-* and *-nd-*, identified in Greece, Thessaly, Thrace, Macedonia (up to part of Hungary) and southwestern Anatolia¹⁹.

The Hittite language is most early recorded in the documents of the Assyrian trading colony in Kaneš (modern Kültepe, Hittite Neša, which gave the Hittite name of their language *nešili*) in the 19th–18th centuries BC²⁰ (hereinafter, see the map with place names in fig. 1). Around 1750 BC the Hittite leader Pithana came to Kaneš from Kuššara in the northeast, and around 1730 BC his son Annita destroyed Hattuşa²¹, which later became the Hittite capital. It is not excluded that the names of the first kings Pithana and Annita are not Hittite, but this entire region was inhabited by Hattians, and toponyms of the Hattic type occur on both sides of the southern bend of the Kızılırmak (Halys) river²². As a result, the Hattians were the main population of the Hattuşa Kingdom. Their culture and religion, including the main gods, became the basis of the kingdom, the Hittite language inherited from them many words related to religious and administrative practice, but there are almost no borrowings from the basic vocabulary²³. In addition, the absence of Hittite borrowing in Hattic is very indicative.

¹² HEGGARTY *et alii* 2023.

¹³ STAROSTIN 1985, 89; GRIGORIEV 2002, 324.

¹⁴ KITCHEN *et alii* 2009, 2707, 2708.

¹⁵ KLOEKHORST 2016, 213, 229, 232.

¹⁶ WATKINS 2004, 551.

¹⁷ YAKUBOVICH 2020, 226; YAKUBOVICH 2022, 15.

¹⁸ WATKINS 2004, 551.

¹⁹ PALMER 1958.

²⁰ WATKINS 2004, 551.

²¹ BARJAMOVIC *et alii* 2012, 38, 40, 48, fig. 13.

²² YAKUBOVICH 2022, 7, 11.

²³ WATKINS 2004, 551, 573; YAKUBOVICH 2020, 232.

Perhaps this means a small number of speakers of Hittite, who originally were only the elite of the kingdom. Anitta soon conquered Purušhanda in the southwest, inhabited by the Luwians, and Palā region, where speakers of the Palaic language lived. The first region had the name Luwiya, but this name gradually disappeared (being replaced by the name the 'Lower Land'). It lost its meaning, since many Luwians moved to Hattuša, where even the political elite consisted of the Hittites, Hattians and Luwians, but the status of the Hittites was higher. Gradually, the importance of Hattic was decreasing and Hittite increasing, and in the 14th century BC Hattic disappeared, at least the scribes no longer understood it well when writing ritual texts. It is noteworthy that it happened after the destruction of Hattuša by the Hattic-speaking Kaska (see below). At the same time, in Hattuša the importance of Luwian increased, the Hittite-Luwian bilingualism formed, and then there was a shift towards the Luwian language. Hittite remained the official language until 1180 BC, but probably as early as the 13th century BC, Luwian became the spoken language, and then, it was the official and spoken language in the post-Hittite states in southeastern Anatolia and northern Syria²⁴. All this demonstrates that the processes of language assimilation were extremely long, and this conclusion may be applied to all other areas. It is very indicative that the language of the Hittite elite did not become the language of the country. Similar cases are well known in medieval Europe.

The problem of the primary localisation of Luwian is more complex. There is an opinion that, in addition to Luwiya proper, it was spoken in the west in Arzawa, as well as in the south in Kizzuwadna²⁵. It is quite true for the second area, but the situation with the first needs some adjustments. Luwian was indeed spoken in Kizzuwadna, Hattuša and to the west of Hattuša, in Luwiya (or the Lower Land), where in the early 2nd millennium BC there was a strong kingdom of Purušhanda. But the westernmost Luwian area was the Sakarya river basin. It is from the Lower Land that we know most of the Luwian texts, although they are found in all other areas too²⁶. These texts are of two types: the Cuneiform Luwian – date from the 16th to 13th centuries BC and the Hieroglyphic Luwian, date from the 10th to 7th centuries BC. Despite this difference, it was the same language. There were Luwian influences on Hittite, especially at the late stage, as well as some transformations of Luwian in the Hattuša area. Dialects in the Lower Land and Kizzuwadna were more archaic²⁷. We can exclude the possibility that the language was autochthonous in the Lower Land, but any substrate non-IE inclusions have not been found in it²⁸, which is very important for the following reconstruction.

The west of Asia Minor was occupied by the Arzawa lands: Arzawa Minor, Seha River land/Appawiya, Mira, Kuwaliya and Hapalla. The first Hittite relationship with them began in the 17th century BC, during the reigns of

Hattusili I and Mursili I, but the information was limited until the 14th century BC²⁹. The Hittite campaigns in Arzawa probably provoked the unification of the lands into a single state with the capital in Apasa (the Classical Ephesus), and it was a mighty kingdom in the 14th century BC. Even the Egyptian pharaoh Amenhotep III contacted Tarhuntaradu, king of Arzawa, and asked for his daughter in marriage. But after the campaigns of Mursili II, the kingdom disintegrated into territories vassal to the Hittites, although they were ruled by local elites. There is no evidence of the Luwian language there. Arzawa elites had Luwic personal names, and the Hittite scribes did not understand local dialects. These peoples did not have their own writing systems in the 2nd millennium BC³⁰. Several languages belong to this Luwic group: Lydian, Lycian and Carian. They were closer to Luwian than to Hittite and Palaic, but they had not been descendants of that Luwian, which was spoken in the 2nd millennium BC, but of some proto-Luwian. Therefore, it is assumed that in the 2nd millennium BC the speakers of proto-Lydian, proto-Carian and proto-Lycian lived somewhere on the periphery of the Kingdom of Hattuša, if we place the Luwian homeland in the west of the Central Plateau³¹.

Lycian was spoken in Lycia (the Lukka lands of Hittite texts) in southwestern Asia Minor, and it is assumed that the Lycians controlled also some area to the west, in part of Classical Caria. After separation, this language remained in contacts with Luwian³². Since the Lycians are most often mentioned among the Trojan's allies, it is supposed that some of them moved north during the collapse of the Hittite kingdom³³. But this collapse did not precede the Trojan war.

In the 1st millennium BC, Caria was situated in the southwest of Asia Minor, between Lydia and Lycia. A limited number of Carian inscriptions is dated to the 7th–5th centuries BC³⁴. Since there was a language continuum between Lycian and Carian, it is assumed that proto-Carian was the language of southern Arzawa, and in the late 3rd millennium BC, Luwic groups spread westward along the Mediterranean coast, the Lycians settled in the southwest of Asia Minor, and the Carians in the Meander valley, where they established the kingdom of Arzawa³⁵.

This suggests that Lycian should have been formed in vicinity. But there are some problems. The land of Lydia according to Greek sources was situated in the central part of the western Anatolian coast and its capital was Sardes. Lydian inscriptions are dated to the 7th–3rd centuries BC, this language separated from proto-Anatolian, but it had some specific features³⁶. There was a Greek tradition to associate the Lydians with Maeonia, that is sometimes understood as the Māša land of Hittite sources. Strabo (12.8.3) also wrote about Mysian migrations to the south. It is therefore

²⁴ YAKUBOVICH 2015, 138, 147, 148; YAKUBOVICH 2020, 222, 224, 225; YAKUBOVICH 2022, 7, 11–14, 19.

²⁵ BEEKES 2003, 10; WATKINS 2004, 574; SARI 2013, 308.

²⁶ YAKUBOVICH 2015, 140, 141, 149–151; YAKUBOVICH 2020, 222; YAKUBOVICH 2022, 16–18; MOUTON/YAKUBOVICH 2021, 46.

²⁷ MELCHERT 2004a, 576; MOUTON/YAKUBOVICH 2021, 47.

²⁸ YAKUBOVICH 2022, 19.

²⁹ MERIÇ 2020, 153.

³⁰ YAKUBOVICH 2008, 96, 97, 101, 102, 144; YAKUBOVICH 2015: 149, 153; MOUTON/YAKUBOVICH 2021, 46, 47; YAKUBOVICH 2022, 22, 23.

³¹ MELCHERT 2004b, 591; YAKUBOVICH 2015, 156; YAKUBOVICH 2022, 21.

³² MELCHERT 2004b, 591; YAKUBOVICH 2022, 21.

³³ YAKUBOVICH 2008, 161, 164, 168, 171, 200.

³⁴ MELCHERT 2004c, 609.

³⁵ YAKUBOVICH 2008, 109, 197; YAKUBOVICH 2022, 22.

³⁶ MELCHERT 2004d, 601; YAKUBOVICH 2008, 197.

assumed that the Lydians lived in the northwest in the land of Māša (east of the Troad), then the Phrygians, who came ca. 1200 BC from the Balkans, forced them out to Lydia. However, Homer never mentioned the Lydians, only the Meēiones³⁷. Moreover, there is no reason to identify the Mysian migrations with the Lydians, and the identification of the land of Māša with Maeonia is unreliable. The Greeks clearly distinguished between the Maeonians and Mysians. Therefore, it is supposed that the proto-Lydians lived in western Anatolia, and the proto-Mysians in the northwest. Remains of Lydians in the northwest can reflect their previous presence there, but several Lydian divine names were borrowed from Luwian, hence the speakers of these languages should have contacted, and in the 2nd millennium BC the Lydians were part of the Arzawa peoples³⁸.

The last of the Anatolian languages was Palaic, which was spoken in the land of Palā, situated in central Anatolia northwest of Hattuša, probably across the Halys river. This language was closer to Luwian than to Hittite, and it had Hittite, Luwian and Hattic loanwords. Palaic is known from tablets of the Old Hittite kingdom found in Hattuša. By the 13th century BC it probably ceased³⁹.

Based on the relationship of Anatolian languages, we may suppose that they should have spread from the same region. Since there are early traces of the presence of speakers of the Luwic languages in the northwest, they might have spread from there. Therefore, we can assume the same for Luwian, Palaic and Hittite, but the speakers of Hittite separated earlier, and the others began to split later, but before the early 2nd millennium BC. In this case one may assume that they lived in the Troad and Maeonia in the 3rd millennium BC, but the later sources point to other peoples in this region.

There is a hypothesis about the association of the Trojans with the Etruscans. The Near Eastern origin of the Etruscans has a long historiographical tradition, and this idea goes back to Herodotus who claimed that they came from Lydia⁴⁰. Recently, numerous arguments have been found to support this. The most important is that the Greeks called the Etruscans ‘Tyrsēnoi’, which corresponds to the name ‘Tyrrhenians’ in the northeastern Aegean. Another fact is the Lemnos stela of the 6th century BC, whose language goes back to the same proto-language as Etruscan. It is assumed that they left Anatolia during the crisis of 1200 BC, which coincides with the abrupt change from the Apennine culture to Proto-Villanova culture in Italy. There are many other arguments⁴¹, as well as some linguistic and paleogenetic arguments in favour of their Anatolian origin⁴². However, it does not mean that they came from northwestern Anatolia. This idea is substantiated by the identification of Lydia and Maeonia (from where, according to tradition, the Etruscans came), but since in the Classical period the latter was

situated east of Sardes, for the 2nd millennium BC it has been removed to the northwest arbitrarily. It is supposed that the Lydians lived in Troy, and the Etruscans to the south and east⁴³. There is a variation of this view: the Lydians lived to the east in the land of Māša, and proto-Tyrsenic was the main language in Wiluša (and the language of the Trojans), as well as in the northern part of the Aegean Sea; and they left this region for Italy ca. 1200 BC⁴⁴. But this idea is not based on Trojan materials (i.e. the Iliad). The only arguments for this localisation is the Lemnos stela and the Tyrrhenians. But these are later sources. At the end of the Bronze Age, the islands in the northeastern Aegean were inhabited by the Thracians, and the Tyrrhenians came to Lemnos only in the 8th century BC⁴⁵.

Studies of the Iliad revealed some Trojan-Luwian parallels⁴⁶. It is possible to find an opinion that the events of the Iliad are fiction⁴⁷. However, many years of systematic studies of this source indicate another, although any interpretation of the data presented in the Iliad cannot be direct, since they cannot be confirmed by parallel sources. The problem is that there are only three personal names, three theonyms and two toponyms in the northwest of Asia Minor, reflected in cuneiform sources of the Bronze Age, and many place names and personal names of the Iliad could be the result of later interpretations caused by the fact that certain peoples lived there in the Early Iron Age, and the Iliad was composed 500 years later than the events it describes. Therefore, it has been concluded that it is impossible to identify the Trojan ethnicity, but definitely it was not Luwian⁴⁸. The Trojans had both Greek and Anatolian names, but the former were typical of the Greek epic. However, the names *Κασσάνδρα* and *Αλέξανδρος* are definitely Greek, and the last name is present in the vassal treaty concluded between Muwatalli II, the king of Hatti, and Alaksandu, the king of Wiluša. The treaty is dated to the 13th century BC, close to the time of the Trojan War, which is usually associated with the end of Troy VIIa (the date of the layer is 1300–1190/80 BC). There are divine names in the treaty. Their etymology is uncertain, but they are definitely not Luwian. One of them, ‘Appaliunas’, probably identical to the Greek Apollo. But this can only indicate a dynastic marriage⁴⁹. In the Mycenaean period the inheritance of royal power was carried out along the female line, and there are Thracian names in the Mycenaean genealogies. Perhaps it was a common Anatolian tradition, because it is also reflected in the Edict of the Hittite king Telepinu⁵⁰. Thus, at that time Troy must have had close contacts with the Greeks.

At the same time, the names Priam, Paris, a number of others, are Thracian, but with Anatolian base. It is important that there are no Greek place names in the Iliad,

³⁷ BEEKES 2003, 15, 20, 22, 23; KLOEKHORST 2022, 223.

³⁸ YAKUBOVICH 2008, 143, 144; YAKUBOVICH 2022, 22, 23.

³⁹ WATKINS 2004, 574; MELCHERT 2004e, 585, 590; YAKUBOVICH 2015, 142; YAKUBOVICH 2022, 16, 19.

⁴⁰ ULF 2017.

⁴¹ BEEKES 2003, 25, 29–37; KLOEKHORST 2022, 210, 213–218.

⁴² IVANOV 1988; VERNESI *et alii* 2004; ACHILLI *et alii* 2007.

⁴³ BEEKES 2003, 16, 44, 45, 47.

⁴⁴ KLOEKHORST 2022, 201, 216–218, 222, 223.

⁴⁵ ILIEVA 2017, 266, 267.

⁴⁶ STARKE 1997.

⁴⁷ SCHÜRR 2019.

⁴⁸ YAKUBOVICH 2008, 145–147, 158.

⁴⁹ GINDIN/TSYMBURSKY 1994, 19, 20, 29–31; BENZI 2002, 343–347; YAKUBOVICH 2008, 145–147, 158.

⁵⁰ FINKELBERG 2005, 33–37, 65–108; ALPARSLAN/DOĞAN-ALPARSLAN 2015, 93.

but part of the Trojan place names has parallels in Thrace (Σκαίοι, Ξάνθιοι, Κεβρήνιοι) and Anatolia (Πέργαμος (citadel of Troy), mountain Ιδα, city Κελλαί). The most interesting among them are Troy (Τροία) and Ilion (Ιλιος), corresponding to the Hittite *Taruiša* and *Wiluša*, and the variants *Τροία*, *Τρώες* and *Taruiša* are independent words for the same toponym. These words are neither Greek nor Hittite. It is assumed that the ethnonym *Τραυοί* could designate a large Thracian tribe. In Hittite documents, *Wiluša* appears from the late 14th century BC, but there is one mention in the reign of Labarna I, therefore, according to L. Gindin, the Thracians were present there already at the beginning of the 17th century BC, and people of Troy VI spoke Thracian. But before that, starting from Troy I this area had been inhabited by the Luwians⁵¹. The latter is consistent with what Starke wrote, although it is possible that they were people who spoke proto-Luwic dialects. The Thracian identity of the Trojans has been questioned because the Thracians lived in northwestern Anatolia in the 1st millennium BC, and it was this fact that could be reflected in the *Iliad*⁵². These doubts should be taken into account, but they are not evidence to the contrary.

The Thracian migration from Anatolia occurred in the 18th century BC, and part of this population remained in the Troad⁵³. This corresponds to the possible appearance of the Thracians in Troy by the beginning of Troy VI, but they could not have been an autochthonous population there. It is possible that their roots were in Bithynia and part of Mysia, an area inhabited by the Thracians in the 1st millennium BC, where the Thracian river names are well known⁵⁴. However, earlier they lived further east. There is evidence of the Thracians and Phrygians (personal names and place names) in the north of Central Anatolia in the area of the ancient city of Zalpa. It is assumed that they are hidden behind the historical name 'Kaska', and they appeared in the area ca. 16th–15th centuries BC, and before that the local people spoke Palaic⁵⁵. But the Palaic language was spoken to the southwest, and the Kaska most likely spoke Hattic, and they penetrated into the area in the early 2nd millennium BC (see below). Therefore, this linguistic layer should belong to the late 3rd millennium BC. Perhaps it was their coming that provoked the migrations of the Thracians and Phrygians to the northwest of Asia Minor. This can explain the fact that the Phrygians were allies of the Trojans, and they lived somewhere nearby.

Phrygians

In the 1st millennium BC, the Phrygians were the major IE group in Anatolia. Their language was closest to Greek, and it is possible that these languages had split from one proto-language. In any case, they must have existed in close vicinity at an early stage or gradually separated within the late 4th–3rd millennia BC, i.e. in the EBA. In the

8th century BC, the Phrygians founded a mighty kingdom in central-western Anatolia with the capital at Gordion, in territory that had been previously controlled by the Hittites. Sometimes, the Phrygian migration is dated to after 1000 BC, and it is assumed that the Armenians also participated in it⁵⁶. It is supposed that until 1200 BC, the Phrygians lived to the north of the Sea of Marmara, and then penetrated into northwestern Anatolia and settled in the land of *Māša*⁵⁷. Their coming is usually connected with the collapse of the Hittite kingdom ca. 1200 BC, and it is generally accepted that they came from the Balkans. But cities of this time (Gordion) show no traces of violent conquest and coming of people from the European continent. In other cases, there is a hiatus, and the appearance of the Phrygians is dated to the 8th century BC (Bogazköy). In Near Eastern sources, the Phrygians are mentioned as *Mushki*, because the Assyrian chronicles (Sargon II) mention Mita the *Mushki* king, between 717 and 709 BC, and he have been identified with the Phrygian king Midas. Tiglathpilesar I of Assur (1112–1072 BC) speaks of his battles against the *Mushkis*, on the upper Tigris. Therefore, the Phrygians were present in Anatolia in the 12th century BC, before the foundation of their kingdom⁵⁸. There are also assumptions that the Phrygians (*Meshnech*) and Thracians from northwestern Asia Minor (*Derdni* – Dardanians and *Mes* – Moesians) took part in the battle of Kadesh in 1274 BC⁵⁹, and Priam helped his Phrygian allies Otreus and Mygdon before the Trojan War near the Sakarya river in northern Phrygia; his wife Hekuba was a Phrygian, and her brother Asius lived in Phrygia by the river Sangarius (Sakarya)⁶⁰. Hence, in the 13th century BC, the Phrygians lived in northwestern Anatolia, east of the Troad. The only traces of European presence in the region are limited to a small number of Balkan objects in Troy VIIb. But there are no similar finds in other Anatolian settlements, even in the Troad. Therefore, it is impossible to find traces of migrations of the Aeolians, Thracians or Phrygians in this⁶¹. However, it is assumed that the Phrygians came from the Balkans in several waves, which makes it difficult to associate them with specific artefacts. They settled in Western Anatolia, in the land of *Māša*, but it is only based on the consonance with 'Mushki'⁶².

Generally, in the Late Bronze Age (LBA), there are no noticeable traces of migration from Europe to Anatolia. We only reliably know that the Phrygians were an Anatolian people, and the idea of their arrival from the Balkans is based on two shaky facts. The first is the common belief that the IE homeland was in Eastern Europe, which is not true. The second is a passage from Herodotus (VII, 73): «The Phrygian equipment was most like to the Paphlagonian, with but small difference. By what the Macedonians say, these Phrygians were called *Briges* as long as they dwelt in Europe, where they were neighbours of the Macedonians; but when they changed their home to Asia they changed their name also and

⁵¹ GINDIN 1967, 32; GINDIN 1981, 63, 106–110, 117, 130, 132, 138–165, 184; GINDIN 1993, 16, 18–20, 32, 33, 38, 70, 71.

⁵² YAKUBOVICH 2008, 159.

⁵³ GRIGORIEV 2023a.

⁵⁴ YANAKIEVA 2018, 28.

⁵⁵ WOUDHUIZEN 2018, 44–46.

⁵⁶ HAJNAL 2003, 132, 133.

⁵⁷ KLOEKHORST 2022, 223, 224.

⁵⁸ BRIXHE 2008, 69, 72; KOPANIAS 2015, 215–221.

⁵⁹ POROZHANOV 2017, 63.

⁶⁰ GINDIN/TSYMBURSKY 1995, 28; KOPANIAS 2015, 213.

⁶¹ ROSE 2008, 411.

⁶² KOPANIAS 2015, 220, 221.

were called Phrygians. The Armenians, who are settlers from Phrygia, were armed like the Phrygians». If we even assume that the memories of the Macedonians correspond to reality, they would not be able to compare the languages of the Phrygians and the Briges. This interpretation is based on consonance. But the Classical authors placed the Βρύγες in the northern Adriatic, and only sometimes in Macedonia. The names Breigos and Brykos are present on stelae in the Illyrian cemetery near the Greek colony of Dyrrhachium in modern Albania. Appian describes them in Epidamnus in Illyria. Therefore, most likely they were Illyrians⁶³, and in the 2nd millennium BC we should look for the Phrygians in Asia Minor. Herodotus is a brilliant opportunity to illustrate or interpret some established fact, but he can be used as a starting point for building a theory only after we find 'one-eyed Arimaspi' somewhere in the western Urals.

The cult of Cabiri, common to the Phrygians, Thracians and Greeks, was borrowed from people who spoke Anatolian languages⁶⁴. It is assumed that the Greeks borrowed the cults of Demeter and Cybele from the Phrygians⁶⁵. The latter cult was probably also Anatolian. But in the Greek language, except for a couple of terms associated with the cult of Cybele, there are no borrowings from Phrygian, there are borrowings from Greek to Phrygian, but later ones, came from the Greeks of Asia Minor⁶⁶.

To sum up, there is no ground to think that the Phrygians came from the Balkans. They must have separated from the Greeks within the EBA (the first half of the 3rd millennium BC) somewhere in eastern Anatolia, and their initial movement together with the Thracians to the north of central Anatolia is probable. After this, in the MBA and LBA, they lived in northwestern Anatolia, possible for some time in the land of Māša, but the latter is unreliable. Therefore, they and the Greeks had a common Anatolian origin in close areas, but after the split they were not neighbours until the 1st millennium BC, when the Ionian Greeks established contacts with the Phrygian kingdom.

Ahhiyawa and the Greeks

There are many opinions about the localisation of Ahhiyawa, but its identification with Mycenaean Greece is the most accepted, primarily with Mycenae that controlled from LH IIIA1 (ca. 1420 BC) the entire Argolis and began to capture the Aegean islands, including Crete, as well as Miletus. It is remarkable that the term 'Ahhiyawa' appeared in Hittite sources also around 1430 BC⁶⁷. There are many arguments in support of its localisation on the southwestern coast of Anatolia. This name is mentioned in the Hittite documents only 25 times for 200 years, and its meaning could be different. But the terms for Ahhiyawa, Achaeans and Aeolians (Ahhiya, Ἀχαιῶες and Αἰολεῖς) were interconnected⁶⁸. Therefore, we can assume that this term covered the Greek people in general, both Mycenaean and Anatolian.

This problem is closely related to the problem of the origin of the Greeks who migrated from the southwestern coast of Anatolia in EH IIb, but the process was very long⁶⁹. However, this area was not their homeland. The presence of Greek borrowings in Kartvelian and reverse ones, as well as a number of other linguistic considerations about the formation of Greek close to the areas of formation of Indo-Iranian, Armenian and Phrygian⁷⁰ make us look for the Greek homeland in the east of Anatolia. Other language contacts of the Greeks are very indicative. There are several borrowings into Greek from Luwian. But the earliest one, which is present in the Mycenaean dialect, is only 'cup' (Myc. *di-pa-*, Gk. δέπας, Luv. *Tappas*). Several other loanwords from Luwian and Hittite might be later ones, resulting from trade relations and contacts of the 1st millennium BC, and most of them may have been transmitted through Pamphylia after the appearance of Greeks there. But the Greek dialects and the Indo-European Anatolian languages share a number of structural similarities, which indicate contacts between proto-Greek and Common Anatolian, and these similarities were caused by their common Hurro-Urartian and Hattic linguistic substrate⁷¹. Moreover, in the Greek tradition, it is possible to find parallels in the Mesopotamian and Hurrian epics, which were transmitted through the Anatolian oral tradition. A part of them are possibly late, but some are quite early⁷². Based on all this, we may conclude that at an early stage the Greeks must have formed in eastern Anatolia, then they moved to the west, to an area where they came in contacts with people who spoke Anatolian before the separation of Luwian, and during a short time after that.

Armenians

The last IE group in Anatolia are the Armenians. It is generally accepted that Armenian is closest to Greek and Indo-Iranian, sometimes some its kinship with Phrygian is assumed. But the main Iranian influences on Armenian took place since the 6th century BC, in the Achaemenid and Parthian periods. Therefore, it is more reasonable to discuss the relationship with Greek and more distant with Phrygian. Armenian phonetics is close to Georgian one, but this also might have been a later process. For the first time, the term 'Armenia' appeared in the Behistun inscription ca. 520 BC, and the Armenian language was recorded in the 5th century BC⁷³. In the earlier period, the Armenians probably lived in the lands of Azzi and Hayaša, but their exact localisation is unknown. Some scholars were inclined to place them northeast of the Hittite Upper Land and east of the Kaska lands⁷⁴. Others believe that they were located to the east and southeast, somewhere between the Land Išūwa and Lake Van⁷⁵. Taking into account the following connections between the Armenians and the Hurro-Urartian tribes, this localisation seems preferable. It is very difficult to determine

⁶³ KATIČIĆ 1976, 116–119, 130; WILKES 1992, 72, 112.

⁶⁴ GINDIN 1981, 53, 54.

⁶⁵ WOUDHUIZEN 2018, 35–41.

⁶⁶ ORESHKO 2018, 98, 99.

⁶⁷ YAKUBOVICH 2008, 96; WIENER 2009, 713, 715; WIENER 2020, 307.

⁶⁸ ÜNAL 1991, 17–20, 23–38; CARRUBA 1995.

⁶⁹ GRIGORIEV 2022a.

⁷⁰ GAMKRELIDZE/IVANOV 1995, 799–804; FILOS 2014.

⁷¹ YAKUBOVICH 2008, 183–196.

⁷² BACHVAROVA 2015.

⁷³ CLACKSON 2008, 124, 125.

⁷⁴ GIORGADZE 1961, 169, 170.

⁷⁵ KOSYAN 2011, 92; DEMIREL 2017, 103.

an earlier area, but in any case it was far from modern Armenia. Probably, to the north, in northeastern Anatolia, closer to the hypothetical area of the Kartvelian tribes, one should look for the homeland of the Greeks, and to the west of them the Phrygians and Thracians. Thus, the latter should be placed in the Kaska lands. As a result, the presence of the corresponding toponyms and personal names in the north of central Anatolia have been explained by that they were Kaska⁷⁶. But the situation is more complex.

Kaska

In the second half of the 2nd millennium BC, the Kaska lived north and northeast of the Hittite kingdom on the Black Sea coast. It is assumed that they also lived west of modern Sinop, although there is no reliable evidence⁷⁷, therefore, their western border was in the lower reaches of Halys⁷⁸. There are few excavated sites in the area, and archaeological surveys revealed only small settlements, fortified in some instances. It is supposed that local tribes, along with agriculture, practiced transhumance⁷⁹. Information about the Kaska is completely absent from the Old Hittite sources, it appeared during the reign of Tudhaliya II (1450–1420 BC), with the beginning of permanent conflicts and other relations of the Hittites with this ethnic group. These conflicts lasted until the fall of the Hittite kingdom in the 12th century BC⁸⁰. Therefore, the Kaska have been always considered as newcomers in this region, but some scholars believe that they came precisely in the 15th century BC, whereas the others suppose that they came from central Anatolia in the early 2nd millennium BC as a result of Hittite pressure⁸¹.

The Kaškan pantheon, toponyms and onomastics are comparable to the Hattian and the Northwest Caucasian (Abkhazo-Adyghean) ones, and there are many other possibilities for such comparisons. As a result, most scholars suppose that they spoke Hattic⁸². They are sometimes considered an autonomous part of the Hittites, whose population was mixed⁸³. But since initially people of Hattuša spoke mainly the Hattic language, this opinion does not significantly differ. There is an idea that the origins of the Hittites were connected with Zalpa, a city on the coast of this area, where at least one Hittite king was buried⁸⁴. Zalpa was a strong center in the 19th century BC. Around 1835 BC, king Uhna of Zalpuwa, ally of Hattuša, burned and plundered Kaneš and took away sacred objects (the scepter and the iron throne). Around 1750 BC the Hittite leader Pithana came to Kaneš from Kuššara; in 1730 BC his son Annita destroyed Hattuša, and then he fought against Zalpa and returned to Kaneš the objects stolen by Uhna⁸⁵. Subsequently the

Zalpuwa region and especially the holy city of Nerik was the place of ritual pilgrimage of the Hittite kings, although it was in the Kaska lands. There is the Hittite “Zalpa Tale”, telling that a queen of Kaneš gave birth to 30 sons and sent them in baskets down the river to Zalpuwa. Many years later, they returned to Kaneš⁸⁶. Perhaps, it may be explained by the fact that the Hattians were the main population in the Hittite kingdom, and their cult center could be situated on the territory of a related population. In any case, many details of this legend contradict to Hittite ideology⁸⁷. But this legend has always been viewed as a reflection of some migration event.

Thus, we can conclude that by the early 2nd millennium BC the Hattians lived in central Anatolia, and the north of central Anatolia was inhabited by them, at least, from the middle of the 2nd millennium BC, if not earlier. We may also assume some special ties of the Hittites proper with this region.

Based on the North Mesopotamian homeland of the Indo-Europeans and the linguistic geography of Anatolia discussed above, we must identify several processes: 1) migration of speakers of proto-Anatolian dialects into the Balkans, 2) their subsequent return to Anatolia and migration from the northwest of Anatolia, 3) migrations of other IE tribes from the east of Anatolia to the west.

GENETICS

We can obtain the most general framework of the processes using paleogenetics. When discussing three versions of the IE homeland (in the eastern European steppe, Anatolia and northern Mesopotamia) we should expect corresponding gene flows. It has been a well-established fact that in the Neolithic, the Anatolian genes spread to Europe, from the South Caucasus and western Iran to the steppe, and from the Levant to North Africa⁸⁸. This alone made it possible to assume the formation of the Indo-Europeans from Anatolia to northwestern Iran, and the Semites in the Levant. It is indicative that steppe genes did not appear in the regions inhabited by the Indo-Europeans. Everywhere we see genes from western Asia. An important exception is the penetration of steppe genes into Europe, associated first of all with the pre-Yamnaya migration of the Eneolithic kurgan cultures. Another fact is an episode of the penetration of steppe genes to Armenia at the beginning of the MBA. But already this steppe population had up to half of Caucasian ancestors, who were the main southern component in the steppe⁸⁹. There are ideas about the penetration of steppe genes into South Asia⁹⁰, but the conclusions drawn in this paper do not correspond to the materials published in it. The population of India was connected with the earlier population of the northwestern periphery of the Indus civilisation⁹¹. All this indicates the West Asian origins of Indo-Europeans.

⁷⁶ WOULDHUIZEN 2018, 44–46.

⁷⁷ YAKAR 2008, 821; DEMIREL 2019, 43.

⁷⁸ GIORGADZE 1961, 162, 184–194.

⁷⁹ GIORGADZE 1961, 168; GLATZ/MATTHEWS 2005, 56; SINGER 2007, 169; GLATZ 2017, 79; DEMIREL 2019, 43, 44.

⁸⁰ SINGER 2007, 168; MATTHEWS/GLATZ 2009, 56; GLATZ 2017, 75.

⁸¹ GLATZ 2017, 85; DEMIREL 2019, 44.

⁸² GIORGADZE 1961, 198–210; SINGER 2007, 176–179.

⁸³ CORTI 2017, 219.

⁸⁴ DÖNMEZ 2008, 107.

⁸⁵ BARJAMOVIC *et alii* 2012, 38, 40, 48, fig. 13.

⁸⁶ GLATZ/MATTHEWS 2005, 51; CORTI 2017, 220, 226.

⁸⁷ ZORMAN 2008, 862, 870.

⁸⁸ LAZARIDIS *et alii* 2016, 419, 423.

⁸⁹ GRIGORIEV 2021; 2022a; LAZARIDIS *et alii* 2022a, 4, 5, 8, 11.

⁹⁰ NARASIMHAN *et alii* 2019.

⁹¹ See in details GRIGORIEV 2021, 205–207.

We can see a more detailed picture in papers published recently. There are two main clusters in the Neolithic of western Asia: an “inland” Zagros-Caucasus-Mesopotamia-Armenia-Azerbaijan cluster, and “Eastern Mediterranean” Anatolian/Levantine cluster, with distinct Levantine individuals in the latter⁹². The first one became the basis for the future Caucasus hunter-gatherer-related ancestry, which were the basis for populations of the Northern Zagros, South Caucasus and North Mesopotamia. The Mesopotamian population was more homogenous, and that of the South Caucasus had Anatolian admixtures. On the other hand, Anatolian populations had in some places Levantine admixtures, but more often Caucasian admixtures, significant in southeastern Anatolia and absent in the northwest. As a result, a genetic gradient (cline) was formed between western Anatolia to the South Caucasus and Zagros⁹³. This picture strongly corresponds to the model of the PIE formation in northern Mesopotamia and their subsequent spread to the South Caucasus and eastern Anatolia, as well as their close interactions with the Dene-Caucasian populations, a part of which transformed later into the North Caucasian languages.

It is well-known that the Neolitisation of Europe was accompanied by the spread of western Anatolian Neolithic genes. But in southeastern Europe, there was also an admixture of Caucasus hunter-gatherer-related ancestry, up to 8–10% in Greece. Initially, the Balkans had been inhabited by the same population as central and western Europe, and this Caucasian admixture appeared in the Final Neolithic⁹⁴. There is one more difference between the Balkans and the rest of Europe: the lack of admixture of local hunter-gatherers. This admixture appeared in the Eneolithic, but remained minor and was not present in all groups⁹⁵. Thus, many Balkan populations, unlike populations of central and western Europe, remained genetically close to the Anatolian ones. This exactly corresponds to the model that the main part of Europe was inhabited by people who spoke Dene-Caucasian languages, which have remained only in the north of Iberia as the language of Basques, whereas in the Balkans the PIE population with Caucasian genes was isolated from the main PIE massif, and this resulted in the separation of Anatolian dialects⁹⁶. This refutes the Anatolian hypothesis of the IE homeland⁹⁷ and confirms its localisation on the Armenian Highlands and in northern Mesopotamia⁹⁸.

This explains another paradox of paleogenetic studies. Despite the fact that in the Bronze Age, Anatolia was inhabited by Indo-Europeans of the Anatolian group, there was no influx of genes from the steppe and the Balkans, only flows of genes from the east. This has been explained by the fact that proto-Indo-Europeans, populations of high Caucasus hunter-gatherer ancestry, originated in eastern Anatolia, northern Mesopotamia and the South

Caucasus. Most of them migrated through the steppe to other regions (Europe and South Asia), and the remained speakers of Anatolian languages migrated from eastern Anatolia to central Anatolia, where they met a population of high Anatolian-related ancestry, who spoke Hattic⁹⁹. However, many areas of the Balkans were inhabited by populations genetically identical to the Anatolian ones, and their movement back to central Anatolia did not have clearly visible European genetic features. But this movement was not without a trace. In the Chalcolithic and later in the Bronze Age, the Caucasus hunter-gatherer ancestry spread westward up to western Anatolia and their proportion there reached ca. 33%. In addition, this groups began to penetrate into the Levant especially at the beginning of the EBA¹⁰⁰. At the same time, Western Anatolian Neolithic-related ancestry penetrated east into central and eastern Anatolia. These processes resulted in a certain genetic homogenisation of Anatolia, although the difference of eastern Anatolia remained, there was a noticeably higher proportion of the Caucasus hunter-gatherer ancestry, typical in the Neolithic of northern Mesopotamia¹⁰¹. Probably, this genetic drift from the west reflects migrations from the Balkans at the end of the Chalcolithic and the beginning of the EBA. On the other hand, we see a westward spread of Caucasian genes, which indicates a significant increase of the IE component in Anatolia.

This drift continued in the Balkans, where for the EBA a new influx of Caucasian genes is recorded in Greece. A proportion of the newcomers was 18.5%, but 21.2% in Euboea and the Cyclades. Moreover, this flow came directly from Anatolia, not through the steppes¹⁰². This exactly corresponds to the Greek migration from Anatolia in EH IIB and the slow assimilation of local tribes¹⁰³. One may assume that the actual influx of people from Anatolian was higher, since they could have included local groups in western Anatolia, who had Western Anatolian Neolithic genes.

In addition to this, the Caucasian genes spread to eastern Anatolia at the beginning of the EBA, which coincided with the spread of the Kura-Araxian culture, but later this component did not increase, its proportion was eroded. Therefore, a noticeable increase of Caucasian genes in the Northern Levant is surprising. In this area, the Kura-Araxes-related culture of Khirbet-Kerak appeared, and it was also accompanied by influxes of genes from the Southern Levant¹⁰⁴. Therefore, we can admit the Indo-European penetration into these regions, but it does not follow from this that the IE language was adopted there, as the spread of Semitic people from the south is also obvious.

It is also remarkable that later Levantine genes spread to the north, to the area of lake Van, where the kingdom of Urartu formed subsequently, therefore this process can mean the movement of the Hurrians. In the northern part

⁹² LAZARIDIS *et alii* 2022a, 2.

⁹³ SKOURTANIOTI *et alii* 2020, 1160, 1166; LAZARIDIS *et alii* 2022a, 3, 5.

⁹⁴ LAZARIDIS *et alii* 2022b, 4; SILVA *et alii* 2022, 3, 7.

⁹⁵ MATHIESON *et alii* 2018, 4, 6, 7, Extended Data Figure 2; FREILICH *et alii* 2021, 4, 5; LAZARIDIS *et alii* 2022a, 8.

⁹⁶ GRIGORIEV 2022b, 71, 72.

⁹⁷ RENFREW 1987.

⁹⁸ GAMKRELIDZE/IVANOV 1995; GRIGORIEV 2002.

⁹⁹ SKOURTANIOTI *et alii* 2020, 1168; LAZARIDIS *et alii* 2022a, 5, 11.

¹⁰⁰ SKOURTANIOTI *et alii* 2020, 1160; LAZARIDIS *et alii* 2022a, 5.

¹⁰¹ LAZARIDIS *et alii* 2022a, 5.

¹⁰² SILVA *et alii* 2022, 11; LAZARIDIS *et alii* 2022a, 6, 7; LAZARIDIS *et alii* 2022b, 4.

¹⁰³ GRIGORIEV 2022a.

¹⁰⁴ SKOURTANIOTI *et alii* 2020, 1168; LAZARIDIS *et alii* 2022a, 5.

of this kingdom, in Armenia, these genes are absent, the population inherited the former Caucasian genes. But in the MBA, with the appearance of 'kurgan cultures', there was an influx of steppe genes in the area (~14%), the only similar episode in the Near East. Later, the proportion of these ancestors gradually decreased, and in the 1st millennium BC this admixture disappeared¹⁰⁵. One should also take into account that this steppe admixture has been identified in individuals of the late 2nd millennium BC, and its appearance in the middle of the 3rd millennium BC is based on calculated data. There is only one earlier individual from Tavshut (2127 to 1900 BC) with this admixture. Therefore, based only on the paleogenetic evidence, it can be assumed that the Armenians came from the north in the MBA. On the other hand, they could not have been an autochthonous population of the Armenian Highlands, since at that time the Armenians lived much south (see above), and some people came from the steppe, who had formed there in the Eneolithic after migrations from the Near East. Paleogenetics unable to answer this question. But since the separation of the Armenian language occurred earlier, the second version is more likely.

Taking into account this fact, we may admit that people in the Northern Levant, genetically close to the Anatolian Neolithic groups, also spoke some Dene-Caucasian language, and their descendants were Hurrians. In this case the genes flows from the Southern Levant into the Northern Levant at the beginning of the EBA reflect the growth of the Semitic population there. On the other hand, after their coming to Northern Syria, the Hurrians could have partly assimilated the local Semitic people, because much later we see the Levantine genes in the kingdom of Urartu. Scenarios can be different, but in no case this genetic group was connected with the Indo-Europeans.

The fundamental thing is that the genetic evidence indeed shows the IE origins in northern Mesopotamia and gradual increase of this genetic component in Anatolia during the Neolithic and the EBA, its penetration into the Balkans at the end of the Neolithic, and the gene flows from northwestern Anatolia eastward in the EBA, which completely corresponds to linguistic materials. However, this sets the most general framework, and we can only look the details using archaeological data.

INDO-EUROPEANS IN THE NEOLITHIC OF THE NEAR EAST

The localisation of the IE homeland on the Armenian Highlands was suggested on the basis of early IE contacts with speakers of other languages (Kartvelian, North Caucasian and Semitic), as well as on the basis of linguistic reconstruction of the IE natural environment and economy. Later, it has been shown that this reconstruction corresponds to the Neolithic complexes of northern Mesopotamia (Tell Maghzalya, Nevali Çori – 7th millennium BC, proto-Hassuna/Tell Sotto – the second half of the 7th millennium BC, Hassuna culture – the 6th millennium BC and the early 5th millennium BC) (fig. 2), and there is a detailed similarity

¹⁰⁵ LAZARIDIS *et alii* 2022a, 8, 9; LAZARIDIS *et alii* 2022b, 7.

of individual components and identical dynamics in their development. The most important fact is that the Indo-Europeans practiced agriculture, which was absent in the steppe¹⁰⁶. In the 6th millennium BC, this tradition spread to the South Caucasus, with the emergence of the Shulaveri-Shomutepe culture, whose features are comparable with Tell Sotto in northern Mesopotamia. But it is difficult to identify its ethnicity. It may be regarded as proto-Indo-European, proto-Kartvelian or proto-North Caucasian¹⁰⁷. It is very doubtful that individual dialects separated at this stage.

The common opinion is that the formation of Neolithic cultures in the Balkans (Karanovo I, Starčevo-Criş and Preceramic Neolithic of Thessaly) in the 7th–6th millennia BC was stimulated by migrations from western and central Anatolia, and from this the Neolithisation of Europe began. But in the late Neolithic (5th millennium BC), new cultures formed in Bulgaria (Kremikovtsi, Kremenik-Anzanbegovo, Gradeshnitsa-Kirča), which had parallels with the ceramics of both Anatolian (Haçilar V–II, early Neolithic Alişar, Mersin XXIV–XX) and Mesopotamian settlements (Hassuna V, Samarra). This raises the possibility of direct migrations from the Near East, not mediated by the Karanovo I culture¹⁰⁸. This can indicate migrations from more eastern regions and the first appearance of Indo-Europeans in southeastern Europe, that corresponds to the penetration of Caucasian genes there during this period and the chronology of the separation of Anatolian languages. From this time on, close interaction between the northeastern Balkans and northwestern Anatolia was established, and occasional penetration of the Balkan population into Anatolia is assumed¹⁰⁹.

THE CHALCOLITHIC AND EARLY BRONZE AGE OF THE SOUTH CAUCASUS, EASTERN ANATOLIA AND NORTHWESTERN IRAN

This process continued in the Chalcolithic, and the early Chalcolithic in the South Caucasus inherited many traditions of Shulaveri-Shomutepe, but parallels with the Neolithic of western Georgia (Odishi, Anaseuli II and Gurianta) are more obvious¹¹⁰. As a result, in Transcaucasia and the northeastern Caucasus from the late 5th millennium BC to the middle of the 4th millennium BC settlements of the Sioni type formed (Alikemek Tepesi, Leila Tepe, Ginchi) with ceramics from grit tempered and often micaceous clay. In the late Chalcolithic (Tsopi, Berikdeebi V, Tekhut and Leila Tepesi), the chaff-tempered wares with relief decoration (knobs etc.) appeared (fig. 2). It was a continuation of the earlier Chalcolithic phase, but new southern impulses are also obvious, since this ware has parallels in Amuq F, Gawra XII–IX and Late Ubaid¹¹¹. Comparable material has been discovered at Tilki-Tepe (eastern Anatolia), Geoy

¹⁰⁶ GAMKRELIDZE/IVANOV 1995, 463–572, 593–641; GRIGORIEV 2002, 322–324; GRIGORIEV 2021, 209–211.

¹⁰⁷ GRIGORIEV 2002, 324, 333, 336.

¹⁰⁸ NIKOLOV 1984, 7, 17–19; NIKOLOV 1989, 192, 193; PERNICHEVA 1995, 104.

¹⁰⁹ YAKAR 2013, 209–211.

¹¹⁰ KIGURADZE 2000, 323, 324; KIGURADZE/SAGONA 2003, 90.

¹¹¹ KIGURADZE 2000, 321–324.

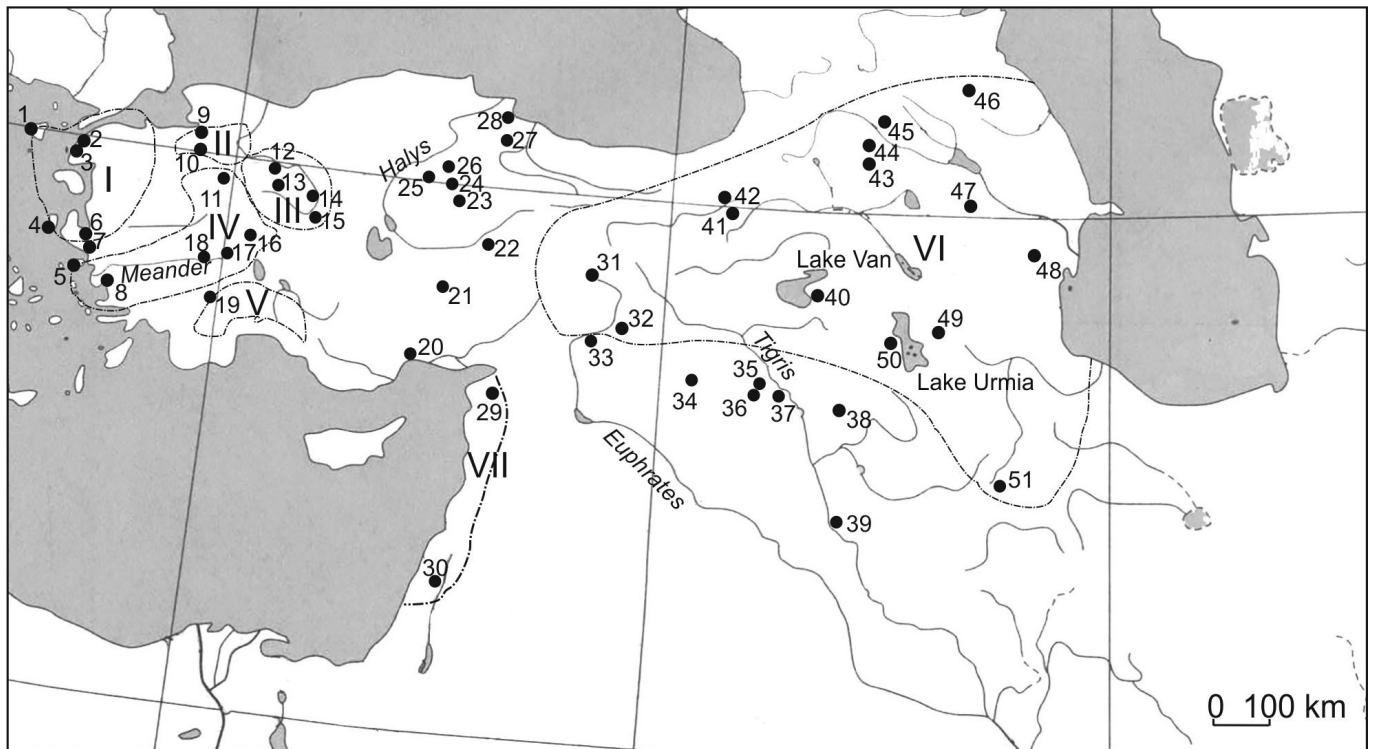


Fig. 2. Archaeological sites and cultural areas mentioned in the text: 1 – Poliochni, 2 – Troy, 3 – Kumtepe, 4 – Emporio, 5 – Heraion, 6 – Limantepe, 7 – Baklatepe, 8 – Miletos, 9 – Ilpınar, 10 – Inegöl, 11 – Tavşanlı, 12 – Demircihöyük, 13 – Küllüoba, 14 – Yazır Höyük, 15 – Yarikkaya, 16 – Kusura, 17 – Beycesultan, 18 – Aphrodisias, 19 – Haçılar, 20 – Mersin, 21 – Gelveri-Guzelyur, 22 – Kültepe, 23 – Alışar, 24 – Alacahöyük, 25 – Hattuşa, 26 – Büyükgüllücek, 27 – Horoztepe, 28 – İkiztepe, 29 – Amuq, 30 – Khirbet Kerak, 31 – Arslantepe, 32 – Hassek Höyük, 33 – Nevali Çori, 34 – Tell Halaf; 35 – Tell Sotto, 36 – Tell Maghzalya, 37 – Hassuna, 38 – Gawra, 39 – Samarra, 40 – Tilki-Tepe, 41 – Pulur-Sakyol, 42 – Sos Höyük, Karaz, 43 – Tekhut, 44 – Tsopi, 45 – Berikldeebi, 46 – Ginchi, 47 – Leila Tepe, 48 – Alikemek Tepesi, 49 – Yanık Tepe, 50 – Geoy Tepe, 51 – Godin Tepe.
I – Troy-Yortan, II – Bithynia, III – Phrygia, IV – Büyük Menderes-Upper Porsuk, V – Lycia-Pisidia, VI – Kuro-Arax/Karaz, VII – Khirbet Kerak.

Tepe and Yanık Tepe (northwestern Iran). These cultures demonstrate communications, first with Halaf, and then, in the 4th millennium BC, with Northern Ubaid, marked by corresponding inclusions of ceramics on settlements. This process was regarded as the spread of Indo-Europeans from the south¹¹². The fact that part of these groups penetrated east of the Zagros and another part north of the Caucasus suggests that at this time the split of individual IE dialectal groups began. Perhaps the groups in northwestern Iran can be understood as a separation of the Indo-Iranians and Tocharians, which is quite consistent with linguistic chronology. It is possible that the appearance of the Halaf culture in the southern part of this area means the coming there of speakers of the proto-North Caucasian dialects from southeastern Anatolia, i.e. the arrival of proto-Hurrians in the original IE area. These processes of the late Chalcolithic formed in the huge area (the South Caucasus, eastern Anatolia, northern Syria, northern Mesopotamia and northern Iran) a horizon of chaff-tempered ceramics, which appeared for the first time in the Hassuna culture¹¹³. Around the middle of the 4th millennium BC, the Uruk expansion began there, above all in eastern Anatolia (Arslantepe VII, Hassek Höyük, etc.), Mesopotamian architectural traditions, seals, ceramic forms and the potter's wheel came in the

region, but the former recipes of chaff-tempered pastes indicate the production of these new types of ware by local potters. Therefore, there was no significant change of the population¹¹⁴, and the IE people might have remained in the region.

The next stage in the regional development was the formation of Kura-Araxian culture after the middle of the 4th millennium BC. It is characterised by specific forms with red inner and black outer surface. There is an opinion about its earliest appearance ca. 4300–4100 BC on the settlement of Ovçular Tepesi in the South Caucasus, where it was an admixture to the late Chalcolithic chaff-tempered ware, and it is assumed that these types belonged to the same culture, although they had different functions. At the same time, the sharp technological differences do not allow these types to be considered as genetically connected. This tradition had been introduced to the region from somewhere¹¹⁵. It is an isolated case, and such an early date is unreliable. It is also assumed that on the Pulur settlement some pieces of the black burnished ware appeared already in the 5th millennium BC¹¹⁶. The presence of proto-Kura-Araxian ware in many late Chalcolithic settlements of the South Caucasus and eastern

¹¹² GRIGORIEV 2002, 334–336.

¹¹³ MUNCHAEV/MERPERS 1981, 87–92; MARRO *et alii* 2014, 142; YALÇIN 2011, 40; PALUMBI/CHATAIGNER 2014, 247; PALUMBI 2016, 5, 6.

¹¹⁴ HELWING 1999, 91–96, 98; FRANGIPANE 2000, 440–442; YALÇIN 2011, 40; PALUMBI 2019, 40.

¹¹⁵ MARRO *et alii* 2014, 132, 141–149, 151.

¹¹⁶ SAGONA 2000, 333, 340; IŞIKLI 2015, 56, 59, 61). It is not very reliable, but this ware belongs to the Chalcolithic (YALÇIN 2011, 41).

Anatolia since 3500/3300 BC is undeniable, and some its forms are close to the late Chalcolithic pottery. This pottery could not have been appeared as a Mesopotamian influence, which reached only southeastern Anatolia (Arslantepe), and there was no similar tradition. But one can see its gradual development from the Chalcolithic tradition¹¹⁷. In eastern Anatolia (Sos Höyük), parallels with the Transcaucasian Sioni sites are obvious, and there are some pieces of the black burnished ware with Kura-Araxian elements in ornamentation. This combination of Chalcolithic and Kura-Araxian ware remained until the early 3rd millennium BC, when a direct Kura-Araxian influence from Transcaucasia began.

It is indicative that the Kura-Araxian culture covered almost the entire area of chaff-tempered ware. But the earliest forms of this red-black burnished ware of the Upper Euphrates (Arslantepe VII and VIA) differ from the Chalcolithic and classical Kura-Araxian ware; they rather have some parallels in black-burnished pottery of central Anatolia (Alişar, Alaca Höyük, Yazır Höyük), and in the north of central Anatolia (Ikiztepe) the ware with a black outer surface and red interior is dated to the transition between the Chalcolithic and the EBA. There are some parallels in colour of the surface, ornamentations and incrustation with white paste (Büyükgüllücek, Alaca Höyük, Alişar)¹¹⁸. Also indicative are the graphite-slipped sherds, typical of the early Kura-Araxian culture, but present in Alişar at the EBA beginning, where they are considered as a sign of Balkan influences. Fortifications (Pulur) were probably an introduced tradition too¹¹⁹. Despite the common belief that the Kura-Araxian culture spread from the South Caucasus, early ceramics of the late 4th millennium BC was monochrome there. For this reason, it is assumed that before the beginning of the 3rd millennium BC, this red-black-burnished ware was not connected with the Kura-Araxian tradition of Transcaucasia, it originated in Upper Mesopotamia (Arslantepe VI), where the amount of this ware gradually increased, but then it decreased again¹²⁰. But we should keep also in mind some western parallels. Since this time, the pottery technology was being gradually changed. Admixtures of sand and clay appeared, methods of modelling and surface treatment changed, and all this became typical of the EBA¹²¹. These processes had regional differences. In northeastern Anatolia and the South Caucasus, local populations were the basis of the Kura-Araxian ones; in southeastern Anatolia, in the Upper Euphrates valley, too, but there was a significant Uruk influence¹²². The dates of the regional EBA are: EBA I – 3000–2800/2700 BC, EBA II – 2800/2700–2500 BC, and EBA III – 2500–2200 BC¹²³.

¹¹⁷ KIGURADZE/SAGONA 2003, 45, 47, 49, 50, 91, 92.

¹¹⁸ YALÇIN 2011, 42; PALUMBI/CHATAIGNER 2014, 247, 249, 250, 256; PALUMBI 2019, 40.

¹¹⁹ THISSEN 1993, 208, 214; YALÇIN 2011, 35, 42–44.

¹²⁰ FRANGIPANE 2000, 443, 448; PALUMBI/CHATAIGNER 2014, 256; PALUMBI 2016, 12, 13; PALUMBI 2019, 31, 32.

¹²¹ YALÇIN 2011, 38; PALUMBI 2016, 11, 12.

¹²² FRANGIPANE 2000, 444, 445; YALÇIN 2011, 41; IŞIKLI 2014, 243, 244; IŞIKLI 2015, 66; PALUMBI 2019, 30, 31.

¹²³ SAGONA 2000, 334, 335; YALÇIN 2011, 39, 49; IŞIKLI 2015, 62; PALUMBI 2019, 33, 34.

In the late 4th – early 3rd millennia BC, the system of Uruk colonies collapsed in northern Mesopotamia and Iran, the Uruk administration disappeared, many settlements were abandoned or burnt, but the culture remained local features. The penetration of Kura-Araxian people in this region was somehow connected with this, and the area was included in the Kura-Araxian sphere¹²⁴. This Caucasian influence is also evident in the funeral rites. The Chalcolithic of eastern Anatolia is characterised by intramural burials in pits and jars under the floor of dwellings, but in the Transcaucasian Late Chalcolithic, the typical of the Kura-Araxian culture stone-cist or rectangular stone-built tombs and mounds appeared, although there are some regional peculiarities. After the spread of the Kura-Araxian tradition to south-eastern Anatolia, the pithos burials were used, but the stone cist burials from the South Caucasus appeared, and their number was growing¹²⁵. The same took place in the west: at the beginning of the EBA, traditional in central Anatolia simple inhumations and pithos burials have been supplemented by cist graves¹²⁶, which indicates eastern impulses.

Thus, the Kura-Araxian tradition began forming in almost the entire area of the late Chalcolithic sites discussed above. In eastern Anatolia, this process was partly influenced from central Anatolia and Mesopotamia. The Mesopotamian influences spread also to northwestern Iran. But everywhere this process was based on local cultural traditions. The formation of this complex was completed by the beginning of the EBA, and the core areas were the Southern Caucasus (Kura-Araxes), eastern and northeastern Anatolia (Karaz)¹²⁷, and possibly northwestern Iran¹²⁸. From the very beginning of the 3rd millennium BC, throughout this region there was expansion to new territories, development of mountainous areas and formation of regional features¹²⁹. This process may indicate a clearer separation of language groups than that in the Chalcolithic. This period of the 3rd millennium BC exactly corresponds to the time of separation of a significant part of the IE languages.

By the beginning of EBA II, Syro-Mesopotamian influences disappeared from southeastern Anatolia, there were additional impulses from the South Caucasus, northeastern Anatolia and northwestern Iran. The number of small settlements of the Karaz culture increased, and this process continued in the Levant¹³⁰. In the latter region, it resulted in the appearance of Khirbet Kerak ware dated since 2800 BC, which corresponds to EBA II in eastern Anatolia¹³¹.

¹²⁴ FRANGIPANE 2000, 439, 447, 452; HELWING 2012, 47; PALUMBI/CHATAIGNER 2014, 256; PALUMBI 2016, 29; PALUMBI 2019, 31, 37–39, 42, 44, 45.

¹²⁵ HELWING 2012, 50, 51; PALUMBI/CHATAIGNER 2014, 249, 250; PALUMBI 2016, 6, 22–24, 27.

¹²⁶ SELOVER/DURGUN 2019, 273, 276.

¹²⁷ YALÇIN 2011, 31, 35.

¹²⁸ PALUMBI 2019, 31, 32.

¹²⁹ IŞIKLI 2014, 244; PALUMBI/CHATAIGNER 2014, 254, 255; PALUMBI 2016, 14–16.

¹³⁰ YALÇIN 2011, 32, 37, 38, 45, 46; PALUMBI 2016, 28.

¹³¹ PHILIP/MILLARD 2000, 284.

TRANSITION FROM THE CHALCOLITHIC TO THE EARLY BRONZE AGE IN WESTERN AND CENTRAL ANATOLIA

In the west, the Chalcolithic/EBA transition was stimulated by impulses from southeastern Europe. In northwestern Anatolia, Balkan-type pottery and metal are present on the settlements of Ilipinar, Kumtepe IB3 and Beycesultan XXV-XVIII/XXIX-XXXIV¹³². But the number of these finds is relatively small there, in contrast to the more eastern regions. In the north of central Anatolia, on the settlements of İkiztepe, Büyük Güllücek, Alaca Höyük, Gelveri-Guzelyur, Yarıkkaya, Aşılar 12M-14M and Yarımurgaz, there are ceramics, metal and figurines with Chalcolithic parallels in Thrace, eastern Macedonia (Karanovo VI/Gumelnitsa and Dikili Tash), on the Middle Danube and the northeastern Aegean. On the İkiztepe settlement this ceramic tradition continued during the EBA I, II¹³³. The easternmost parallels are present in the Chalcolithic layer of the Yanık-tepe settlement in northwestern Iran: a vase and ceramics with anthropomorphic drawings having Central European prototypes¹³⁴. It is indicative that the Balkan parallels, which appeared in the north of central Anatolia, are absent in Troy I, but they characterise a previous period in the Troad, i.e. the Chalcolithic¹³⁵.

It is necessary to pay attention to the fact that some sites of the 3rd millennium BC in the north of central Anatolia contain also wares with chaff and sea-shell inclusion or chaff and mineral inclusion, and with knobs and other relief ornamentation. The colour of the pottery varies, but there are red and black sherds¹³⁶. Therefore, at the Chalcolithic/EBA transition this area was also influenced from northern Mesopotamia and Transcaucasia, which may be confirmed by the presence of Karaz sites there¹³⁷.

These Balkan parallels are usually explained by trade relations in the Chalcolithic and the beginning of the EBA, and a local development is assumed, although migrations are not completely ruled out¹³⁸. But at the beginning of the EBA, architecture with parallels in the Chalcolithic Balkans appeared in western Anatolia (Dimimi, Sesklo)¹³⁹. Very impressive changes have been discovered in Bakla Tepe in the Izmir area: fortifications, houses with stone foundations and mudbrick walls. It was accompanied by dramatic changes in ceramics¹⁴⁰. There are also individual cremations in urn in western and central Anatolia, which are considered a local phenomenon¹⁴¹. However, in the Carpatho-Danube basin, cremations are known in the Neolithic and Chalcolithic (Zog, Baden, Tiszapolgar cultures), and then in many EBA cultures¹⁴², therefore, their emergence in Anatolia was

connected with the same process. From the same time the intensive development of Anatolian metallurgy began. This complex could not have been transferred by trade relations, there were migrations before Troy I. Chronologically, these events coincide with the appearance of Late Eneolithic steppe groups (Zhivotilovka-Volchanskoe) in the northern Balkans and with the climate crisis of 3200 BC¹⁴³. Probably this crisis stimulated migrations. Thus, at the transition to the EBA, migrations from northeastern Balkans and from the east took place in the north of central Anatolia. The new tradition was rather local, it continued to the second half of the 3rd millennium BC and differed from the more southern areas of central Anatolia in the absence of painted pottery¹⁴⁴.

Northwestern Anatolia demonstrates strong connections with the Balkans, new influxes of people are assumed, but the culture of Troy I continued in Troy II¹⁴⁵, and these migrations resulted in the formation of the EBA in the region¹⁴⁶. The culture of Troy II was already so close to the synchronous complexes in the Balkans that it has been assumed that both regions were settled by the same people¹⁴⁷. The beginning of Troy I is usually dated from the early 3rd millennium BC, but more complex mathematical processing of large series of dates shows that the most likely date is ca. 2880 BC, and ca. 2760 for the beginning of Troy II¹⁴⁸. The first date is close to the coldest year in Europe during the 3rd millennium BC, revealed by dendrochronology: 2850 BC. It resulted in significant migrations in Europe, in particular in the movement of the Yamnaya people to the Balkans¹⁴⁹. Accordingly, they or climate crisis could cause migrations of the Balkan people into Asia Minor. J. Mellaart suggested that migration from the Balkan at the beginning of the EBA reflected the arrival of the Luwians, and the Hittites had come from the steppe through the Caucasus in the early 2nd millennium BC, which was reflected in the appearance of the kurgan cultures in Asia Minor¹⁵⁰. There is also an opinion that the rich tombs of Alaca Hüyük and Horoztepe of the EBA III period (the second half of the 3rd millennium BC) can be associated with the Maikop tradition of the North Caucasus¹⁵¹. But the Maikop culture was formed in the early 4th millennium BC as a result of migration from the south, and it has parallels in sites of the Sioni type. Already in the 36th–35th centuries BC, two new impulses (one from Europe and another from Upper Mesopotamia with parallels in North Uruk, Arslantepe VIA) led to the appearance in the North Caucasus of the second component of this culture, Novosvobodnaya¹⁵². By the Anatolian EBA III this culture did not exist for many years, and all possible parallels are explained by its southern origins. By the time of Alaca Hüyük and Horoztepe, even the later Yamnaya culture was close to its disappearance. The presence of Caucasian genes

¹³² MELLAART 1971, 366; PARZINGER 1993, 264.

¹³³ YAKAR 1975, 138, 141, 142; YAKAR 1991, 248, 253; THISSEN 1993, 207–209, 212–213, 217, 219; ÖZDOĞAN 1991, 218–220; PARZINGER 1993, 265–269.

¹³⁴ KUSHNAREVA/CHUBINISHVILI 1970, fig. 17,7–9.

¹³⁵ YAKAR 1975, 141, 142.

¹³⁶ YAKAR 1975, 137.

¹³⁷ YALÇIN 2011, Karte 1.

¹³⁸ YAKAR 1975, 141, 142; THISSEN 1993, 218, 219.

¹³⁹ PARZINGER 1993, 306.

¹⁴⁰ ŞAHOĞLU 2008, 485–487.

¹⁴¹ SELOVER/DURGUN 2019, 274, 276.

¹⁴² PARZINGER 1993, 320–322; PRIMAS 1977, 19, 20; MOTZOI-

CHICIDEANU 2011.

¹⁴³ GRIGORIEV 2022b.

¹⁴⁴ YAKAR 1975, 138, 140.

¹⁴⁵ MELLAART 1971, 371–384.

¹⁴⁶ YAKAR 1984, 63.

¹⁴⁷ MERPERT 1988, 29–31; KATINČAROV 1991, 98, 99.

¹⁴⁸ WENINGER/EASTON 2012, 179, 183.

¹⁴⁹ GRIGORIEV 2022b, 52, 53.

¹⁵⁰ MELLAART 1971, 406–407.

¹⁵¹ YAKAR 1975, 142.

¹⁵² REZEPKIN 2012, 76–78, 85, 95–97, 101, 104.

in the steppe and the complete absence of steppe genes in Anatolia confirms this. Besides, the scenario of the Hittite and Luwian migrations at different times and from two opposite directions is doubtful. As a result, we may forget the theories of the penetration of Anatolian languages into Asia Minor through the Caucasus, and the only possible option remains their penetration from the Balkans at the transition from the Chalcolithic to the Bronze Age. For this reason, a hypothesis was formulated that the migration from the Balkans at that time marks the coming of people who spoke Anatolian dialects, their penetration into central Anatolia resulted in the separation of Hittite, and Luwian separated in western Anatolia. The first Neolithic migrants to Europe spoke Dene-Caucasian dialects, and migrations of more eastern people in the Late Neolithic led to the separation of proto-Anatolian dialects in the 5th millennium BC¹⁵³. After this, these languages were isolated from the main IE massif for a long time, which caused their specifics. This scenario corresponds to both the chronology of the division of the Anatolian languages and the idea that the Hittite language was the first to separate from them. Gene flows from western Anatolia to the east do not contradict this. After this migration, the Hittites occurred close to the area, where they appeared on the historical scene in the first half of the 2nd millennium BC. And impulses into the north of central Anatolia from the east can indicate migrations of some other IE groups.

Having formed this general framework, we may turn in more detail to western Anatolia, where the Luwic languages were separating. The specificity of the area is their mountain ranges which formed natural boundaries that separated clusters of sites from each other. These clusters were quite stable during the Neolithic and the Bronze Age. The main clusters are: 'Troy-Yortan', 'Bithynia', 'Phrygia', 'Büyük Menderes-Upper Porsuk' and 'Lycia-Pisidia' (fig. 2)¹⁵⁴. Within these clusters, local culture could dominate, despite influxes of new people. Therefore, our task is to reveal impulses that can identify the newcomers.

There is an opinion that the EBA of western Anatolia formed on the Neolithic substratum¹⁵⁵. However, in the Middle Chalcolithic (from ca. 5500 BC), the Neolithic pottery was replaced by dark-faced burnished pottery with impressed or grooved decoration, in some instances with white painting, which became typical of the Late Chalcolithic. In the Troy I-Yortan cultural region it remained even in the EBA I. But at the end of the Chalcolithic (Kumtepe IB culture, 3300–2970 BC) in the northwest, new types appeared: red-slipped and burnished pottery with grooved and relief decoration, which became more widespread at that time in Phrygia. Ceramic traditions of Bithynia were intermediate between the Troad and Phrygia. To the south, in the Büyük Menderes-Upper Porsuk region, black- or red-burnished pottery appeared. In the southwest (Lycia-Pisidia cultural region), the main type was red and brown burnished ware with relief and grooved decoration, and white painting. These characteristics

remained in the EBA I (3000/2900–2700 BC), and we can distinguish a tendency of predominance of the dark burnished pottery in coastal areas of the northwest, and red or orange burnished and/or slipped pottery in inner areas. Fortification appeared in all regions, but in coastal areas and on islands, houses formed *insulae* (Bakla Tepe, Liman Tepe), whereas in inland areas they were built around a central courtyard (Demircihöyük)¹⁵⁶. These traditions were stable until the middle or the third quarter of the 3rd millennium BC. Therefore, although the local population was the basis of cultural genesis everywhere, northwestern Anatolia was strongly influenced from the Balkan/Thracian region and from west-central Anatolia. The population in southwestern Anatolia partly absorbed some of these innovations through contacts and trade, but there was mostly local development¹⁵⁷. If we try to interpret this process from the point of view of ethnic identification, we can assume that this region had been mainly inhabited by people who spoke the Dene-Caucasian languages, but then the northwest began to be settled by proto-Luwian tribes came from the northeastern Balkans. This process was probably relatively long, but it was completed by the beginning of Troy II, when the similarity with the Balkan EBA became strongest. It is possible that Samos was inhabited by related people, since the pottery in Heraion I (EB I – early EB II) has parallels in Troy, Poliochni Blue, and Emporio V–IV and II¹⁵⁸.

In the EBA II (2700–2400 BC), the regional boundaries remained the same, but significant cultural changes started, caused primarily by cultural processes: the formation of stratified centralised societies and the beginning of urbanisation, especially in coastal areas that formed a single cultural zone with the Aegean. This was connected with the development of interregional trade, well visible in the distribution of tin alloys¹⁵⁹. There was local development in the Troad, but due to the relations with the Aegean it was quite rapid, and due to trade relations with southeastern Anatolia, the wheel-made ware appeared there already by the beginning of Troy II. Further south, in Limantepe V, local communities also had intensive relations with the Cyclades and mainland Greece¹⁶⁰. This may indirectly indicate that northwestern Anatolia and Greece were inhabited at that time by people who spoke proto-Luwian languages.

In the Büyük Menderes-Upper Porsuk region several local pottery zones separated (Upper Büyük Menderes, Lower and Central Büyük Menderes, Kusura, Afyon, Altıntaş, and Kütahya-Tavşanlı), with pottery typical of the subsequent EBA III; and this region retained its difference from neighbouring Phrygia¹⁶¹. The Kütahya-Tavşanlı zone in the north of the region is remarkable: Tavşanlı ware was found here, which has been considered the prototype for the Lefkandi I ceramic tradition in mainland Greece¹⁶². This suggests that the formation of Greeks took place in this region. Certainly, individual types do not allow such

¹⁵⁶ FIDAN *et alii* 2015, 63, 65–69, 82.

¹⁵⁷ YAKAR 1975, 140; YAKAR 2013, 211, 212, 217.

¹⁵⁸ KOUKA/MENELAOU 2018, 127.

¹⁵⁹ SARI 2013, 306; FIDAN *et alii* 2015, 70, 73.

¹⁶⁰ YAKAR 2013, 212, 213.

¹⁶¹ FIDAN *et alii* 2015, 72, 76–78.

¹⁶² FRENCH 1967.

¹⁵³ VENNEMANN 1994; GAMKRELIDZE/IVANOV 1995, 846; GRIGORIEV 2002, 357; GRIGORIEV 2022b, 71, 72.

¹⁵⁴ SARI 2013, 305, 306; FIDAN *et alii* 2015, 63.

¹⁵⁵ YAKAR 2013, 207, 216.

conclusions to be drawn, moreover, the forms appeared in Greece (such as *depa* or tankard) can be found in other areas of western Anatolia, for example in the Troad and Phrygia¹⁶³. General processes in this case are more important. But the absence of inclusions of the non-IE substrate in Luwian may indicate that the areas west of central Anatolia were inhabited by the IE people as early as the middle of the 3rd millennium BC.

In EH/EC IIB a series of Anatolian architectural forms appeared in Greece and on the Cyclades, which were typical primarily of coastal Anatolia, in particular, Liman Tepe: fortifications with bastions and administrative buildings. This corresponds to the Anatolian EBA II late and EBA III early (ca. 2550–2200 BC). In Anatolia, in addition to trade, it was a time of increased specialisation, increased use of tin alloys, and the emergence of elite. All these features were transferred to Greece and the Cyclades in the Kastri/Lefkandi I phase. The most correct ceramic analogies can be found in the southern part of coastal Anatolia (Heraion II, III, Liman Tepe V–IV, Miletos II), and it is assumed that some of these forms, for example, tankards, had been invented in the Izmir area (Liman Tepe and Bakla Tepe) and Samos. The former parallels with the Troad sharply decreased in this region, and it became connected with Greece¹⁶⁴. A more detailed list of these parallels has been already published, and a conclusion has been drawn about the migration of Greeks from Anatolia. It was carried out from the southern part of the western coast of Asia Minor, south of Izmir through the Cyclades, and it was not a single migration, but a gradual colonisation, when relations with the original area were maintained¹⁶⁵. It is confirmed by the fact that forms, which appeared in Anatolia after the beginning of this process, in particular *depa*, were transferred to Greece¹⁶⁶. Therefore, we can assume that at least the western part of the Büyük Menderes-Upper Porsuk region was penetrated by the Greeks in the first part of the EBA II, and in the EBA II late they began to colonise Greece.

EBA III

In the EBA III early period (2400–2200 BC) these processes intensified: interregional trade expanded, wheel-made pottery became more widespread and city-states started their formation. The latter process reduced the number of settlements, but led to their growth. Widespread trade partly blurred the boundaries of cultural zones, but only partly¹⁶⁷. Significant changes began in the EBA III late (or the Transitional Period to the Middle Bronze Age) in 2200–1900 BC. They were most likely stimulated by a powerful volcanic eruption in the east of the region, which caused the fall of Akkad and coincided with a significant climate crisis throughout the Near East. This event is called usually ‘the

crisis of 2200 BC’, but it happened in the second quarter of the 22nd century BC, and by the middle of this century, its consequences were quite perceptible throughout Anatolia¹⁶⁸.

At that time a new situation formed: the coastal areas were included in relations with the Aegean, whereas the inland areas of northwestern Anatolia, in particular Phrygia, became part of central Anatolia, perhaps even politically. The latter process began with the spread of red-slipped ware, characteristic of the EBA III early, and possibly the wheel-made ware from the Eskişehir region (Küllüoba in Phrygia) to Central Anatolia¹⁶⁹. Since this region was inhabited by the Luwians in the MBA, it is supposed that it was their migration¹⁷⁰. Probably, this process also reflects the separation of people who spoke Palaic. We can assume (in contrary to what is written above) that the Hittites moved into central Anatolia together with them, but it would be a less likely scenario. We have discussed above that the split of Anatolian languages occurred within the interval ca. 3600–1900 BC, and the Hittite language separated earlier than the others. Therefore, it is more likely that Hittite separated in the late 4th millennium BC, when Balkan impulses reached more eastern regions, the north of central Anatolia. And this process of the late 3rd millennium BC can be associated with the separation of Luwian.

Changes were taking place in Troy too. It is assumed that a gap between layers of Troy III and IV was caused by a severe drought¹⁷¹. At the early stage of Troy IV, this city was conquered by a central Anatolian or affiliated group. The ceramic complex inherited former traditions of Troy III and northwestern Anatolia, but there are notable inclusions of central Anatolian ware. These connections increased in Troy V, but since this city had also connections with southeastern Anatolia, it has been explained by the formation of trading networks¹⁷². Inegöl gray ware spread in Bithynia, but its origin is unclear¹⁷³. Another fact indicating migration is that the inventory of Beycesultan and Aphrodisias is closely related to Troy IV and Troy V. Freestanding megarons and wheel-made ware appeared in Beycesultan, which is also considered as influence from the coastal zone of northwestern Anatolia¹⁷⁴. In Liman Tepe since the layer IV 2 (EBA IIIA), decreased and later disappeared relations with the area of Lefkandi I/Kastri¹⁷⁵. In Samos, ceramic traditions were changing during the EBA III, parallels with Troy appeared; in the final part of the period (Heraion V) local pottery became very close to pottery of the Meander valley (Miletus, Aphrodisias, Beycesultan), and active interactions with southwestern Anatolia and adjacent islands began¹⁷⁶.

Thus, at this time we see several processes: cultural impulses from Phrygia to central Anatolia, from central Anatolia to the Troad, from the Troad to coastal Lydia in the

¹⁶³ FIDAN *et alii* 2015, 76–78.

¹⁶⁴ ŞAHOĞLU 2008, 483, 488, 489, 490; YAKAR 2013, 212; KOUKA 2013, 572–577; FIDAN *et alii* 2015, 79–81; KOUKA/MENELAOU 2018, 121, 128, 135.

¹⁶⁵ GRIGORIEV 2022a.

¹⁶⁶ KOUKA 2013, 576; KOUKA/MENELAOU 2018, 130, 135.

¹⁶⁷ ŞAHOĞLU 2008, 483, 490, 491; YAKAR 2013, 212; SARI 2013, 306, 308; KOUKA/MENELAOU 2018, 128–130.

¹⁶⁸ for more detail, see WEISS *et alii* 1993, 995, 999–1002, GRIGORIEV 2023b, 25, 26, 29, 30.

¹⁶⁹ YAKAR 1975, 140; SARI 2013, 309, 310; FIDAN *et alii* 2015, 75, 81, 83.

¹⁷⁰ SARI 2013, 311, 312.

¹⁷¹ WENINGER/EASTON 2014, 438–440, 444.

¹⁷² YAKAR 2013, 212, 213, 217; BLUM 2016, 89, 90.

¹⁷³ FIDAN *et alii* 2015, 81.

¹⁷⁴ YAKAR 2013, 216; BLUM 2016, 96.

¹⁷⁵ KOUKA 2013, 573; FIDAN *et alii* 2015, 79.

¹⁷⁶ KOUKA/MENELAOU 2018, 132, 133, 135.

first part of the EBA II, and in the late part of this period the impulses from the Troad reached Caria. It cannot be ruled out that at this time the Hittites moved southeast from the north of central Anatolia. Since we discussed above that the Troad was inhabited by the Luwians or speakers of the Luwic dialects, and at the beginning of Troy VI the Thracians came there, impulses from Phrygia to the east can be associated with the Luwian migration in their area of the “Lower Land”, the impulses to the Troad with the coming of Thracians from central Anatolia, and the impulses to the south of western Anatolia from the northwest with the migrations of proto-Lycians and proto-Carians. Therefore, the situation was more complicated than the idea that the Luwians lived throughout western Anatolia in the EBA, although for part of the northwest this conclusion is quite acceptable.

An additional argument in favour of this scenario is the direction of subsequent trade relations. This does not always reflect ethnic processes, but these relations were certainly more intense within related ethnic groups. In Troy IV and V, contacts with Greece and the Cyclades disappeared, and relations with Liman Tepe near Izmir were very limited. The main trade relations of that time were focused on northwestern, central and southeastern Anatolia. Contrary to this, to the south, on the Anatolian coast of the Aegean, the relations with central Anatolia and Cilicia decreased¹⁷⁷. Excavations in Kolonna/Aegina in the Saronic Gulf south of Attica show that initially this settlement had intense contacts with the Cyclades, the northeastern and southeastern Aegean, but with the beginning of EH III, the pottery of the Kastri/Lefkandi I type appeared there. Since that time the settlement retained relations with the eastern Aegean but the relations with the Troad were completely absent until the period of Troy VI¹⁷⁸. This reorientation of trade relations of the Troad could have been caused by the coming of new people at the beginning of Troy VI, or at least by a change in the elite that regulated these relations. This ethnic component was associated with central Anatolia and was distinct from the ethnic groups that lived along the southern Aegean coast of Asia Minor, from where the Greeks migrated. Because the latter region maintained connections with the Cyclades and Greece, we may assume that the Greek ethnic groups remained there. Subsequently from this region we have information about the kingdom of Ahhiyawa, and it is supposed that the Troad was inhabited by the Thracians at least from the period of Troy VI. In terms of connections between the ethnicity and trade routes it is very indicative that after part of the Thracians went from northwestern Anatolia to the northeastern Balkans, the Troad did not have trade relations with this region. This can be explained by the fact that initially they settled the northern Thrace, and only in the 12th century BC they migrated to the south, forming new trade routes. This Thracian migration to the Balkans is especially visible in the spread of chariots and ornaments of the Carpatho-Mycenean style, whose earlier examples are known in central Anatolia¹⁷⁹. There is evidence of even

earlier examples of this style in the east: a seal from the Pultur-Sakyol settlement of the Karaz culture¹⁸⁰.

In the final part of the Lefkandi I/Kastri period, there was some new penetration of people from northwestern Anatolia into the southeastern Thrace, which was accompanied by the appearance of Anatolian architecture and ceramics. It corresponds to the Bulgarian EBA 3 (Sv. Kirilovo phase), and its chronology is determined by *depas*, and parallels in Troy IIc-d. But there are also parallels in Troy II, IV, and this phase is dated to 2200–1750 BC¹⁸¹. Therefore, it is possible that the Greeks penetrated into this region at that time, but later they were assimilated. However, there is no possibility for confident statements. They could have been some Thracian groups, but the Thracian migration should be dated to the later period¹⁸².

MIDDLE BRONZE AGE – LATE BRONZE AGE

Opportunities for a more justified discussion of ethnic processes appear in the 2nd millennium BC. An important marker is the spread of wheel-made grey ware. Its earliest form is the wheel-made Inegöl grey ware, found southeast of the Sea of Marmara in Bithynia. Earlier it was considered as a prototype of the Grey Minyan ware. But later it was concluded that there was no connection between these types. The Minyan ware had formed in Greece on the basis of the Lefkandi I types, but with some Anatolian technological influences. It has been confirmed by later studies¹⁸³. Thus, we have no ground to associate this ware with the Greeks. As stated above, it was present in Bithynia from the EBA III. It was also shown that the Grey Ware differed typologically, and it was possible to distinguish the Grey Minyan ware of Greece and coastal Anatolia, emerging in EH III and widespread in MH, and Anatolian Grey Ware. The earliest in the latter group is the Inegöl Grey Ware. It is mostly represented by pieces collected on the surface, and is difficult to date, but excavations at Cuma Tepe (Inegöl I) allow it to be attributed to the MBA and to be synchronised with Troy V (from the early 2nd millennium BC). Tankards made in this technique are found in Emporio on Chios and in Beycesultan, level IX, so, they belong at least to the EBA III (see above about the same dating)¹⁸⁴. Thereby, the presence of this technology in Anatolia could have led to its appearance in Greece due to the trade relations of the late Lefkandi I period.

But in general, the presence of this ware in Emporio at that time is, rather, an exception. The Anatolian Grey Ware was very conservative, and it was distributed in the inner areas of western Anatolia. In the coastal zone, it appeared along with the grey Minyan Ware at the beginning of Troy VI (ca. 1750 BC, whereas Troy V is dated since the early 2nd millennium BC). Initially, it did not exceed 10% of the fine wares, then it increased. And, there is only one group of ware that is comparable to Inegöl Grey Ware, and it is characteristic of the transitional period. The Greek forms

¹⁷⁷ BLUM 2016, 90, 93, 94, fig. 9.

¹⁷⁸ BERGER/GAUSS 2016, 222.

¹⁷⁹ GRIGORIEV 2023a.

¹⁸⁰ YALÇIN 2011, 36, Abb. 9.

¹⁸¹ LESHTAKOV 2014, 321–326; LEŠTAKOV 2015, 31–37, 53.

¹⁸² GRIGORIEV 2023a.

¹⁸³ FRENCH 1967, 62, 64; PAVÚK 2007, 302.

¹⁸⁴ PAVÚK 2007, 295, 302; PAVÚK 2010, 938–942.

were locally produced, and they disappeared two generations later. From the second ceramic phase of Troy VI (VIb/c, ca. 1680–1590 BC), Anatolian shapes of Grey Ware began to dominate, widely represented in Troy VII. The transition between these levels is very smooth, therefore the population of Troy did not change. Other types following the forms of Troy V, gradually disappeared. Somewhat similar processes took place in southwestern Anatolia, but in Liman Tepe the Grey Ware of both Greek and Anatolian forms appeared from the layer III-3 (= MH III), then its amount increased up to the LBA, and it was accompanied by the Matt-Painted pottery from Aegina in Greece. All these processes are explained by the formation of a trade network covering Boeotia, southern Thessaly, Chalkidiki and the northeastern Aegean with its Anatolian coast¹⁸⁵. It is indicative that with the exception of some areas, this trading network covered the area that was later inhabited by the Aeolians.

Accordingly, the main processes of this time were associated with impulses from the inner areas of northwestern Anatolia, but for a short time connections were established with mainland Greece, and there were influences from Greece, which were soon interrupted, with the exception of the coast in the Izmir area.

There is another important fact. In the 18th century BC, a cultural impulse from northwestern Anatolia to Thrace formed the MBA cultures of the Carpatho-Danube region. This process reflects the migration of Thracians¹⁸⁶. This means that the Thracians lived somewhere in northwestern Anatolia at an earlier time. It is possible that the appearance of the Anatolian Grey Ware at this time can be explained by the coming of Thracians, or by an additional coming of the Thracian people from Bithynia, where in the EBA III the Inegöl ware was present. In any case, during this period we can state impulses from the east to northwestern Anatolia and impulses from Anatolia to Thrace.

In the absence of opportunity to chronologically rank these events with high accuracy, we can only hypothesise that the movement of the Luwians to central Anatolia caused the migration of part of the Hattians to the north of central Anatolia, which could provoke the Thracian migration from there to northwestern Anatolia. The subsequent migrations could have been caused by the activity of the Hittites. This scenario may be confirmed by the situation with Zalpa, which is usually identified with İkiztepe. This identification has no strong evidence, but it was certainly the same region. With the transition to the MBA ca. 19th–18th centuries BC, the typical Anatolian tell-settlements ceased to exist in this area, and the number of settlements decreased. On the settlement of İkiztepe, the hand-made ware was replaced by wheel-made one that has parallels in central Anatolia (Bogazköy, Büyükkale Vf–Ve and Kültepe Karum Kaneš IV–III). Later this ceramic tradition existed there until the 16th–15th centuries BC¹⁸⁷. For this reason, it is supposed that the “Zalpa Tale” reflects a migration from central Anatolia

to the north, and it is considered as an extension of the area of Hittite settlements. It is also assumed that the local population became Hittite subjects¹⁸⁸. But the base of the Hittite operations in the north was Hattuša, it was taken over by Annita in 1730/1728 BC, only in 1720–1710 BC the city was rebuilt and later became the Hittite capital. Perhaps from time to time, Zalpa was subordinate to the Hittites before this¹⁸⁹. But it does not mean the presence of Hittite settlements there. For the beginning of the 2nd millennium BC it seems unrealistic. It is better in this case to discuss the migration of Hattians, since this ceramic tradition survived until the 15th century BC, when the Kaska appeared on the historical scene. Moreover, the cultures of the Hittites and Kaska of the second half of the 2nd millennium BC are almost indistinguishable¹⁹⁰. This scenario of the coming of Hattians from central Anatolia seems the most realistic, but there is not enough information and there were some new upheavals at the LBA transition ca. 1650 BC, when many settlements were abandoned¹⁹¹. Sometimes just this event is considered as the coming of Kaska¹⁹². But regardless of this name ‘Kaska’, the migrants from central Anatolia of the early 2nd millennium BC spoke Hattic. Therefore, even if in the 17th century BC some tribes with this name had come in the area, it does not mean that the ethnic situation changed.

The migration of Hattians to the north at the beginning of the MBA may have stimulated the migration of both Thracians and Phrygians from there to the west (although earlier migrations during the climate crisis of the 22nd century BC cannot be ruled out). As a result, by the beginning of the 2nd millennium BC in western Anatolia, a relatively stable situation was formed with several ceramic areas that coincide with the historical lands of written sources. In northwestern Anatolia, one ceramic area with Anatolian Grey Ware extended from Troy to Bithynia, which can be identified with Wiluša. Another area extended from Troy to Izmir. It is characterised by the same ware, but typologically somewhat different. There were central Anatolian influences at Beycesultan and Kusura, but these settlements were more connected with the area of southwestern Anatolia south of the lakes, and it coincides with the Lukka Land. The coastal part of southwestern Anatolia and the Dodekanese islands can be partly identified with Ahhiyawa¹⁹³. This reconstruction seems quite reliable because the Beycesultan area may have been inhabited by the proto-Carians, who were close to the proto-Lycians in the southwest and the Luwians in central Anatolia, which is reflected in the pottery. And the area from the Troad to Bithynia can be identified with the Thracians.

The situation with the Thracians, Lycians and Carians seems quite logical, but the problem of Ahhiyawa is more complicated. All said above on the archaeological base, indicates that the Greeks migrated from the southwestern coast of Anatolia, and their inland area was being reduced by the movement of the Luwic speaking people to the

¹⁸⁵ PAVÚK/RIGTER 2006, 232, 233, 237; PAVÚK 2007, 296, 299, 302, 304–306; PAVÚK 2010, 933–937, 941; PAVÚK/SCHUBERT 2014, 866, 875.

¹⁸⁶ GRIGORIEV 2023a.

¹⁸⁷ YAKAR/DINÇOL 1974, 92; MÜLLER-KARPE 2006, 134–137; YAKAR 2008, 819, 824; MATTHEWS/GLATZ 2009, 53; DEMIREL 2019, 39.

¹⁸⁸ MÜLLER-KARPE 2006, 134, 135; YAKAR 2008, 819.

¹⁸⁹ KLOEKHORST 2021, 558, 560.

¹⁹⁰ DEMIREL 2019, 44.

¹⁹¹ YAKAR 2008, 825; DEMIREL 2019, 39.

¹⁹² MATTHEWS/GLATZ 2009, 55.

¹⁹³ PAVÚK 2015, 92, 94, 96, 102.

southwest. Therefore, we can assume the preservation of part of the Greek population along the coast south of the Troad, which can be confirmed by the preservation in the MH period of contacts between this coast and the areas in mainland Greece inhabited by the Aeolians. The Anatolian Grey Ware of Aeolis was smoothly evolving into Aeolian ware of the Early Iron Age¹⁹⁴, and it is impossible to show the Aeolic migration after the Trojan war¹⁹⁵. As a result, we have the following picture: 1) the Greeks migrated to the Cyclades and mainland Greece from the southwestern part of the Anatolian coast, 2) precisely this part of the Anatolian coast had trade relations with Greece during the MH period, and later, from the end of LH II, mainly with areas inhabited by the Aeolians (there were relations with other areas, but they were either not as stable and were interrupted, as it took place after the appearance of the Greek Grey Ware in Troy, or were not so intense), 3) there was a succession of ceramic types in Aeolis in the LBA, 4) Ahhiyawa was mentioned in the context of the coastal zone of southwestern Anatolia, and in the 2nd millennium BC, this area was occupied by a separate ceramic group, 5) impulses from the Luwic area in northwestern Anatolia spread to the southwest, mainly to the inner areas, which allows us to suppose the preservation of previous people in the coastal zone. Based on this, we may assume the preservation of the Greeks in this area after their migration to Greece in the Lefkandi I/Kastri period, but it must be proved by other data (burial rites, genetics, etc.). This presence of the Greeks in the area south of the Troad can explain the presence of the king of Wiluša with the Greek name Alaksandu.

The association of Ahhiyawa with the Mycenaean Greeks is also possible. But with the exception of Miletus, Ephesus and Troy, the Mycenaean presence along the entire Anatolian coast before the fall of the palatial civilisation was quite modest. And, the Mycenaean objects are absent further from the coast; in Troy, the Mycenaean pottery was found mainly in the port area. This pottery was either local imitations or imports from Boeotia. Most Mycenaean objects are found in the central-western and southwestern regions. Everywhere it is explained by trade, Mycenaean colonies existed only in Miletus and Ephesus, and Miletus, according to written sources, belonged to the Mycenaean for some time¹⁹⁶. There was no noticeable Greek migration to Anatolia. As a matter of fact, the Mycenaean relations covered the former areas of the Greek Grey Ware. Therefore, in this case we may also assume that the preservation of trade relations was caused by the preservation of the Greek ethnic groups along this part of the Anatolian coast. On the other hand, the reason could be in navigation convenience, and Miletus was a starting point of voyages along the Meander river to inner Anatolia. Therefore, final judgments are not possible at this stage.

¹⁹⁴ BAYNE 2000.

¹⁹⁵ ROSE 2008, 406.

¹⁹⁶ KELDER 2006, 49, 51, 53, 72, 75, 77.

THE END OF THE BRONZE AGE

At the end of the Bronze Age, throughout the eastern Mediterranean, the Iron Age began. It was marked by many shocks, which are usually associated with the activity of Sea Peoples. This was the time of the fall of the Mycenaean palaces, the Hittite kingdom, the capture of Babylon by the Elamites and the destruction of cities in the Levant. The background to this process was earthquakes, drought and famine in many places. There are many works with vivid descriptions of these events¹⁹⁷. Therefore, most researchers tend to associate the migration of Thracians and Phrygians from the Balkan peninsula to Anatolia with these events. It is sometimes assumed that the trigger for this was the barbarous tribes of central Europe who developed new more effective types of weapons and crushed the civilisation of the eastern Mediterranean¹⁹⁸. However, data on climate problems of this period are contradictory. In the Peloponnese, the dry phase lasted between 1700 and 550 BC, although there actually was a drier phase ca. 1200 BC¹⁹⁹. In the eastern Mediterranean the more arid conditions were in 1100–800 BC²⁰⁰, and one earlier dry phase in 1250–1150 BC is assumed²⁰¹. But in general, the whole period of the second half of the 2nd millennium BC and the early 1st millennium BC was marked by some unfavourable events²⁰².

The general dynamics of solar activity corresponds to this. Beginning from 1550 BC, which coincides with the Santorini eruption, there was a long decline in solar activity until the Grand Solar Minimum in 1385 BC. The next decline occurred ca. 1250 BC, but it was also replaced by a rise, and dendrodata do not show a decline in the 12th century BC. Only at the end of this century a severe decline began, which lasted until the Grand Solar Minimum in ca. 750 BC²⁰³. There were certainly shorter cycles with a decline and rise in solar activity within this general process, but the general dynamics does not demonstrate that the 12th century BC was especially catastrophic. It was a long process, and in most cases there is no evidence that participants of these events were the Sea Peoples of Egyptian sources, and not some local troops. In particular, Hattuša was destroyed by the Kaska or as a result of civil strife. Very often the written sources tell about small groups of marauders, and there is no description of movements with families, although European genes appeared in the Levant²⁰⁴.

Therefore, it was a rather complex, not fully understood process, driven by climatic and seismic problems, which have been dated with low resolution and not always proven. But there was also a weakening of trade relations and the administrative systems, the activity of groups of looters, etc.²⁰⁵ It is necessary to remember that in this period a number of written sources increased, and if we collect all the described troubles in one list, it will create the impression

¹⁹⁷ DREWS 1993; SHAI 2008; KNAPP/MANNING 2016; CLINE 2021.

¹⁹⁸ DREWS 1993, 97, 105; WOU DHUIZEN 2015, 215–219.

¹⁹⁹ WEIBERG *et alii* 2015, 7, 9.

²⁰⁰ ROBERTS *et alii* 2011, 147.

²⁰¹ CLINE 2021, 158.

²⁰² KNAPP/MANNING 2016, 114.

²⁰³ USOSKIN 2017, fig. 20, tab. 2.

²⁰⁴ CLINE 2021, 9, 10, 116, 117, 120, 149.

²⁰⁵ KNAPP/MANNING 2016; CLINE 2021, 158–165.

of a universal catastrophe. But in Europe this is the heyday of the Urnfield culture. Therefore, the use of this narrative of the migrations of Sea Peoples fails to demonstrate the Phrygian migration to Anatolia. But in many papers they are accompanied by the Thracians, Aeolic Greeks and Armenians. It is highly doubtful that the migrations of such masses of people went unnoticed by both written and archaeological sources. Arguments in favour of these migrations are limited to quotations of one passage from Herodotus (and arbitrary interpretations of some other authors) and a small amount of Balkan pottery in Troy VIIb. Therefore, it would be more honest to admit that there is no serious evidence on migrations from the European continent, and the homeland of the Indo-Europeans lived in Asia Minor should be looked for in the same region.

CONCLUSIONS

What has been discussed above allows us to reconstruct the system of IE migrations in western Asia based on archaeological, linguistic and paleogenetic data. It should be emphasise that this is not a final verdict, and the presence of any ceramic type in any area does not mean at all that people in that area started to speak a particular language, because bilingualism may have persisted for a long time, and different ethnic groups could have had the same material culture. We discuss only general trends in the spread of IE languages.

The formation of the PIE language occurred gradually in the 7th-5th millennia BC in northern Mesopotamia, which is marked by sites such as Tell Maghzalya, Tell Sotto and

Hassuna (fig. 3). To the south, the speakers of these dialects were in contact with the proto-Semites, and to the west with the speakers of the Dene-Caucasian languages, which during this period gradually transformed into the proto-North Caucasian languages. Somewhere in the same area there was a contact with proto-Kartvelian, but it is not yet possible to determine this. In the 6th millennium BC, cultural impulses from this region reached the South Caucasus, where the Shulaveri-Shomutepe culture formed. However, it is impossible to reliably talk about its ethnicity. In the 5th millennium BC, cultural impulses into the northeastern Balkans from this area mark the separation of Anatolian dialects, and repeated impulses in Transcaucasia and northwestern Iran lead to the formation of Late Chalcolithic complexes of the Sioni type and the area of chaff-tempered wares, which marks the area of distribution of PIE in this period. Probably, the appearance of this complex east of the Zagros can be considered as the beginning of separation of the Tocharians and Indo-Iranians. At the same time, the penetration of Indo-Europeans from Transcaucasia into the steppe of Eastern Europe began, most noticeable in the last third of the 4th millennium BC, when the Late Eneolithic groups with kurgan burial rites penetrated into the north of the Balkans, which led to the displacement of part of the population of the northeastern Balkans into Asia Minor during the Kumtepe IB period, reaching north-central Anatolia. These events were probably triggered by the climate crisis of 3200 BC. As a result of this migration, the Hittite language was separated from the proto-Anatolian dialects. To a lesser extent, this cultural impulse influenced the situation in central Anatolia and Transcaucasia. However, in eastern

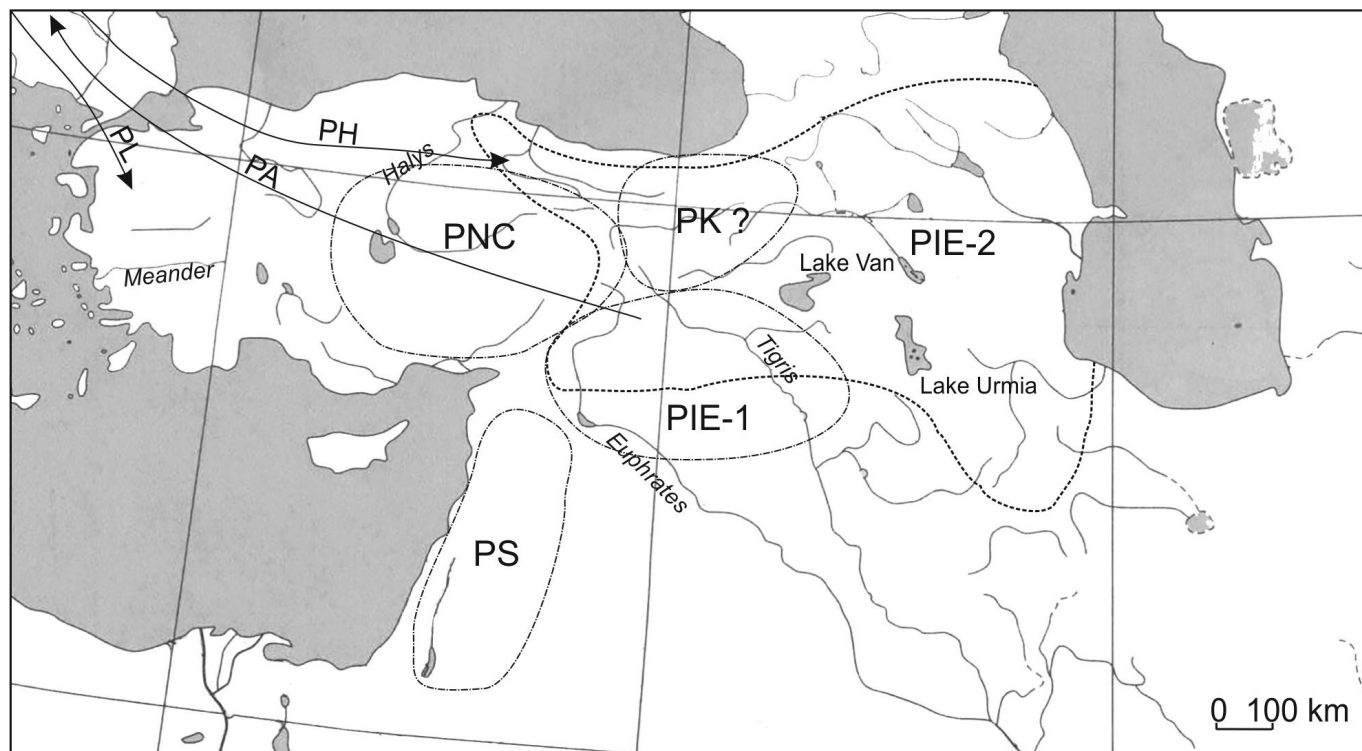


Fig. 3. Map of the Proto-Indo-European language: areas of Proto-Indo-European (PIE-1), Proto-Semitic (PS), Proto-North Caucasian (PNC) and Proto-Kartvelian in the 7th-5th millennia BC; and the Proto-Indo-European area (PIE-2) in the 4th-3rd millennia BC. Migrations of the Proto-Anatolians (PA) in the 5th millennium BC, Proto-Hittites (PH) in the late 4th millennium BC and Proto-Luwians (PL) in the early 3rd millennium BC.

Anatolia there are signs of some influences from central Anatolia in the Late Chalcolithic–early EBA. On the other hand, there were episodes of the spread of Transcaucasian traditions to the north of central Anatolia. As a result of these processes, a series of cultures close to the Kuro-Araxes formed in a large area of eastern Anatolia, Transcaucasia and northwestern Iran. The processes of regionalisation began, which corresponds to the time of the beginning of the dialectal split of most IE languages. It can be assumed that in the northern part of eastern Anatolia during this period, the separation of several dialects began: proto-Thracian in the west (closer to the north of central Anatolia), proto-Phrygian and proto-Greek in the northeast, and the area where the future proto-Armenian separated should be located south of the proto-Greek area (fig. 4).

At this time, the Yamnaya culture formed north of the Black Sea, and around the early 3rd millennium BC, Yamnaya people penetrated into the northeastern Balkans and the Carpatho-Danube basin. Apparently this contributed to the outflow of a new part of the Balkan groups to northwestern Anatolia, where complexes like Troy I and II were formed, which reflects the coming of people who spoke the proto-Luwian dialects. The climate crisis of 2850 BC was probably the impetus for this.

In the EBA II around the middle of the 3rd millennium BC, tribes speaking proto-Greek dialects penetrated into the inner regions of northwestern Anatolia (Kütahya-Tavşanlı). Later they moved to the coastal zone of southwestern Anatolia, and in the EH IIb their migration to the Cyclades and mainland Greece began, although part of the Greek population probably remained in the coastal zone of

southwestern Anatolia. In the later part of the EBA III, new changes and migrations occurred, provoked by a powerful eruption of some volcano in Transcaucasia or Eastern Anatolia in the second quarter of the 22nd century BC. This caused the split of proto-Luwian dialects. Part of this population moved to the west of central Anatolia (probably from western Phrygia), which lead to the separation of Luwian and, probably, Palaic, and part migrated to the inner regions of southwestern Anatolia, which lead to the separation of proto-Carian, proto-Lycian and proto-Lyidian, although the southward movement of the proto-Lydians could have begun earlier. It is also possible that part of the Thracians and Phrygians migrated from the north of central Anatolia to Bithynia at this time, which lead to the appearance of Inegöl Grey Ware. It is possible that at the beginning of Troy IV, Thracian groups also appeared in the Troad, which does not mean that the population of this city began to speak Thracian. By this time, the Greeks were already in mainland Greece, and their possible enclaves were in the coastal part of southwestern Anatolia. This explains the lack of early contacts between Greek and Phrygian.

With the transition to the MBA in the early 2nd millennium BC, new events occurred. From central Anatolia to the north into the coastal area, the population speaking Hattic penetrated. Probably, their activity there led to the further displacement of the Thracians from this area, and in the 18th century BC, a significant part of them migrated to Thrace, but we cannot yet say for sure whether directly from there or from Bithynia. At the same time, there was probably a noticeable increase in the Thracian component in the Troad. As a result, the population of the Troad gradually adopted the Thracian language. The Phrygians were gradually

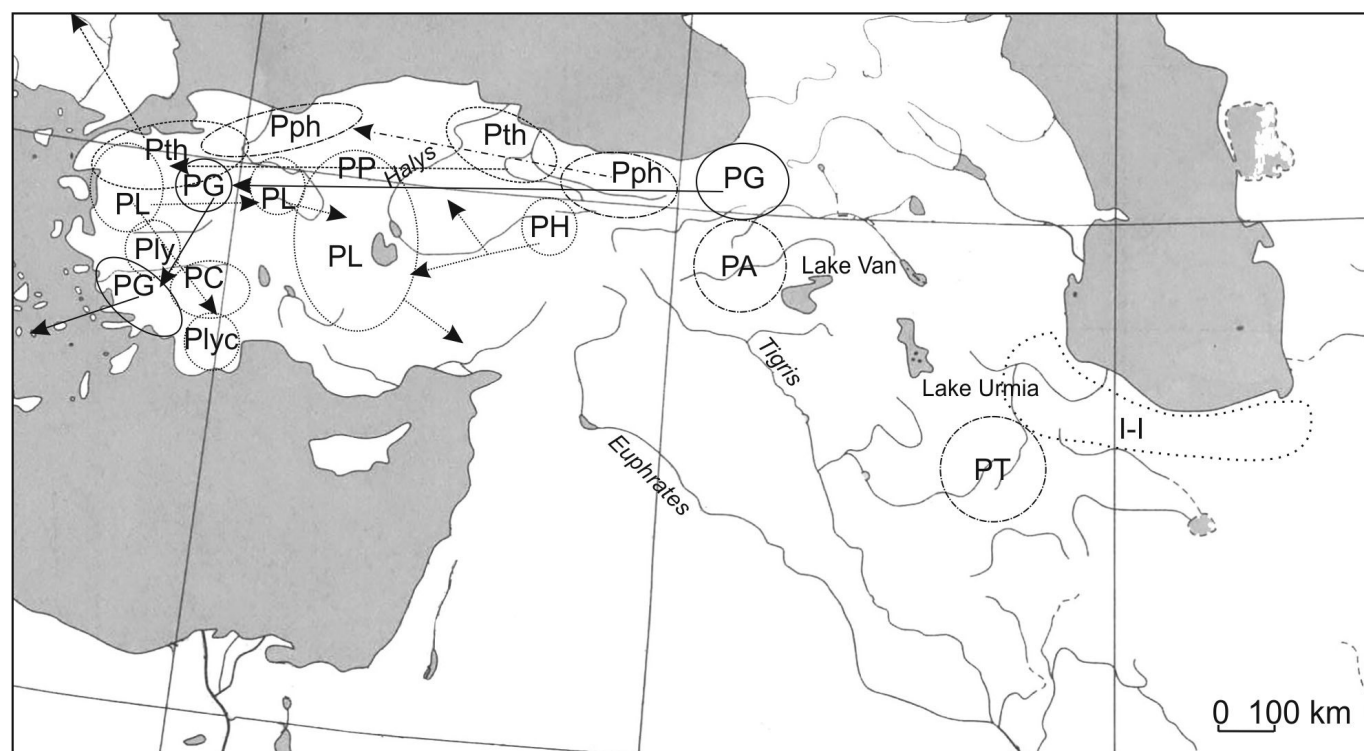


Fig. 4. Areas and migrations of the Proto-Luwians (PL), Proto-Palaic (PP), Proto-Lydians (Ply), Proto-Carians (PC), Proto-Lycians (Plyc), Proto-Greeks (PG), Proto-Thracians (Pth), Proto-Phrygians (Pph), Proto-Hittites, Proto-Armenians (PA), Proto-Tocharians (PT), and Indo-Iranians (I-I) in the 3rd – early 2nd millennia BC.

developing areas of Mysia, possibly parts of Bithynia, and the preservation of some Thracian and Phrygian enclaves in the north of central Anatolia cannot be ruled out. At the end of the Chalcolithic, it is this area that shows the greatest concentration of finds comparable to the Balkans. Therefore, initially Hittite ethnogenesis took place there. But as a result of the events of the end of the EBA – the beginning of the MBA, the Hittites probably moved southeast, to the Kuššara region, from where they began their expansion into central Anatolia in the 18th century BC.

A Greek population may have survived south of the Troad, but it is difficult to say in which regions it survived completely and where it was replaced (or partially replaced) by tribes speaking the Luwic dialects. Subsequently, it was these areas that interacted most closely with the Mycenaean Greeks. Therefore, it can be assumed that the country of Ahhiyawa meant not only Mycenaean Greece, but also the southwestern part of the Anatolian coast.

The presented reconstruction is preliminary and requires serious detailing. However, it is in good agreement with the available archaeological, linguistic and paleogenetic data. In contrast, it is impossible to show the penetration of several different groups of the Indo-Europeans into Asia Minor at the end of the Bronze Age, or in any other period. Therefore, future more detailed studies should be based on the idea of the Near Eastern homeland of this language family.

REFERENCES

- ACHILLI *et alii* 2007
 Achilli, A./Olivieri, A./Pala, M./Metspalu, E./Fornarino, S./Battaglia, V./Accetturo, M./Kutuev, I./Khusnutdinova, E./Pennarun, E./Cerutti, N./Di Gaetano, C./Crobu, F./Palli, D./Matullo, G./Santachiara-Benerecetti, A.S./Cavalli-Sforza, L.L./Semino, O./Villemis, R./Bandelt, H.-J./Piazza, A./Torrioni, A., Mitochondrial DNA variation of modern Tuscans supports the Near Eastern origin of Etruscans, *American Journal of Human Genetics* 80, 759–768.
- ALPARSLAN/DOĞAN-ALPARSLAN 2015
 Alparslan, M./Doğan-Alparslan, M., The Hittites and their geography: problems of Hittite historical geography, *European Journal of Archaeology* 18 (1), 90–110.
- ANTHONY 2007
 Anthony, D.W., *The horse, the wheel and language* (Princeton: University Press).
- BACHVAROVA 2015
 Bachvarova, M.N., Migrations in Anatolian narrative traditions. In: Stampolidis N.Ch./Maner C./Kopanias K. (eds.), *Nostoi. Indigenous culture, migration + integration in the Aegean Islands + Western Anatolia during the Late Bronze Age + Early Iron Age* (Istanbul: Koç University press), 145–183.
- BARJAMOVIC/HERTEL/LARSEN 2012
 Barjamovic, G./Hertel, Th./Larsen, M.T., *Ups and Downs at Kanesh. Chronology, History and Society in the Old Assyrian Period. Chronology, History and Society in the Old Assyrian Period*. Old Assyrian Archives Studies 5. 120 (Leiden: PIHANS).
- BAYNE 2000
 Bayne, N., The Grey Wares of North-West Anatolia, *Asia Minor Studien* 37 (Bonn: Dr. Rudolf Habelt GmbH).
- BEEKES 2003
 Beekes, R.S.P., *The Origin of the Etruscans* (Amsterdam: Koninklijke Nederlandse Akademie van Wetenschappen).
- BENZI 2002
 Benzi, M., Anatolia and Eastern Aegean at the time of the Trojan War. In: Montanari, F./Ascheri, P. (eds.), *Omero 3000 anni dopo. Atti del Congresso di Genova 6-8 Luglio 2000 (Storia e Letteratura. Raccolta di Studi e Testi 210)*, Roma, 343–405.
- BERGER/GAUSS 2016
 Berger, L./Gauss, W., Early Bronze Age Aegina Kolonna: A view from a Southwest Aegean centre. In: Pernicka E./Ünlüsoy S.S./Blum W.E. (eds.), *Early Bronze Age Troy: chronology, cultural development, and interregional contacts. Studia Troica Monographien* 8 (Bonn: Dr. Rudolph Habelt), 109–228.
- BLUM 2016
 Blum, S.W.E., The final stages of the Early Bronze Age at Troy: Cultural development, chronology, and interregional contacts. In: Pernicka E./Ünlüsoy S.S./Blum W.E. (eds.), *Early Bronze Age Troy: chronology, cultural development, and interregional contacts. Studia Troica Monographien* 8 (Bonn: Dr. Rudolph Habelt), 99–119.
- BRIXHE 2004
 Brixhe, C., Phrygian. In: Woodard, R. (ed.), *The Ancient Languages of Asia Minor* (Cambridge: University Press), 69–80.
- CARRUBA 1995
 Carruba, O. Ahhiya e Ahhiyawa, la Grecia e l'Egeo. In: van den Hout, Th.P.J./de Roos, J. (eds.), *Studia Historiae Ardens: Ancient Near Eastern Studies* (Istanbul: Nederlands Historisch-Archaeologisch Instituut), 7–21.
- CLACKSON 2004
 Clackson, J.P.T., Classical Armenian. In: Woodard, R. (ed.), *The Ancient Languages of Asia Minor* (Cambridge: University Press), 124–144.
- CLINE 2021
 Cline, E.H., *1177 B.C.: The year civilization collapsed* (Princeton, Oxford: Princeton University Press).
- CORTI 2017
 Corti, C., The North: Hanhana, Hattena, İstahara, Hakpiş, Nerik, Zalpuwa, Tummana, Pala and the Hulana River Land. In: Weeden, M./Ullmann, L.Z. (eds.), *Hittite Landscape and Geography* (Leiden, Boston: Brill), 219–238.
- DEMIREL 2017
 Demirel, S., A contribution to localization of Azzi-Hayaša mentioned in Hittite cuneiform texts, *Archivum Anatolicum* 11/1, 97–110.
- DEMIREL 2019
 Demirel, S., Some observations about the problem of Late Bronze Age in the settlements of Sinop region. In: Kaba, H./Kan Şahin, G./Akarsu, B.M./Bozoğlan, O. (eds.), *International symposium on Sinope and Black Sea archaeology "Ancient Sinope and the Black Sea"* (Sinop), 39–51.
- DREWS 1993
 Drews, R., *The end of the Bronze Age. Changes in warfare and the catastrophe ca. 1200 B.C.* (Princeton: Princeton University Press).

- DÖNMEZ 2008
Dönmez, Ş., A general look at the Central Black Sea region of Turkey during the Middle Bronze Age and a new approach to the Zalpa problem in the light of new evidence, *Anatolia and the Jazira during the Old Assyrian period*, PIHANS 111, 101–135.
- FIDAN *et alii* 2015
Fidan, E./Sari, D./Türkteki, M., An Overview of the Western Anatolian Early Bronze Age, *European Journal of Archaeology* 18 (1), 60–89.
- FILOS 2014
Filos, P. Proto-Greek and Common Greek. In: Giannakis G.K. *et alii* (eds.), *Encyclopedia of Ancient Greek Language and Linguistics*. V. 2 (Leiden, Boston: Brill), 175–189.
- FINKELBERG 2005
Finkelberg, M. *Greeks and pre-Greeks. Aegean Prehistory and Greek Heroic Tradition* (Cambridge: University Press).
- FRANGIPANE 2000
Frangipane, M., The Late Chalcolithic IEB I sequence at Arslantepe. Chronological and cultural remarks from a frontier site. In: *Chronologies des pays du Caucase et de l'Euphrate aux IVe-IIIe millénaires. From the Euphrates to the Caucasus: Chronologies for the 4th-3rd millennium B.C. Vom Euphrat in den Kaukasus: Vergleichende Chronologie des 4. und 3. Jahrtausends v. Chr. Actes du Colloque d'Istanbul*, 16-19 décembre 1998. *Varia Anatolica* 11 (Istanbul: Institut Français d'Études Anatoliennes-Georges Dumézil), 439–471.
- FREILICH *et alii* 2021
Freilich, S./Ringbauer, H./Los, D./Novak, M./Tresić Pavičić, D./Schiffels, S./Pinhasi, R., Reconstructing genetic histories and social organisation in Neolithic and Bronze Age Croatia, *Scientific Reports* 11, 16729. <https://doi.org/10.1038/s41598-021-94932-9>.
- FRENCH 1967
French, D. H., Prehistoric Sites in Northwest Anatolia: I. The İznik Area, *Anatolian Studies* 17, 49–100.
- GAMKRELIDZE/IVANOV 1995
Gamkrelidze, T.V./Ivanov, V.V., *Indo-European and the Indo-Europeans: A Reconstruction and Historical Analysis of a Proto-Language and Proto-Culture* (Berlin: Mouton de Gruyter).
- GIMBUTAS 1994
Gimbutas, M., *Das Ende Alteuropas. Der Einfall von Steppennomaden aus Südrußland und die Indogermanisierung Mitteleuropas* (Budapest: Archaeologia).
- GINDIN 1967
Gindin, L.A., *Yazyk drevnejshego naseleniya yuga Balkanskogo poluoostrova* [Language of the most ancient population of the south of the Balkan Peninsula] (Moscow: Nauka).
- GINDIN 1981
Gindin, L.A., *Drevnejshaya onomastika vostochnyh Balkan (Frako-hetto-luvijskie i frako-maloazijskie izoglossy)* [The most ancient onomastics of the Eastern Balkans. (Fraco-Hittite-Luwian and Thraco-Asia Minor isoglosses)] (Sofia: Akademii of Sciences).
- GINDIN 1993
Gindin, L.A., *Naselenie gomerovskoj Troi: Istoriko-filologicheskie issledovaniya po etnologii drevnej Anatolii* [The Population of Homeric Troy: Historical and Philological Studies in the Ethnology of Ancient Anatolia] (Moscow: Nauka).
- GINDIN/TSYMBURSKY 1995
Gindin, L.A./Tsybursky, V.L. Troya i pra-Ahhiyawa, *Journal of Ancient History* 3. 14–37.
- GIORGADZE 1961
Giorgadze, G., On the localization and the linguistic structure of the ethnic and geographical names of the Kaskeans. In: Dyakonov, I.M./Tsereteli, G.V., *Peredneaziatskij Zbornik* (Moscow: Nauka), 161–210.
- GLATZ 2017
Glatz, C., The North: Archaeology. In: Weeden, M./Ullmann, L.Z. (eds.), *Hittite Landscape and Geography* (Leiden, Boston: Brill), 75–88.
- GLATZ/MATTHEWS 2005
Glatz, C., Anthropology of a frontier zone: Hittite-Kaska relations in Late Bronze Age North-Central Anatolia, *Bulletin of ASOR* 339, 47–65.
- GRIGORIEV 2002
Grigoriev, S.A., *Ancient Indo-Europeans* (Chelyabinsk: Rifei).
- GRIGORIEV 2021
Grigoriev, S.A., Archeology, language and genes: the Indo-European perspective, *Journal of Indo-European studies* 1/2, 187–230.
- GRIGORIEV 2022a
Grigoriev, S., Origins of the Greeks and Greek dialects, *Journal of Ancient History and Archaeology* 9/1, 5–46.
- GRIGORIEV 2022b
Grigoriev, S., Cultural genesis and ethnic processes in Central and Eastern Europe in the 3rd millennium bc: Yamnaya, Corded Ware, Fatyanovo and Abashevo cultures, *Journal of Ancient History and Archaeology* 9/3, 43–84.
- GRIGORIEV 2023a
Grigoriev, S., Origins and migrations of the Thracians, *Journal of Ancient History and Archaeology* 10/3, 47–71.
- GRIGORIEV 2023b
Grigoriev, S.A., Absolute chronology of the Early Bronze Age in Central Europe, Middle Bronze Age in Eastern Europe, and the “2200 event”, *Journal of Ancient History and Archaeology* 10/1, 22–46.
- GRIGORIEV 2023c
Grigoriev, S.A., Chronology of the Seima-Turbino bronzes, early Shang Dynasty and Santorini eruption, *Prähistorische Zeitschrift* 98 (2), 569–588.
- HAJNAL 2003
Hajnal, I., Methodische Vorbemerkungen zu einer Palaeolinguistik des Balkanraums. In: Bammesberger, A./Vennemann, T. (eds.), *Languages in Prehistoric Europe* (Heidelberg: De Gruyter), 117–145.
- HEGGARTY *et alii* 2023
Heggarty, P./Anderson, C./Scarborough, M./King, B./Bouckaert, R./Jocz, L./Kümmel, M.J./Jügel, TH./Irslinger, B./Pooth, R./Liljegren, H./Strand, R.F./Haig, G./Macák, M./Kim, R.I./Anonby, E./Pronk, T./Belyaev, O./Dewey-Findell, T.K./Boutillier, M./Freiberg, C./Tegethoff, R./Serangeli, M./Liosis, N./Stroński, K./Schulte, K./Gupta, G.K./Haak, W./Krause, J./Atkinson, Q.D./Greenhill, S.J./Kühnert, D./Gray, R.D., Language trees with sampled ancestors support a hybrid model for the origin of Indo-European languages, *Science* 381. eabg0818. <https://doi.org/10.1126/science.abg0818>.

- HELWING 1999
Helwing, B., Cultural interaction at Hassek Höyük, Turkey. New evidence from pottery analysis, *Paléorient* 25/1, 91–99.
- HELWING 2012
Helwing, B., An Age of Heroes? Some thoughts on Early Bronze Age funerary customs in Northern Mesopotamia. In: Niehr, H./Pfälzner, P./Pernicka, E./Wissing, A. (eds.), *(Re-)constructing funerary rituals in the Ancient Near East. Proceedings of the First International Symposium of the Tübingen Post-Graduate School "Symbols of the Dead" in May 2009. Qatna Studien Supplementa 1 (Wiesbaden)*, 47–58.
- ILIEVA 2017
Ilieva, P., Thracians on the Northern Aegean islands: written testimonia and current archaeological evidence, *Thracia* XXII, 253–275.
- IŞIKLI 2014
Işikli, M., The development of the Kura-Araxes culture in Eastern Anatolia: problems, determinations and suggestions. In: Işikli, M./Can, B. (eds.), *International Symposium on East Anatolia and South Caucasus Cultures (Cambridge: Cambridge scholars publishing)*, 241–249.
- IŞIKLI 2015
Işikli, M., The Kura-Araxes culture in the Erzurum region: The process of its development, *Türkiye Bilimler Akademisi Arkeoloji Dergisi* 18, 51–70.
- IVANOV 1988
Ivanov, V.V., Drevnevostochnye svyazi etruskogo yazyka [Near Eastern relations of the Etruscan language]. In: Bongard-Levin, G.M./Ardzinba, V.G. (eds.), *Drevnij Vostok: etnokul'turnye svyazi [Ancient East: ethnocultural relations] (Moscow: Nauka)*, 215–216.
- KATIČIĆ 1976
Katičić, R., *Ancient Languages of the Balkans* (The Hague, Paris: De Gruyter Mouton).
- KATINČAROV 1991
Katinčarov, R. Die Frühbronzezeit Thrakiens und ihre Beziehung zum ägäisch-anatolischen Raum. In: Lichardus, J. (ed.), *Die Kupferzeit als historische Epoche. Symposium Saarbrücken und Otrenhausen. T. I. (Bonn)*, 95–100.
- KELDER 2006
Kelder, J.M., Mycenaeans in Western Anatolia, *Talanta: proceedings of the Dutch Archaeological and Historical Society* 36, 49–86.
- KIGURADZE 2000
Kiguradze, T., The Chalcolithic - Early Bronze Age transition in the eastern Caucasus. In: *Chronologies des pays du Caucase et de l'Euphrate aux IVe-IIIe millénaires. From the Euphrates to the Caucasus: Chronologies for the 4th-3rd millennium B.C. Vom Euphrat in den Kaukasus: Vergleichende Chronologie des 4. und 3. Jahrtausends v. Chr. Actes du Colloque d'Istanbul, 16-19 décembre 1998. Varia Anatolica 11 (Istanbul: Institut Français d'Études Anatoliennes-Georges Dumézil)*, 321–328.
- KIGURADZE/SAGONA 2003
Kiguradze, T./Sagona, A., On the origins of the Kura-Araxes cultural complex. In: Smith, A.T./Rubinson, K.S. (eds.), *Archaeology in the Borderlands. Investigations in Caucasia and beyond*. (Los Angeles: University of California, The Cotsen Institute of Archaeology. Monograph 47), 38–94.
- KITCHEN *et alii* 2009
Kitchen, A./Ehret, Ch./Assefa, Sh./Mulligan, C.J., Bayesian phylogenetic analysis of Semitic languages identifies an Early Bronze Age origin of Semitic in the Near East, *Proceedings of the Royal Society B* 276, 2703–2710.
- KLOEKHORST 2016
Kloekhorst, A. The Anatolian stop system and the Indo-Hittite hypothesis, *Indogermanische Forschungen* 121(1), 213–247.
- KLOEKHORST 2021
Kloekhorst, A., A new interpretation of the Old Hittite Zalpa-Text (CTH 3.1): Nēša as the Capital under Ḫuzziia I, Labarna I, and Ḫattušili I, *Journal of the American Oriental Society* 141.3, 557–575.
- KLOEKHORST 2022
Kloekhorst, A., Luwians, Lydians, Etruscans, and Troy. In: Hajnal, I./Zangger, E./Kelder, J. (eds.), *The political geography of Western Anatolia in the Late Bronze Age. Proceedings of the EAA Conference Bern, 7 September 2019 (Budapest: Archaeolingua)*, 201–228.
- KNAPP/MANNING 2016
Knapp, A.B./Manning, S.W. Crisis in Context: The End of the Late Bronze Age in the Eastern Mediterranean, *American Journal of Archaeology* 120 (1), 99–149.
- KOPANIAS 2015
Kopaniias, K., The Mushki/Phrygian problem from the Near Eastern point of view. In: Stamplides, N./Maner, C./Kopaniias, K. (eds.), *NOSTOI. Indigenous Culture, Migration and Integration in the Aegean Islands and Western Anatolia during the Late Bronze and Early Iron Age. Proceedings of the International Conference held in Istanbul 31/3/11-3/4/11 (Istanbul: Koç University Press)*, 211–226.
- KOSYAN 2011
Kosyan, A., Towards the Hittite eastern periphery (KUB XLIX 11), *Aramazd. Armenian journal of Near Eastern studies* VI/2, 87–94.
- KOUKA 2013
Kouka, O., "Minding the Gap" against the gaps: The Early Bronze Age and the transition to the Middle Bronze Age in the Northern and Eastern Aegean/Western Anatolia, *American Journal of Archaeology* 117, 569–580.
- KOUKA/MENELAOU 2018
Kouka, O./Menelaou, S., Settlement and Society in Early Bronze Age Heraion: Exploring stratigraphy, architecture and ceramic innovation after mid-3rd millennium BC. In: Alram-Stern, E./Horejs, B. (eds.), *Pottery technologies and sociocultural connections between the Aegean and Anatolia during the 3rd millennium BC (Vienna: Austrian Academy of Sciences)*, 119–144.
- KUSHNAREVA/CHUBINISHVILI 1970
Kushnareva, K.H./Chubinishvili, T.N., *Drevnie kul'tury Yuzhnogo Kavkaza [Ancient cultures of the South Caucasus] (Leningrad: Nauka)*.
- LAZARIDIS *et alii* 2016
Lazaridis, I./Nadel, D./Rollefson, G./Merrett, D.C./Rohland, N./Mallick, S./Fernandes, D./Novak, M./Gamarrá, B./Sirak, K./Connell, S./Stewardson, K./Harney, E./Fu, Q./Gonzalez-Fortes, G./Jones, E.R./Alpaslan-Roodenberg, S./Lengyel, G./Bocquentin, F./Gasparian, B./Monge, J.M./Gregg, M./Eshed, V./Mizrahi, A.-S./Meiklejohn, Ch./Gerritsen, F./

- Bejenaru, L./Blüher, M./Campbell, A./Cavalleri, G./Comas, D./Froguel, Ph./Gilbert, E./Kerr, S.M./Kovacs, P./Krause, J./McGettigan, D./Merrigan, M./Merriwether, D.A./O'Reilly, S./Richards, M.B./Semino, O./Shamoon-Pour, M./Stefanescu, G./Stumvoll, M./Tönjes, A./Torrioni, A./Wilson, J.F./Yengo, L./Hovhannisyian, N.A./Patterson, N./Pinhasi, R./Reich, D., Genomic insights into the origin of farming in the ancient Near East, *Nature* 536(7617), 419–424.
- LAZARIDIS *et alii* 2022a
Lazaridis, I./Alpaslan-Roodenberg, S. *et alii*, The genetic history of the Southern Arc: A bridge between West Asia and Europe, *Science* 377/939. <https://doi.org/10.1126/science.abm4247>.
- LAZARIDIS *et alii* 2022b
Lazaridis, I./Alpaslan-Roodenberg, S. *et alii*, A genetic probe into the ancient and medieval history of Southern Europe and West Asia, *Science* 377, 940–51.
- LESHTAKOV 2014
Leshtakov, K.P., Troy and Upper Thrace: What Happened in the EBA 3? (Interrelations Based on Pottery Evidence). In: Pernicka, E./Ünlüsoy, S./Blum, S.W.E. (eds.), *Early Bronze Age Troy: Chronology, Cultural Development, and Interregional Contacts. An international conference held at the University of Tübingen May 8–10, 2009. Studia Troica Monographien* 8. (Bonn: Dr. Rudolph Habelt), 321–337.
- LEŠTAKOV 2015
Leštakov, K., Klassifikation und Chronologie der mittelbronzezeitlichen Keramik aus Gálábovo (Südostbulgarien) im Vergleich zu anatolischen Siedlungsfunden. Teil 1, *Studia Archaeologica Universitatis Serdicensis* 5 (Sofia: St. Kliment Ohridski university press), 5–114.
- MALLORY 1989
Mallory, J.P., *In Search of the Indo-Europeans. Language, Archaeology and Myth* (London: Thames & Hudson).
- MARRO *et alii* 2014
Marro, C./Bakhshaliyev, V./Berthon, R., On the genesis of the Kura-Araxes phenomenon: New evidence from Nakhchivan (Azerbaijan), *Paléorient* 40/2. *The Kura-Araxes culture from the Caucasus to Iran, Anatolia and the Levant: Between unity and diversity*, 131–154.
- MATHIESON *et alii* 2018
Mathieson, I./Alpaslan-Roodenberg, S./Posth, C. *et alii*, The genomic history of southeastern Europe, *Nature* 555, 197–203.
- MATTHEWS/GLATZ 2009
Matthews, R./Glatz, C., The historical geography of north-central Anatolia, *Anatolian Studies* 59, 51–72.
- MELCHERT 2004a
Melchert, H.C., Luvian. In: Woodard, R. (ed.), *The Cambridge encyclopedia of the World's Ancient Languages* (Cambridge: Cambridge University Press), 576–584.
- MELCHERT 2004b
Melchert, H.C., Lycian. In: Woodard, R. (ed.), *The Cambridge encyclopedia of the World's Ancient Languages* (Cambridge: Cambridge University Press), 591–600.
- MELCHERT 2004c
Melchert, H.C., Carian. In: Woodard, R. (ed.), *The Cambridge encyclopedia of the World's Ancient Languages* (Cambridge: Cambridge University Press), 609–613.
- MELCHERT 2004d
Melchert, H.C., Lydian. In: Woodard, R. (ed.), *The Cambridge encyclopedia of the World's Ancient Languages* (Cambridge: Cambridge University Press), 601–608.
- MELCHERT 2004e
Melchert, H.C., Palaic. In: Woodard, R. (ed.), *The Cambridge encyclopedia of the World's Ancient Languages* (Cambridge: Cambridge University Press), 585–590.
- MELLAART 1971
Mellaart, J. 1971, Anatolia c. 4000-2300 BC. In: Edwards, I.E.S./Gadd, C.J./Hammond, N.G.L. (eds.), *The Cambridge Ancient History* I/2 (Cambridge: Cambridge University Press), 363–416.
- MERİÇ 2020
Meriç, R., The Arzawa lands. The historical geography of Izmir and its environs during Late Bronze age in the light of new archaeological research, *Turkish Academy of Sciences Journal of Archaeology* 27, 151–177.
- MERPERT 1988
Merpert, N.Ya. Ob etnokul'turnoj situacii IV-III tysyacheletij do n.e. v cirkumpontijskoj zone [On the ethnocultural situation of the 4th-3rd millennia BC in the Circumpontic zone]. In: Bongard-Levin, G.M./ Ardzinba, V.G. (eds.), *Drevnij Vostok: etnokul'turnye svyazi* [Ancient East: ethnocultural relations], (Moscow: Nauka), 7–36.
- MOTZOI-CHICIDEANU 2011
Motzoi-Chicideanu, I. *Obiceiuri funerare în epoca bronzului la Dunărea Mijlocie și Inferioară*. I [Bronze Age Burial Customs in the Middle and Lower Danube Basin. I], (București: Editura Academiei Române).
- MOUTON/YAKUBOVICH 2021
Mouton, A./Yakubovich, I., Where did one speak Luwili? Geographic and linguistic diversity of Luwian cuneiform texts, *Journal of Language Relationship* 19/1, 25–53.
- MÜLLER-KARPE 2006
Müller-Karpe, V., *Keramik des frühen zweiten Jahrtausends v. Chr. von İkiztepe am Schwarzen Meer*. PhD thesis (Marburg: Universität Marburg/Lahn).
- MUNCHAEV/MERPERT 1981
Munchaev, R.M./Merpert, N.Ya., *Rannezemledel'cheskie poseleniya Severnoj Mesopotamii* [Early agricultural settlements of Northern Mesopotamia] (Moscow: Nauka).
- NARASIMHAN *et alii* 2019
Narasimhan, V.M. *et alii*, The genomic formation of South and Central Asia, *Science* 365, 999. <https://doi.org/10.1126/science.aat7487>.
- NIKOLOV 1984
Nikolov, V., Ranneneoliticheskie kul'tury v Zapadnoi Bolgarii [Early Neolithic cultures in West Bulgaria], *Sovetskaya arkheologiya* 2, 5–21.
- NIKOLOV 1989
Nikolov, V., Das Flußtal der Strumna als Teil der Straße von Anatolien nach Mitteleuropa. In: Bökönyi, S. (ed.), *Neolithic of Southeastern Europe and its Near Eastern connections. Varia Archaeologica Hungarica II* (Budapest), 191–199.
- ORESHKO 2018
Oreshko, R., Anatolian linguistic influences in Early Greek (1500–800 BC)? Critical observations against sociolinguistic and areal background, *Journal of Language Relationship* 16/2, 93–118.

ÖZDOĞAN 1991

Özdoğan, M. Eastern Thrace before the Beginning of Troy I – an Archaeological Dilemma. In: Lichardus, J. (ed.), *Die Kupferzeit als historische Epoche. Symposium Saarbrücken und Otrenhausen. T. I.* (Bonn), 217–225.

PALMER 1958

Palmer, L.R., Luvian and Linear A, *Transactions of the Philological Society* 57, 75–100.

PALUMBI 2016

Palumbi, G., The Early Bronze Age of the Southern Caucasus, *Oxford Handbooks Online*. <https://doi.org/10.1093/oxfordhb/9780199935413.013.14>.

PALUMBI 2019

Palumbi, G., The expansion of the Kura-Araxes culture in Iran: what role for the Uruk? The Iranian Plateau during the Bronze Age. Development of urbanisation, production and trade, *Archéologie* 1 (Lyon: MOM Éditions), 29–49.

PALUMBI/CHATAIGNER 2014

Palumbi, G./Chataigner, Ch., The Kura-Araxes culture from the Caucasus to Iran, Anatolia and the Levant: Between unity and diversity. A synthesis, *Paléorient* 40/2. *The Kura-Araxes culture from the Caucasus to Iran, Anatolia and the Levant: Between unity and diversity*, 247–260.

PARZINGER 1993

Parzinger, H. *Studien zur Chronologie und Kulturgeschichte der Jungstein-, Kupfer- und Frühbronzezeit zwischen Karpaten und Mittleren Taurus* (Mainz am Rhein: Zabern).

PAVÚK 2007

Pavúk, P., What can Troia tell us about the Middle Helladic period in the Southern Aegean? In: Felten, F./Gauss, W./Smetana, R. (eds.), *Middle Helladic pottery and synchronisms. Proceedings of the International Workshop held at Salzburg October 31st – November 2nd, 2004* (Wien: Österreichische Akademie der Wissenschaften), 295–308.

PAVÚK 2010

Pavúk, P. Minyan or not. The Second Millennium Grey Ware in Western Anatolia and its Relation to Mainland Greece. In: Philippa-Touchais, A. et al. (eds.), *Mesohelladika. The Greek Mainland in the Middle Bronze Age. International Conference, Athens, 8-12. March 2006. Bulletin de Correspondance Hellénique Suppl.* 52, 931–943.

PAVUK 2015

Pavuk, P. Between the Aegeans and the Hittites: Western Anatolia in the 2nd Millennium BC. In: Stampolidis, N.Chr./Maner, C./Kopaniias, K. (eds.), *Nostoi. Indigenous culture, migration + integration in the Aegean Islands + Western Anatolia during the Late Bronze + Early Iron Ages* (Istanbul: Koc University Press), 81–114.

PAVÚK/RIGTER 2006

Pavúk, P./Rigter, W. Goblets, Schüsseln und Kratere – Die Keramik der Perioden Troia VI und VIIa. In: Korffmann, M.O. (ed.), *Troia. Archäologie eines Siedlungshügels und seiner Landschaft* (Mainz: Philipp von Zabern), 231–240.

PAVÚK/SCHUBERT 2014

Pavúk, P./Schubert, C., Die Troas in der Mittel- und Spätbronzezeit. In: Pernicka, E./Rose, Ch.B./Jablónka P. (eds.), *Troia 1987–2012: Grabungen und Forschungen I. T. 2* (Bonn: Rudolf Habelt), 864–923.

PERNICHEVA 1995

Pernicheva, L., Prehistoric cultures in the Middle Struma Valley: Neolithic and Eneolithic. In: Bailey, D.W./Panayotov, I. (ed.), *Prehistoric Bulgaria. Monographs in World Archaeology* № 22 (Madison, Wisconsin: Prehistory Press).

PHILIP/MILLARD 2000

Philip, G./Millard, A.R., Khirbet Kerak Ware in the Levant: the implications of radiocarbon chronology and spatial distribution. In: *Chronologies des pays du Caucase et de l'Euphrate aux IVe-IIIe millénaires. From the Euphrates to the Caucasus: Chronologies for the 4th-3rd millennium B.C. Vom Euphrat in den Kaukasus: Vergleichende Chronologie des 4. und 3. Jahrtausends v. Chr. Actes du Colloque d'Istanbul, 16-19 décembre 1998. Varia Anatolica* 11 (Istanbul: Institut Français d'Études Anatoliennes-Georges Dumézil), 279–296.

POROZHANOV 2017

Porozhanov, K., *Trakijската civilizaciya v nachalata na dva kontinenta i po krajbrezhnyata na tri moreta: (v deset etyuda) [The Thracian civilization at the beginnings of two continents and along the coasts of three seas: (in ten etudes)]* (Sofia: Literaturna Sofia – 2013).

PRIMAS 1977

Primas, M., Untersuchungen zu den Bestattungssitten der ausgehenden Kupfer- und frühen Bronzezeit, *Bericht der Römisch-Germanischen Kommission* 58 (Mainz am Rhein: Zabern).

RENFREW 1987

Renfrew, C.A. *Archaeology and language: The puzzle of Indo-European origins* (London: Penguin Books).

REZEPKIN 2012

Rezepkin, A.D., *Novosvobodnenskaya kul'tura (na osnove materialov mogil'nika "Klady") [Novosvobodnenskaya culture (based on materials from the cemetery "Lady")]* (Sankt-Peterburg: Nestor-Historia).

ROBERTS et alii 2011

Roberts, N./Eastwood, W.J./Kuzucuoğlu, C./Fiorentino, G./Caracuta, V., Climatic, vegetation and cultural change in the eastern Mediterranean during the mid-Holocene environmental transition, *The Holocene* 21(1), 147–162.

ROSE 2008

Rose, C.B., Separating Fact from Fiction in the Aiolian Migration, *Hesperia* 430–399, 77.

SAGONA 2000

Sagona, A., Sos Höyük and the Erzurum region in late Prehistory: a provisional chronology for Northeast Anatolia. In: *Chronologies des pays du Caucase et de l'Euphrate aux IVe-IIIe millénaires. From the Euphrates to the Caucasus: Chronologies for the 4th-3rd millennium B.C. Vom Euphrat in den Kaukasus: Vergleichende Chronologie des 4. und 3. Jahrtausends v. Chr. Actes du Colloque d'Istanbul, 16-19 décembre 1998. Varia Anatolica* 11 (Istanbul: Institut Français d'Études Anatoliennes-Georges Dumézil), 329–373.

ŞAHOĞLU 2008

Şahoğlu, V., Liman Tepe and Bakla Tepe: New evidence for the relations between the Izmir Region, the Cyclades and the Greek Mainland during the late fourth and third millennia BC. In: Erkanal, H./Hauptmann, H./Şahoğlu, V./Tuncel, R. (eds.), *The Aegean in the Neolithic, Chalcolithic and the Early Bronze Age* (Ankara: Ankara University), 483–502.

SARI 2013

Sari, D., The cultural development of Western Anatolia in the third and second millennia BC and its relationship with migration theories. In: Mouton, A./Rutherford, I./Yakubovich I. (eds.), *Luwian identities: culture, language and religion between Anatolia and the Aegean. Culture and History of the Ancient Near East* 64. (Leiden-Boston: Brill), 305–327.

SCHRIJVER 2018

Schrijver, P., Talking Neolithic: The case for Hatto-Minoan and its relationship to Sumerian. In; Kroonen, G./Mallory, J.P./Comrie B. (eds.), *Talking Neolithic* (Washington: The Institute for the Study of Man), 336–374.

SCHÜRR 2019

Schürr, D., Ist Troja das Wilusa der Hethiter? Über Namensassoziationen und ihre fatale Rolle bei der Historisierung Hisarlık, *Gephyra* 18, 33–57.

SELOVER/DURGUN 2019

Selover, S./Durgun, P., Reexamining burials and cemeteries in Early Bronze Age Anatolia. In: Steadman, Sh.R./McMahon, G. (eds.), *The Archaeology of Anatolia, Volume III: Recent Discoveries (2017–2018)* (Cambridge: Cambridge Scholars Publishing), 271–283.

SHAI 2008

Shai, A.D., A survey of the textual evidence for “food shortage” from the Late Hittite Empire. In: d’Alfonso, L./Cohen, Y./Sürenhagen, D. (eds.), *The City of Emar among the Late Bronze Age Empires History, Landscape, and Society* (Münster: Ugarit-Verlag), 101–109.

SILVA *et alii* 2022

Silva, N.M./Kreutzer, S./Souleles, A./Triantaphyllou, S./Kotsakis, K./Urem-Kotsou, D./Halstead, P./Efstratiou, N./Kotsos, S./Karamitrou-Mentessidi, G./Adaktylou, F./Chondroyianni-Metoki, A./Pappa, M./Ziota, Ch./Sampson, A./Papathanasiou, A./Vitelli, K./Cullen, T./Kyparissi-Apostolika, N./Zeeb Lanz, A./Peters, J./Rio, J./Wegmann, D./Burger, J./Curat, M./Papageorgopoulou Ch., Ancient mitochondrial diversity reveals population homogeneity in Neolithic Greece and identifies population dynamics along the Danubian expansion axis, *Scientific Reports* 12, 13474. <https://doi.org/10.1038/s41598-022-16745-8>.

SINGER 2007

Singer, I., Who were the Kaška?, *Phasis* 10 (I), 166–181.

SKOURTANIOTI *et alii* 2020

Skourtanioti, E./Erdal, Y.S./Frangipane, M./Balossi Restelli F./Yener, K.A., *et alii*, Genomic history of Neolithic to Bronze Age Anatolia, Northern Levant, and Southern Caucasus, *Cell Reports* 181, 1158–1175.

STARKE 1997

Starke, F., Troia im Kontext des historisch-politischen und sprachlichen Umfeldes Kleinasien im 2. Jahrtausend, *Studia Troica* 7, 447–487.

STAROSTIN 1985

Starostin, S.A., Kul’turnaya leksika v obshcheseve-rokavkazskom slovarnom fonde [Cultural lexis in the general North Caucasian vocabulary fund]. In: Piotrovskii, B.B. (ed.), *Drevnyaya Anatoliya [Ancient Anatolia]* (Moscow: Nauka), 74–95.

THISSEN 1993

Thissen, L., New insights in Balkan-Anatolian connections in the Late Chalcolithic: Old evidence from the Turkish Black Sea littoral, *Anatolian Studies* 43, 207–237.

ULF 2017

Ulf, Ch., An ancient question: the origin of the Etruscans. In: Naso, A. (ed.), *Etruscology* (Berlin, Boston: De Gruyter), 11–34.

ÜNAL 1991

Ünal, A. Two Peoples on Both Sides of the Aegean Sea: Did the Achaeans and the Hittites Know Each Other? In: Prince Takahito Mikasa (ed.), *Essays on Ancient Anatolian and Syrian studies in the 2nd and 1st millennium B.C.* (Wiesbaden: Harrassowitz), 16–44.

USOSKIN 2017

Usoskin, I.G., A history of solar activity over millennia, *Living Reviews in Solar Physics* 14/3. <https://doi.org/10.1007/s41116-017-0006-9>.

VENNEMANN 1994

Vennemann, Th., Linguistic Reconstruction in the Context of European Prehistory, *Transactions of the Philological Society* 92, 215–284.

VERNESI *et alii* 2004

Vernesi, C./Caramelli, D./Dupanloup, I./Bertorelle, G./Lari, M./Cappellini, E./Moggi-Cecchi, J./Chiarelli, B./Castri, L./Casoli, A./Mallegni, F./Lalueza-Fox, C./Barbujani, G. The Etruscans: A Population-Genetic Study, *American Journal of Human Genetics* 74, 694–704.

WATKINS 2004

Watkins, C., Hittite. In: Woodard, R. (ed.), *The Cambridge encyclopedia of the World’s Ancient Languages* (Cambridge: Cambridge University Press), 551–575.

WEIBERG *et alii* 2015

Weiberg, E./Unkel, I./Kouli, K./Holmgren, K./Avramidis, P./Bonnier, A./Dibble, F./Finné, M./Izdebski, A./Katrantsiotis, Ch./Stocker, Sh.R./Andwinge, M./Baika, K./Boyd, M./Heymann, Ch., The socio-environmental history of the Peloponnese during the Holocene: Towards an integrated understanding of the past, *Quaternary Science Reviews*. <http://dx.doi.org/10.1016/j.quascirev.2015.10.042>.

WEISS *et alii* 1993

Weiss, H., Courty, M.-A., Wetterstrom, W., Guichard, F., Senior, L., Meadow, R., Curnow, A., Genesis and collapse of third millennium North Mesopotamian civilization, *Science. New Series* 261 (5124), 995–1004.

WENINGER/EASTON 2012

Weninger, B./Easton, D., The Early Bronze Age chronology of Troy (periods I–III): Pottery seriation, radiocarbon dating and the gap. In: Horejs, B./Mehofer M. (eds.), *Western Anatolia before Troy: Proto-Urbanisation in the 4th Millennium BC? Proceedings of the International Symposium Held at the Kunsthistorisches Museum Wien, Vienna, Austria, 21–24 November, 2012. Oriental and European Archaeology 1* (Vienna: Austrian Academy of Science Press), 157–199.

WENINGER/EASTON 2014

Weninger, B./Easton, D., A gap in the Early Bronze Age pottery sequence at Troy dating to the Time of the 4.2 ka cal. B.P. event. In: Höfmayr, F. (ed.), *The late third millennium in the ancient Near East. Chronology, C14, and climate change. Oriental Institute Seminars 11* (Chicago: University of Chicago), 429–450.

WIENER 2009

Wiener, M., Locating Ahhiyawa, *ΔΡΟΝ: Τιμητικός Τομος για τον Καθηγητή Σπυρο Ιακωβίδη*, 701–715.

- WILKES 1992
Wilkes, J., *The Illyrians* (Cambridge, Ma.: Blackwell Publisher).
- WOUDHUIZEN 2015
Woudhuizen, F.C., The Sea Peoples: superior on land and at the sea, *Dacia N.S.* LIX (Bucarest), 215–226.
- WOUDHUIZEN 2018
Woudhuizen, F., *Indo-Europeanization in the Mediterranean* (Haarlem: Uitgeverij Shikanda).
- YAKAR 1975
Yakar, J., Northern Anatolia in the Early Bronze Age, *Journal of the Tel Aviv University Institute of Archaeology* 2/4, 133–145.
- YAKAR 1991
Yakar, J., *Prehistoric Anatolia. The Neolithic Transformation and the Early Chalcolithic Period* (Tel Aviv: Tel Aviv University).
- YAKAR 2008
Yakar, J., The archaeology of the Kaška, *Studi Micenei ed Egeo-Anatolici* 50, 817–827.
- YAKAR 2013
Yakar, J., The origins of the Western Anatolian Early Bronze Age. In: Koehl, R.B. (ed.), *Amilla. The quest for excellence. Studies presented to Guenter Kopcke in celebration of his 75th birthday* (Philadelphia: Academic Press), 207–220.
- YAKAR/DINÇOL 1974
Yakar, J./Dinçol, A.M., Remarks on the historical geography of North-Central Anatolia during the Pre-Hittite and Hittite periods, *Journal of the Tel Aviv University Institute of Archaeology* 1/3, 85–99.
- YAKUBOVICH 2008
Yakubovich, I., *Sociolinguistics of the Luvian language*. PhD thesis (Chicago: University of Chicago).
- YAKUBOVICH 2015
Yakubovich, I., K lokalizaciji Luvii – drevnejshego areala obitaniya luvijcev [To the localization of Luwia – the oldest habitat of the Luwians], *Journal of Ancient History* 4, 137–163.
- YAKUBOVICH 2020
Yakubovich, I., Hittite. In: Hasselbach-Andee, R. (ed.), *A companion to ancient Near Eastern languages* (Hoboken: John Wiley & Sons), 221–238.
- YAKUBOVICH 2022
Yakubovich, I., Peoples and languages. In: Rollinger, R./Ruffing, K./Gehler, M. (eds.), *Handbook Hittite Empire. V. I. Empires through the Ages in Global Perspective* (Oldenbourg: De Gruyter), 3–44.
- YALÇIN 2011
Yalçın, H.G., Die Karaz-Kultur in Ostanatolien. In: Yalçın, Ü. (ed.), *Der Anschnitt 24. Anatolian Metal V* (Bochum: Deutschen Bergbau-Museum), 31–52.
- YANAKIEVA 2018a
Yanakieva, S., The Thracian Language, Orpheus. *Journal of Indo-European and Thracian Studies* 25, 26–68.
- ZORMAN 2008
Zorman, M., CTH 3: The conquest of Zalpa justified, *Studi micenei ed egeo-anatolici* 50/1, 861–870.