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MEDIEVAL AND EARLY MODERN ARMENIAN STUDIES

ARMEN PETROSYAN AND ARAM PALYAN

The Problem of Armenian Origins in the Light of Recent Archaeogenetic Data*

▼ **ABSTRACT** The article presents the latest archaeogenetic data on the basis of which one of the most major problems of the history of Armenia—the origins and formation of the Armenian people—is examined. According to these data, regardless of the localisation of the early Indo-European (Indo-Hittite) Urheimat, the late Indo-European homeland was formed in the steppe and forest-steppe regions of Eastern Europe, from the Volga to the Dniester basins. It was from there that all the present Indo-European languages originated. Archaeogenetic data convincingly prove a migration of people across the Caucasus from the East European steppes to the South Caucasus and the Armenian Highland starting from the mid-third millennium BC. Those migrants and their descendants created the Trialeti-Vanadzor, Sevan-Artsakh, Van-Urmia, and Lchashen-Metsamor cultures of the Middle, Late Bronze, and Iron Ages. Even at the end of the kingdom of Urartu (seventh–sixth centuries BC), the local population in the territory of modern Armenia (the land Etiuni of Urartian sources) still had a significant steppe patrilineal DNA (75%). Armenian should have been the language of the creators of those cultures, and archaeogenetic data testify in favour of the Etiuni hypothesis of the origin of the Armenians.

▼ **KEYWORDS** archaeogenetics, Indo-European homeland, early archaeology of Armenia, prehistory of Armenia, Proto-Armenian, Proto-Armenians, formation of the Armenian people.

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Armen Petrosyan 0000-0002-1982-5593 • Institute of Archaeology and Ethnography, Yerevan, Armenia (Email: alpehist@gmail.com)

Aram Palyan 0009-0003-0856-6471 • Independent Researcher, Yerevan, Armenia (Email: ararat.info@gmail.com)

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BREPOLS

1. Introduction: Language and Prehistory

1.1. Proto-Armenian and the Proto-Armenians

In his monograph on the prehistory of Armenia, Igor Diakonoff specified three aspects of peoples' succession: biological, cultural, and linguistic. It is obvious that the Armenian people are the biological and cultural heirs of the ancient inhabitants of the Armenian Highland, and therefore only the issue of identifying the linguistic ancestors of the Armenians remains controversial and problematic. This is the most challenging and principal aspect of the problem (Diakonoff 1968, 7–10; Petrosyan 2018, 2–11). In ancient times, people ethnically differentiated themselves by languages. Therefore, speaking on the origins and formation of the Armenian people, one should start with the problem of identifying the Proto-Armenians – the people who spoke Proto-Armenian (the initial version of Armenian following its separation from the Indo-European community).

1.2. The Indo-European Homeland and Migrations

Armenian is an Indo-European language related to many other languages (Anatolian, Tocharian, Indo-Iranian, Italic, Celtic, Germanic, Slavic, Baltic, Greek, Albanian, etc.) that were spread from India to Western Europe since ancient times. The ancestor of those languages, the Indo-European mother language must have been spoken in prehistoric times, in an area, the homeland or Urheimat in which it was spoken before splitting into different daughter languages. Attempts to localise that area have been made based on mythological, linguistic, anthropological, archaeological, and genetic data. The most widely accepted probable homeland was located between the Black and Caspian seas, from the Volga to the Dniester basins steppes, in the territories of modern Russia and Ukraine. Thus, Johann Tischler presents fifty localisations suggested by different scholars from 1851 to 1992, of which Southern Russia is the most common one (Tischler 2002, 477–78). From there the Indo-European speaking tribes were thought to have moved to their respective homelands. Under their influence, the ancient local populations adopted the languages and some other characteristics of the newcomers (see, e.g., Gimbutas 1965; Mallory 1989; Anthony 2007, 7, 83 f., and Petrosyan 2018, 113–21).

However, several other hypotheses were circulating, and regardless of the localisation of the Urheimat, the Pontic-Caspian region could be accepted as the "secondary homeland". It is necessary to evoke two others (although, the number of existing hypotheses is not limited to them). In the early 1970s, Tamaz Gamkrelidze and Vyacheslav Ivanov put forward a theory placing the Indo-European homeland in the Armenian Highland and the adjacent areas of northern Mesopotamia and Syria, while the British archaeologist Colin Renfrew localised it in south-central Asia Minor mentioned in monographs in the 1980s (Gamkrelidze and Ivanov 1984/1995; Renfrew 1987).

The separation of the Indo-European peoples from each other was a complex and obviously non-synchronous process. According to E. H. Sturtevant, the ancestor of the Hittite and other Anatolian languages (Hittite, Luwian, Lydian, Lycian, Carian, etc.) diverged from the Indo-European (early Indo-European, "Indo-Hittite" or "Indo-Anatolian") parent language, significantly older than the others (Sturtevant 1926). So, Hittite could be characterised not as an Indo-European "sister language", like the others, but as an "aunt language". After the Anatolian languages, the Tocharian languages were separated from the mother tongue, and then others.

Archaeogenetic studies of recent years brought about a revolution, which confirmed, with certainty, that the modern Indo-European languages of Europe and Asia moved to their areas from the Pontic-Caspian Steppe and forest-steppe homeland (Allentoft et al. 2015; Haak et al. 2015; Jones et al. 2015; Lazaridis et al. 2016). In 2022–2025, several important papers were published, which shed new light on the origin of Armenian and related issues. They take the view that the speakers of the Indo-Hittite proto-language lived in the Armenian Highland, South Caucasus, and nearby regions. From there, some of them passed over the Caucasus and moved to the steppe and forest-steppe areas of South Russia and Ukraine in the beginning of the fifth millennium BC, while the Proto-Anatolians remained in place and later moved west to Asia Minor (Lazarides et al 2022a; 2022b, and 2022c). An alternative proposal, based on a larger set of new ancient DNA from Eastern Europe, was made by Lazaridis et al. (2025). In this theory, the homeland was located from the north of Caucasus to Lower Volga (CLV) region. Even though the earlier Armenian Highland homeland theory was not fully ruled out, the evidence of migration from the North Caucasus to the South Caucasus in the Late Eneolothic period raised the possibility that Proto-Anatolian also was formed in the CLV region. The calculations based on the DNA featured the date 4382±63 BC for this migration. Those presumably Proto-Anatolians mixed with the local South Caucasian populations deriving from Neolithic periods and later moved to the west introducing their language to Asia Minor.[1]

However, the late Proto-Indo-European—the parent language of all living Indo-European languages—was undoubtedly formed in Pontic-Caspian steppe and forest-steppe regions. From there, the linguistic ancestors of the Indo-European peoples migrated in different directions to their homelands. A part of them went to Europe, the second group to Central Asia, from there to Iran and India, and the third, again through the Caucasus, to Transcaucasia and the Armenian Highland. Bearers of steppe ancestry appeared in the South Caucasus since the mid-third millennium BC. Cultures created by those migrants extended from the northeastern parts of the Armenian Highland to the basins of lakes Urmia and Van and the regions of Mush and Erzurum (Avetisyan 2014, 49; Lazaridis 2022a, see Fig 2).

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1 Some scholars believe that the Proto-Anatolians passed into Asia Minor from the steppe homeland via the Balkans, as previously thought (see e.g. Kloekhorst 2023). Kloekhorst explains the lack of the steppe ancestry in ancient Asia Minor by the small number of studied samples. Then, as an important argument, states that no traces of Anatolian languages are found in the Caucasus and adjacent areas. However, as we'll see below, those traces are present in the onomastics of Urartu and ancient Armenia.

1.3. Armenian Highland in the Fourth–Second Millennium BC

After the Eneolithic Period, from the mid-fourth millennium to the mid-third millennium BC, the early Bronze Age Kuro-Araxes culture flourished in the Armenian Highland and adjacent regions. It was characterised by the absence of pronounced social stratification and a peaceful, agricultural sedentary lifestyle in settlements. From the mid-third millennium BC, in the northern parts of the Transcaucasia, and then in the Armenian Highland, new evidence began emerging: an influx of people with bellicose ideology, clearly expressed social stratification, and leaders with luxurious burials in tumuli (the so-called Martqopi-Bedeni and early Trialeti-Vanadzor cultures). The settlements were ruined, the local ancient culture disappeared, new Middle Bronze Age cultures, completely different from the previous ones, appeared, and a (semi)nomadic lifestyle became dominant in the Highland during many centuries. Those newcomers resemble in many aspects the Indo-Europeans, while certain facts—the absence of settlements, kurgan burials, etc—are hints of the original home of at least a part of them: the Indo-European kurgan/steppe homeland (Avetisyan 2014, 44; Petrosyan 2014, and 2018, 120–21).

Several areas of the Highland, for example, the Araxes Valley and its vicinity, were depopulated due to a climate change before the mid-third millennium BC. The inhabitants of those areas left for more hospitable environments such as the region of Malatya, where a new, important centre of Kura-Araxes culture appeared (Grekyan 2023a). However, over time new immigrants mixed with the older Highland population, albeit significantly retaining steppe ancestry in the patrilineal gene pool:[2] in the ancient population of the territory of the modern Republic of Armenia (hereafter RA), from the Late Bronze Age until the fall of the kingdom of Urartu, the steppe Y chromosome haplogroups R1b and I2[3] made three quarters of the total (see Figures 4 and 5). It were these people and their descendants who created the archaeological cultures of the Middle, Late Bronze, and Early Iron Ages of the Armenian Highland: the Early Kurgans, Trialeti-Vanadzor, Sevan-Artsakh, Karmirberd, Van-Urmia/Karmirvank and Lchashen-Metsamor. The newcomers who brought with them steppe ancestry probably spoke Proto-Armenian, i.e., they might be the linguistic ancestors of the emerging Armenian people (Lazaridis et al., 267–68 and 280).

It is believed that the Middle Bronze Age Sevan-Artsakh and Karmirberd cultures originated from the Trialeti-Vanadzor and Karmirvank cultures, respectively. The original territories of Trialeti-Vanadzor culture are located in the present RA and neighboring territories, while the Van-Urmia culture, in the basins of Lake Van

2 It is obvious that men played a decisive role in the occupation of new territories. In particular, in the case of Indo-European migrations, often the brotherhoods of the young warriors first conquered and settled the new territories, then, mixing with the local women, left generations and spread their language among them (see especially Sergeant 2003; for reflections of this phenomenon in Armenian tradition, see Petrosyan 2020, 84).

3 The Y DNA is one of the two sex chromosomes that determine the human male sex. It plays an important role in archaeogenetics, because, unlike the others, it is transmitted only from father to son and thus ensures long-lasting paternal inheritance. The jointly inherited characteristic groups of genes of this chromosome—the haplogroups designated by combinations of Latin letters and numerals—act as important genetic indicators of populations.

and Lake Urmia. Their burial rituals were different: in Trialeti-Vanadzor, unlike the Van-Urmia, cremation was practiced. This is an obvious indicator of religious difference, which may also signify linguistic/dialectal differences. However, after the first phase of the Middle Bronze age, the cultures of the Highland were homogenised. This process included significant changes, such as quantitative and qualitative growth of settlements and transition to a sedentary life. As a result, the Late Bronze Age and Early Iron Age Lchashen-Metsamor culture was formed.

1.4. The Early "Eastern Hittites" of the Armenian Highland

The name of the sun god of the Urartian pantheon was Šiwini/Šiuini, which, according to I. M. Diakonoff and V. V. Ivanov, should have been borrowed from a language close to Hittite, cf. Hitt. *šiu-* (*šiuni-, šiuna-*) "god" (< "sun god"), *šiuatt-* "day" < **dyeu-*, from the Indo-European name of the god of the bright sky. The centre of worship of Šiwini was the city of Tušpa (modern Van), the capital of Urartu (Diakonoff 1971, 81 and 1988, 172; Ivanov 1980, 131, 136; Gamkrelidze and Ivanov 1995, 792–93; for the "Eastern Hittites" in the Armenian Highland and Hitttite substratum in Urartian and Armenian onomastics, Petrosyan 2009 and 2023a).[4]

In Armenian onomastics, some toponyms with *siw-/sew-* roots are comparable with Šiwini (in Assyrian, Hittite, Hurrian, and Urartian cuneiform writings, the sound s was rendered as š, and in Armenian, the *ew* and *iw* diphthongs alternate). First of all, we should mention the Sewan fortress, 33 kilometers to the east from Van (the Armenians of Van believed that the sun was a fiery youth, who used to sleep in Lake Van and rise from the eastern mountains of the lake, see Srvandztyan 1978, 76–77). The other fortress named Sewan was located on an island of Lake Gegham (the name of Gegham, a mythological ancestor of the Armenians, had later passed to the lake). This name may also be considered in the context of the Hittite myth of the sun rising from the sea (see Gamkrelidze and Ivanov 1995, 792). Lake Sewan (modern Sevan) is situated in the territory of the historical province of Siwnikʻ (the modern homonymous Syunik region covers only some southern parts of historical Siwnik), which seems inseparable from Sewan (for this name, cf. Hitt. *šiuanni* "divine"). The Artsakh province (modern Karabakh), the eastern neighbor of Siwnikʻ, was called Minor Siwnikʻ, while in a narrow sense Siwnikʻ denoted the district of Tsghuk, the present-day Sisian area in the centre of Siwnikʻ (see Arutyunyan 2001, 522).

Siwnikʻ was a region where the toponyms with the Arm. root *arew/areg* "sun" were concentrated; cf., e.g., *Areweatsʻ tun* "home of the Arewians", *Arewikʻ, Arewis* (the plural nominative and accusative of the "Arewians"), *Arewik* "Little sun" etc. (some names look like ethnonyms associated with the sun). In the princely house of Siwnikʻ, the anthroponym *Arew* was known from the fifth century. Most anthroponyms with

4 In Hittite, the name of the sun god was borrowed from Hattic (*Ištanu-*). Also, *šiu-* and *šiuatt-* are specific Hittite forms (cf. Luwian *Tiwat-* and Palaic *Tiyat-* "sun god", from the same Indo-European root), i.e., the language of the early inhabitants of the Van region was an archaic Hittite dialect, in which the ancient Hittite theonymic *šiu-* was preserved.

the same root (*Arewik, Arewhat* etc.) are also known from Siwnikʿ. Thus, it can be assumed that the toponym Siwnikʿ < **siw(i)niyā* is connected with the meaning "sun, sun god" (Petrosyan 2009; 2018, 87–92, and 2023).

The Urartians referred to their country as *Biainili*. It was the region of the capital Van-Tušpa. In Urartology, it is generally accepted that the later name of Tušpa, Van (gen. *Vanay*), originates from the pl. dative form of Biainili—*Biaina/Biana*. The Urartian cuneiform *b* often conveyed *v/w* (see, e.g., Jahukyan 1987, 430 and Arutiunian 2001, 501). *Biainili* is composed of the root *Biai*, *suffix -ni* and plural marker *-li* ("Biai-ian-s"). Accordingly, cuneiform *biai* can be interpreted as a tribal name (according to Khachikyan 1985, 134, *V(i)ā*, yet most likely, *Vǣ*), which would yield Arm. *va*. The *Vayotsʿ Dzor* ("Gorge of *Vay*s") district of the Siwnikʿ province seems to be inseparable from this ethnonym (Kapantsyan 1975, 129–30). Thus, in Siwnikʿ, as well as in the east of Lake Van, the toponyms composed of the elements *siw-/sew-* and *vay-* appear side by side. The first element of *Vayotsʿ Dzor* may present the plural genitive form of the ethnonym **va*; cf. two similar Armenian toponyms: *Hayotsʿ Dzor* "Gorge of the Armenians" and *Taykʿ* "land of the Tay tribe" (pl. "Tays", gen. *Tayotsʿ*, from the local ethnonym *Tay*). In Armenian, the foreign ethnonym *va,* suffixed with the Indo-European **-i(y)o-,* yielded **vayo*, which, after the drop of the final vowel, became *vay*, and the last *-o* was preserved in the plural genitive form. Vayotsʿ Dzor bordered with the Vaykunikʿ district of the Artsʿakh province, which should also be connected with the same ethnonym.[5]

According to archaeological data, in prehistoric times there was no penetration of people or culture into the Van region from the west. Despite this, the ancient forms of Urartian clothing and weapons were close to those of the Hittites (Piotrovsky 1962, 29). Taking into account that the Hittite Empire was destroyed about three and a half centuries before the formation of Urartu, we can assume that this resemblance resulted from the ethnic kinship of the earliest Anatolians of the southern Armenian Highland and the Hittites of the west. Moreover, the early native Hittite name of the sun god of Tušpa and the lack of influence of the Hittites on the pre-Urartian population testify to the early homeland of the Hittites in the Armenian Highland (for the Armenian Highland and adjacent areas as the early homeland of the Anatolians, from where they later moved to the west, see Ivanov 1980; Gamkrelidze and Ivanov 1995, 791–92).

1.5. Hypotheses of the Origins of the Proto-Armenians

The place of Armenian in the Indo-European language family, the issues of its separation from the mother tongue and its routes to the Armenian Highland are important problems of Armenology. According to Gevorg Djahukyan and Frederik Kortlandt, the initiation of Armenian as a separate language started from

5 In Armenian, the ethnonyms sometimes are formed with the suffix *-ik*, e.g., *hndik* "Indian", *parsik* "Persian", *xužik* "Khuzestanian", etc (there is also a medieval dialectal *xayik* < *hay-ik* "Armenian"). *Vayik* suffixed with *uni* and plural marker *kʿ* regularly became *Vaykunikʿ*.

the beginning of the third millennium BC (Jahukian 1987, 25; Kortlandt 1990). According to Gamkrelidze-Ivanov, Tischler, Atkinson, and Gray, the separation of Armenian occurred earlier. As to the routes of the spread of Armenian, according to Gamkrelidze-Ivanov, it actually remained in its original homeland or, by slightly relocating, resettled there. Within the framework of Renfrew's hypothesis, Armenian, as a non-Anatolian language, should have originally passed to the Balkans and only then come to the Armenian Highland. As for the Pontic-Caspian hypothesis, Armenian theoretically could reach Armenia both via the Balkans and via the Caucasus (though the second route was hardly considered until recently).

It was often assumed that in the post Indo-European period there was a phase of Greco-Armeno-Aryan unity, when the ancestor of those languages, separating from the Indo-European mother language, developed independently for some time. Then the Aryan branch left it, while the remaining tongue was later divided into the Greek and Armenian branches (Martirosyan 2013, with bibliography). However, there are also other points of view: the close relation of Armenian and Greek is disputed, Indo-Iranian is considered to be in another group, etc. (Clackson 1994; Kim 2018; Kassian et al. 2021). Despite the disagreements in this regard, they do not change the general conclusion: Armenian is an Indo-European sister language, closer to Greek, Indo-Iranian, then to Balto-Slavic and other Indo-European languages, and far from the Anatolian. That is, Armenian could have formed only in the late Pontic-Caspian (steppe) homeland of the Indo-Europeans.

From the mid-third millennium BC, with the arrival of steppe migrants—allegedly Proto-Armenians—to South Caucasus, some eastern, central, and northern regions of the Armenian Highland became the centre of their accumulation. Since the end of the Urartian era, this situation started to change as the gene pool of the population of the northeastern and southwestern regions of the Highland became significantly homogenised, with an average of 30% patrilineal steppe haplogroups (Fig. 6).

According to some ancient Greek sources, the Armenians came to Armenia from the Balkans, via Phrygia in Asia Minor as "Phrygian colonists", and for a long time, scholars have attributed western, Balkanic origin to the Proto-Armenians (Josef Marquart, Hrachia Acharyan, Hakob Manandyan, Igor Diakonoff et al., see Petrosyan 2018, 126–42). However, this idea is currently unacceptable. The archaeogenetic data deny the possibility of Balkan migration to the Armenian Highland during the Bronze and Early Iron Ages (Lazaridis 2022a, Suppl.text3, 280; Anthony 2024, 11–12; Hovhannisyan et al. 2025, 18–20).[6] Thus, the Proto-Armenians moved to the

6 As noted by Lazaridis et al., "a relationship of Armenians with populations of the Balkans does not seem to find any parallels in the genetic data as Armenians lack the genetic component (Balkan hunter-gatherer ancestry) of plausible Balkan origin, and thus our data overall favor the first theory—the direct spread of Steppe ancestry [since the third millennium BC – A. P. and A. P.]—a result also supported by the arrival and wide spread of specifically Yamnaya-associated Y-chromosome haplogroups in this period [...]". However, if we assume for a moment that, regardless of these facts, the Proto-Armenians moved to Armenia from the Balkans and Phrygia, then a question arises: who were the migrants of the third millennium BC, whose descendants bore significant steppe ancestry for more than a thousand years? If not Armenians, they must have been bearers of another Indo-European (non-Anatolian) language. This is unrealistic. Where did disappear the language of those steppe Indo-Europeans, who leaved their specific Y chromosomal haplogroups to the 30% of modern Armenians?

Armenian Highland from the late Indo-European homeland—the Pontic-Caspian forest-steppe zone—and settled in some northeastern and central areas of the Armenian Highland (especially in the territory of the modern Republic of Armenia and nearby areas).[7] This region was called Etiuni or Etiuḫi in Urartian sources. According to our hypothesis, Etiuni was the cradle of the Armenians, the "Primary Armenia", and the root of this name *etiu* (*-ni* and *-ḫi* are Urartian suffixes) represented the Urartian cuneiform transmission of **hatʻio-*, an early version of the Armenian ethnonym *hay* (which is to be derived from the Indo-European **poti-* "master, lord, husband", see Petrosyan 2018, 28–30, 158–59). In Urartian sources, the Armenian onomastics is concentrated in Etiuni and adjacent areas (Petrosyan 2018, 103–13, 165–69). After Urartu, the name Etiuni is no longer found in written sources, and the same territory is called Ayrarat in Armenian. Ayrarat was the centre of the "Armenian universe". The ethnogonic patriarchs of Armenia, starting with forefather Hayk's eldest son Aramaneak, lived and acted mainly in the Ayrarat province and the Ararat Valley, which has remained the political, cultural, religious, and economic centre of Armenia until today. Most of the Armenian capitals from the earliest to the last—Armawir, Eruandashat, Artashat, Vagharshapat, Duin, Yerevan—were/are located there.

As repeatedly pointed out by specialists, the policy of resettling captives carried out by the Urartian kings played a significant role in the unification and Armenisation processes of the Armenian Highland. According to Yervand Grekyan's calculations, in the course of the history of Urartu, the main part of captives out of approximately 1 million ever captured by the Urartian kings derived from northern regions of the Highland. They were indeed able to alter the ethnic situation of the repopulated regions. Furthermore, the greatest number of captives were taken from Etiuni (Grekyan 2023b, 42). Evidently, the Etiunians that made up the largest group of the resettled captives in the last phase of the history of Urartu, had transformed the ethnic situation of the country in their favor. On the other hand, the Urartian cities and fortresses in Etiuni were populated by the Urartians and captives brought from other regions of the Highland, as a result of which the Etiunian-Armenians mixed with the population of other regions of the country and soon after the Urartian period acquired the gene pool that is present in contemporary Armenians (see also Petrosyan 2018, 161–65).

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7 Other arguments can also be presented in favour of the third-millennium migration. For instance, a detailed examination shows that the name of the Hurro-Urartian thunder god Tešub/Teišeba, attested since the end of the third millennium BC, comes from Proto-Armenian (Indo-European **teḱs-* + *h₁ep-* "axe holder", see Petrosyan 2002, 49; 2012b, and 2023). Considering that domesticated horses were introduced into the Armenian Highland from the Eastern European steppes (Guimarães et al. 2020) at the end of the third millennium BC, the hypothesis that the Hurrian *ešši, iššiya* "horse" was borrowed from Earliest Armenian gets a new justification (cf. Arm. *ēš*, gen. *išoy*, from the Indo-European **eḱwo-* "horse", which later changed its meaning to "donkey" in Armenian; see Petrosyan 2002, 22–26). If so, then at the end of the third millennium BC, Armenian was already well formed as an independent satem language, with the developments **ḱs-* > *š* and **ḱw* > *š* in the corresponding positions. Moreover, the Armenian ethnogonic myth is a specific Indo-European creation, where not only Armenian heroes, but also their adversaries are grouped according to George Dumézil's tripartite ideology (which does not occur in Anatolian traditions); see Ahyan 1982, 270–71; Dumézil 1994, 133–41, and Petrosyan 2002, 121–25).

Theoretically, it could be imagined that the "Primary Armenia" was formed elsewhere, outside Etiuni, in another region of the Highland. The first obvious candidate is the northwestern region of the Highland, where, in the fourteenth–thirteenth centuries BC, Hittite sources mention the country of Ḫayasa-Azzi. Due to the similarity with the Armenian autonym *Hay*, it was considered the cradle of Armenians by a number of scholars (Norayr Mardirosian, Grigor Kapantsyan, Boris Piotrovsky, Giorgi Melikishvili, Suren Yeremyan, Tamaz Gamkrelidze, Vyacheslav Ivanov, Gagik Sargsyan, and others, see Petrosyan 2018, 143–58, with literature). It is quite conceivable that the Proto-Armenians were present there. However, in the known onomastics of Ḫayasa-Azzi, the traces of Anatolian, Hattic, Aryan, and other languages are more prominent (Petrosyan 2015). During the subsequent periods, Ḫayasa was followed by the land called Dayaeni and Diauḫi in Assyrian and Urartian sources, respectively. In the eighth century BC, Diauḫi was conquered by Urartian kings and disappeared as an independent entity, while Etiuni remained and played an active role in the destruction of Urartu (Petrosyan 2018, 62–67, 170–72). Archaeogenetics could provide interesting material about Ḫayasa, but there are no available data yet.

The archaeological evidence suggests that the Indo-Europeans entered Transcaucasia/the South Caucasus probably through the Caspian Gates (via Dagestan and Derbend). The connections between Dagestan and the South Caucasus were quite close in the Early Bronze Age. At first, Dagestan was one of the important regions of Kura-Araxes culture. Later on, a local variant of the steppe Catacomb culture was formed there (Prisulak culture). Meanwhile, the northwest of the Armenian Highland, as well as the neighboring areas of Georgia and Asia Minor, formed an archaeologically separate region, different from other territories of the South Caucasus. In other words, the Indo-Europeans crossed from Dagestan to the South Caucasus and then spread there from east to west. Until now, the highest percentages of the steppe Y DNA are found among the natives of Eastern Armenia – Artsakh/Karabakh, Ararat Valley, and Syunik (~ 40%, see Fig. 6). This percentages fade from northeast to southwest, reaching the lowest rate in the Sasun and Karin (today's Sason and Erzurum in Turkey) regions. The latter was part of Ḫayasa. Thus, the hypothesis of the Hayasan origin of the Armenians is not supported by the archaeogenetic data either.

2. Archaeogenetics and Archaeology

2.1. Neolithic-Bronze Age in Eastern Europe

After the Late Glacial Maximum, Eastern Europe was populated by new inhabitants. Among the hunter-gatherer populations of Eastern Europe (EHG), the Y-chromosome haplogroup R1 became the most prominent. Also, the haplogroups I2 from the west, Q from the east, and J from the south appeared there (Mathieson et al. 2018). Ancient DNA excavated from a number of Neolithic and Mesolithic Eastern

European hunter-gatherer cultures practically lack genes of Caucasian origin before the the fifth millennium BC.

In the Eneolithic period, when the first pastoralist cultures appeared, Caucasian hunter-gatherers ancestry (CHG) became ubiquitous in the Pontic Caspian steppe. There are ancient DNA samples from the Khvalinsk culture (Volga basin, fifth–fourth millennia BC), where the genetic contribution of CHG first appeared (average 23%, see Mathieson et al. 2015; Lazaridis et al. 2022a, Suppl., 307). A high level of CHG (~50%) is found in Eneolithic North Caucasus, in a region called piedmont steppe zone (Wang et al. 2019, 3). There is also a single sample from Sredny Stog culture of Eneolithic Ukraine (Deriivka II, ~3560 BC). Unlike the previous Neolithic and Mesolithic populations of Ukraine, this Sredny Stog sample has 67% of genes in common with the succeeding Yamnayans (Mattila 2023, 14). Two major recent studies (Lazaridis et al 2025; Nikitin et al 2024) added important details to the genetic history of the Pontic-Caspian steppe. It has been demonstrated that the genetics of Eastern Europe was shaped by clines formed by waves of gene flow from the South Caucasus (both from hunter-gatherers and farmers). They created an Eneolithic genetic cline stretched from the Caucasus to Lower Volga, the CLV cline. Tribes from this region practicing pastoralism built burial kurgans and had a propension to expand into various directions. They moved to the north towards the Middle Volga, mixed with local foragers, and Khvalinsk culture emerged. They moved to the west, mixed with Ukraine Neolithic Hunter Gatherers, and Sredni Stog culture was formed. Another group continued further westwards, reached the East Balkans and was responsable for large-scale archaeoligical changes in the Eneolithic Balkans. Some scholars linked those migrants in Balkans with Proto-Anatolian migrations, but currently there is no evidence that they reached Central Anatolia. And finally, a group related to the CLV cline crossed the Caucasus and moved to West Asia in the Late Eneolithic period. More details about this migration will be presented in section 2.2.

The immediate origins of the genetic profile of Yamnaya is largely derived from Sredni Stog with a small additional CLV cline ancestry. Thus, the genetically related Sredny Stog (4500–3500 BC), Yamnaya (3300–2700 BC), and Corded Ware Cultures (3000–2400 BC) were formed there in the Pontic Caspian steppe mostly as a mixture of EHG and CHG. Later the Catacomb culture (2800–2200 BC) was formed on top of Yamnaya and followed it.[8] With the exception of Sredny Stog,[9] there is sufficient archaeogenetic material about the rest. They mainly bore R1a, R1b and to a lesser extent I2, Q and J paternal Y chromosome haplogroups. R1b was more common in Yamnaya and its successors, while R1a was more common in cultures derived from the Corded Ware culture (Haak et al. 2015; Narasimhan et al. 2019; Papac et al. 2021).

8 The archaeogenetic studies emphasise the role of the Yamnaya culture in the spread of Indo-Europeans, while the Catacomb culture also dominated the steppe at that time (it is difficult to distinguish genetically the bearers of these cultures, since the Catacomb was the successor of Yamnaya (see Wang et al. 2019; Ochir-Goryaeva, Kornienko et al. 2021, 7; Lazaridis et al. 2022a, Suppl., 302).

9 The few Y DNA we have from Sredni Stog are predominantly from I2-L699 subclade, a lineage that was spread in Eneolithic steppe alongside the R1b-V1636 but declined with the advent of the Yamnaya culture.

The contribution of Caucasian hunter-gatherers to the Yamnaya gene pool is very high, up to 47%. Eastern European hunter-gatherers also contributed up to 47%, and the rest are genes of Anatolian and Levantine farmers. The source of the latter ancestry in Yamnaya were the South Caucasian farmers, who had that ancestry mixed with Caucasian hunter-gatherer genes (Lazaridis et al. 2022a, Suppl., 307–11). Thus, the gene pool of the Yamnaya population had approximately half of the genes of local Eastern European hunters and half of the genes from the south of the Caucasus.

2.2. The Armenian Highland in the Neolithic and Eneolithic Ages (6200–3600 BC)

In the last eight years, a large amount of archaeogenetic material was collected from the territory of the modern RA: about 200 ancient DNA specimens from the Neolithic to the Middle Ages, which were examined in several articles (Allentoft et al. 2015; Lazaridis et al. 2016; Margaryan et al. 2017; Damgaard et al. 2018; Wang et al. 2019; Lazaridis et al. 2022a; Antonio et al. 2022; Allentoft et al. 2022). From the historic Western Armenia (modern eastern Turkey), there are data from the Lake Van basin, Malatya, Batman, and Mt. Judi region (Şırnak). From northern Iran, there are samples from the Lake Urmia basin, while from Georgia and Azerbaijan, there are lesser number of samples.

There are one Neolithic sample each from Aknashen, Masis Blur, five samples from the Late Eneolithic Areni Cave (RA), and several specimens from Azerbaijan (Skourtanioti, Erdal et al. 2020; Guarino-Vignon et al. 2023), which present a mixture of genes of Caucasian hunter-gatherers and Fertile Crescent farmers. In the Neolithic period, there were no samples of steppe ancestry in the South Caucasus (Lazaridis et al. 2022a, Suppl., 270–82). The major paternal haplogroup was J2 (J2a, J2b). It appears to be native to the Highland, as is its sister haplogroup J1 (see Platt et al. 2017 for J2 and Sahakyan et al. 2021 for J1). The autosomes (non-sexual chromosomes) of South Caucasian farmers are close to modern Armenians (see Yepiskoposyan 2022). There is a similar picture of continuity in the matrilineal genes of Armenians (Margaryan et al. 2017).

The main paternal haplogroup of the Late Eneolithic (4300–3600 BC) Areni cave samples is L of Near Eastern origin (Lazaridis et al. 2016, Suppl. 6, 50). They had a steppe admixture in the autosomes (Lazaridis et al. 2016: 422). This admixture was related to the Late Eneolithic migration from the CLV cline that introduced the R1b–V1636 and appeared later in Kura-Araxes; see below (cf. Lazaridis et al. 2022a, 10 and Lazaridis 2025, 6). However, during the same period, there is a sample from the south of Azerbaijan, from the Leyla Tepe culture, where the steppe admixture is absent (Guarino-Vignon et al. 2023, 7). It means that the steppe related ancestry had an uneven impact and was strongly diluted in the succeeding Early Bronza Age Kura-Araxes period. From archaeological point of view, those migrants are a plausible explanation for the apparition of kurganic burials in Aknalich (Gasparyan 2014), Soyuq-Bulaq (Lyonnet 2008), and other places in West Asia.

2.3. The Early Bronze Age: Kura-Araxes Culture (3600–2400 BC)

There are more than a dozen of archaeogenetic samples from the Kura-Araxes culture from Kaps, Berkaber, Talin, Kalavan, and Shengavit (RA), and one sample from the Doghlauri site (eastern Georgia) (Lazaridis et al. 2016; Wang et al. 2019; Lazaridis et al. 2022a; Koptekin et al. 2023). They are characterised by an increase in the share of Caucasian hunter-gatherers' ancestry and the absence of steppe admixture (Lazaridis et al. 2022a, Suppl., 270–82). The common paternal haplogroups are the local J1, J2, G2, and a branch of R1b unrelated to Yamnaya (Lazaridis et al. 2016, Suppl 6: 50; Wang et al. 2019, Suppl. Data 1; Lazaridis et al. 2022a, Suppl. Data 1). The Kura-Araxes R1b belonged to the V1636 branch, which is different from the common Armenian R1b-M269, see Fig. 6).

The increase in the genes of Caucasian hunter-gatherers may be explained this way: the creators of the Kura-Araxes culture did not originate exclusively from the previous Neolithic farmers, but there was a mixture of farmers living in the lowlands and Caucasian hunter-gatherers living in mountains. This also explains their tendency to build settlements in high mountainous areas. It is noteworthy that the J1-Z1842 branch found in the north of the Kura-Araxes horizon (Velikent, Dagestan) is common among modern Nakh-Dagestani peoples (Balanovsky et al. 2011). Possibly, in the regions north of the Caucasus, the Kura-Araxians spoke North-Eastern Caucasian languages. But this cannot be applied to the ethnic composition of the entire Kura-Araxes horizon (there must have been descendants of Indo-Hittites as well).

2.4. The Middle Bronze Age (2400–1500 BC)

Due to the decrease of population and spread of the cremation ritual, DNA samples from Middle Bronze Age (MBA) are scarce. However, the 7 samples from different regions of the RA show the same picture: the appearance of a significant amount of steppe ancestry (Lazaridis et al. 2016, 422; 2022a, Suppl., 270–82). Two steppe haplogroups, R1b and I2, are present in two male samples (see Allentoft et al. 2015), and moreover, the second belonged to the I2-Y16649 branch, the most common type of the I2 haplogroup[10] in modern-day Armenians (Lazaridis et al. 2022a, Suppl. Data 1). The DNA of two female infants are similar to other Middle and Late Bronze Age samples from the RA (their maternal mtDNA was U5a1a, found in North Eurasian cultures connected with the steppe; see Bobokhyan et al. 2023). A female sample from the Lake Urmia basin has a mixture of steppe and local genes (Narasimhan et al. 2019, Suppl. 4, 222–23).

According to the calculation made on the basis of genetic data, the immigration from the steppe began in 2579 BC (Lazaridis et al. 2022a, 9), which is close to the beginning of the Early Kurgan culture in the South Caucasus (c. 2500 BC). At that

10 Even though haplogroup I2 was found in northwestern Anatolia during the Neolithic period, the subclade that appears in Middle Bronze Age Armenia is not closely related to it (for more information, see the link https://discover.familytreedna.com/y-dna/I-SK1271/tree).

time, the Catacomb culture was dominant in the Eastern European steppe. After passing the Caucasus in the mid-third millennium BC, the newcomers (probable Proto-Armenians) spread throughout most of the Armenian Highland.[11]

Due to the scarcity of ancient DNA, it is not possible to examine in detail the genetic characteristics of the Middle Bronze cultures of the RA and the Highland. Most probably, the steppe ancestry was higher in the northeast of the Highland and lower in the southwest, as it was in later times.

2.5. Steppe Haplogroups in Bronze Age Armenia

In modern Armenians, in addition to the Y chromosome haplogroups of local origin, there are two steppe haplogroups: R1b and I2, with a share of ~27% and ~3% respectively (Fig. 6). Particularly important is the R1b-M269 with the Z2103 sub-branch, which should have been the most common in the past (and still is today, see Fig. 3).

In the current stage of our knowledge, the R1b-Z2103 was the predominant lineage found in the Yamnaya culture (Lazaridis et al. 2025, 7).[12] Parallel to it, the R1b-L51 branch, present mainly in Western Europe (Myres et al. 2011), spread through the Corded Ware and Bell Beaker cultures (Papac et al. 2021). The Z2103 spread to the Balkans (especially the Z2106 sub-branch) and is still present today in Albanians and Greeks.[13] The Z2103 was also the main haplotype of the Afanasevo culture, a descendant of Yamnaya formed in Altai (see Narasimhan et al. 2019). Later, it moved to the south (Xinjiang Province, China), where the Tocharians appeared.

It is obvious that the R1b-M269 haplotype with all its sub-branches is an important indicator of the movement of the Indo-Europeans. The R1b is very rare only in Indo-Iranians and Baltic-Slavic peoples, where the R1a-M417 haplotype is dominant. As for the only R1b of the Kura-Araxes period, it was from the branch V1636, which is different from M269 (Fig. 3). Thus, the R1b-Z2103, widespread in the Middle and Late Bronze Ages, could not be of Kura-Araxes origin. The history of the R1b-V1636 is related to the spread of pastoralism in the Eneolithic Pontic Caspian steppe. With the expansion of those pastoralists, it migrated to various directions. Some of them moved to the Armenian Highland during the Late Eneolithic period from a region in the north of the Caucasus. Eneolithic cases of the V1636 have been found all along the CLV cline, in the Khvalinsk culture, in Eneolithic Ukraine, and, most importantly,

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11 The steppe ancestry appeared in Greece not much later (see Clemente 2021, 2574), which theoretically may indicate that the Proto-Armenians and the Proto-Greeks both originated from the Catacomb culture. The Indo-Iranian group, frequently considered to be close to the Proto-Armenian and Proto-Greek, was located east of the Volga, in the Kama River basin (Abashevo), then in Central Asia (Sintashta and Andronovo cultures). Unlike the Armenian-Greek group, their primary paternal haplogroup is R1a, which descends from the Corded Ware culture (Narasimhan et al. 2019; Engovatova 2023). This is an additional argument in favour of Armenian-Greek linguistic kinship (and an argument against the possibility that the MBA migrations in the South Caucasus and North-West Iran were related to Indo-Iranians; see Lazaridis 2022a, Suppl., 267–68).

12 The origin of the R1b-M269 is not definitively known – it probably had expanded with Eneolithic pastoralist groups. However, the history of its daughter branch Z2103 is better documented; see Haak et al. 2015.

13 Along with the Z2103, the PF7562 branch also spread in the Balkans and Armenia. However, it is less common in Armenians than the Z2103; see Lazaridis et al. 2022a.

in the Bronze-Age Armenian Highland and Asia Minor, making it another important early Indo-European marker (Lazaridis et al. 2022a, 10; Lazaridis 2025, 6).

The differentiation of the archaeological cultures of the Middle Bronze Age in the Armenian Highland is perhaps also visible at the genetic level. Thus, the I2 found in Trialeti-Vanadzor is absent in many samples excavated from the northwest of Iran, i.e., southwest of the Armenian Highland, where only the R1b was found (it could plausibly be associated with Proto-Armenian speakers; see Lazaridis et al. 2022, Suppl., 267–68). Instead, the I2 is abundantly represented in the Sevan basin, which may indicate a certain feature of the Sevan-Artsakh culture. A sub-branch of the Z2103 common in the Late Bronze Lchashen-Metsamor culture is the Y13369 (also known as L584). But the Y4364 is missing; it is present in Hasanlu tepe of the Urmia basin. This may indicate that the Y4364 was a marker of the Karmirvank/Van-Urmia culture. These two sub-branches of the Z2103 are also present in modern Armenians, with the Lchashen-Metsamor type being more common (Simonian 2023).

2.6. The Late Bronze and Early Iron Ages (Sixteenth–Ninth Centuries BC)

As noted, during this period the Lchaeshen-Metsamor culture was spread over the entire Highland (except for some southwestern regions). There are more than one hundred ancient DNA from numerous sites of this culture in the territory of the RA. Based on them, unlike for the previous periods, we can make more solid conclusions. The gene pool is generally homogeneous, which points to a common language (Lazaridis et al. 2022a, Suppl.text3, 270–82). However, there are several outliers that appear to originate from neighboring regions. Paternal genes are distributed according to haplogroups as follows: three quarters, as said, are the R1b and I2 of Steppe origin, the rest are mostly descendants of the local Kura-Araxes culture. The difference from the Kura-Araxes period is significant, and given the well-known characteristic of Steppe Indo-Europeans to spread their language, there is no doubt that a language shift took place in the Middle Bronze Age. In terms of autosomal genes, the people of Lchashen-Metsamor are similar to the people of the Middle Bronze Age. This situation was preserved in the Early Iron Age until the times of the kingdom of Urartu.[14]

2.7. Urartu (Ninth–Seventh Centuries BC)

From the end of the ninth century BC, the Urartian kings launched attacks against Etiuni. Urartu was a multiethnic empire, with a typical imperial governance and a culture borrowed in many respects from Assyria. The kings were introducing it in the conquered lands, in newly-built cities and fortresses, and were populating them with people brought from other regions of the empire and neighbouring countries

14 It should be noted that there is a Late Bronze Age sample from the Lchashen-Metsamor type site of Doghlauri, Georgia, which does not have a steppe ancestry (Koptekin et al. 2023: 29). This may indicate that other ethnic groups, different from the Etiunians, lived in the Lchashen type settlements north of the Kura River.

(meanwhile, the local population kept everywhere their old lifestyle; see Zimansky 1995 and 2012; Petrosyan 2018, 71–80). There are 29 DNA (20 male) samples from this period from the RA. In the former Lchashen-Metsamor settlements, the population, lifestyle, and gene pool of the previous period were preserved, while the material culture was somewhat influenced by the Urartian. This corresponds to the Lchashen 6 layer idetified by archaeologists (Avetisyan and Bobokhyan 2008), from which the excavated DNA is mostly similar to the previous Early Iron Age period (Lazaridis et al. 2022a, Suppl., 270–82). But there are two specimens, obviously of southern origin, which must have been related to the settlers brought from other parts of the Highland by Urartian kings. Unfortunately, there are very few or almost no DNA samples from the old and large Urartian cities built in Etiuni such as Erebuni and Argishtikhinili. From the city of Teisheba (Karmir Blur), there are five samples of a relatively late period, two of which are local Etiunian: one is from the south, and the others are in an intermediate position.

As mentioned, the period of Urartu's reign was characterised by large population resettlements in various parts of the Highland. Thus, the analysis of several samples from the Chavushtepe (Sardurikhinili, Haykaberd) of the Van basin gives an interesting picture. Some of them have a gene pool similar to modern Armenians. One has a paternal haplogroup typical of the ancient population of the Malatya region, and another one is a genetic outlier, evidently from Etiuni (Lazaridis et al. 2022b: 5).

The resettlements obviously contributed to the creation of a homogeneous genetic and linguistic environment in the Highland. Afterwards, starting from the late Urartian period, Armenian was to become the common language connecting the different regions of the kingdom.

2.8. From the Post-Urartian Period to Present Armenia

After the Urartian period, there are two dozen ancient DNA samples from the territory of the RA (fifth century BC – fifth century AD; see Lazaridis et al. 2022a; Antonio et al. 2022). At that time, the Etiunians in Etiuni and those transferred from the south and west were mixed. A homogeneous gene pool, with a lower (30%) steppe Y DNA than that of the early Etiunians, emerged, which was close to the modern Armenians (Lazaridis et al. 2022a, Suppl., 270–82). According to a calculation, about the half of the autosomes in ancient, medieval, and modern Armenians are also derived from Etiuni, and this mixing of genes should have occured in 772–403 BC (Antonio et al. 2022, 8).

Although the modern Armenians have a homogeneous autosomal gene pool, the consequences of the Middle Bronze Age migration have been preserved in the distribution of paternal Y chromosomes. Thus, the highest level of the R1b is observed in the natives of the east of the Highland: Artsakh/Karabagh, Syunik, and Ararat Valley. The highest level of paternal haplogroup I2, especially frequent in the ancient Sevan basin, is found among the natives of Gardman (east of Lake Sevan, see Fig. 6). The lowest level of steppe haplogroups and therefore the highest level of earliest local genes is present among the Armenians of Sasun.

3. Conclusions

1. The Proto-Armenian language originated in the late Indo-European homeland, in the Pontic-Caspian steppe and forest-steppe zone. It could scarcely have been formed elsewhere, because it was there that the Indo-European languages closest to Armenian—Greek, Indo-Iranian, and Balto-Slavic—were also formed.
2. The bearers of the Proto-Armenian language—Proto Armenians—passed to the South Caucasus from the mid-third millennium BC on. It were they and their descendants who created the Middle, Late Bronze, and Early Iron Age archaeological cultures of the Highland.
3. Starting at least from the late Middle Bronze Age, the territores of the RA and adjacent regions (the land Etiuni of the Urartian sources) became the "Primary Armenia", i.e., the cradle of the Armenians in the Armenian Highland.
4. Over time, the Steppe Indo-Europeans intermingled with the ancient local inhabitants. However, as in other similar cases, the steppe element prevailed for a long time in paternal inheritance. Until the fall of Urartu, the paternal Y chromosome haplogroups R1b and I2 of steppe origin made up 75% in the Etiuni population. Over time, that number decreased, although they are still the most common among modern Armenians (around 30% in total, and around 40% in the eastern regions—Artsakh, Syunik, Ararat Valley). Thus, these haplogroups remained the most common among the Armenians for four and a half thousand years.

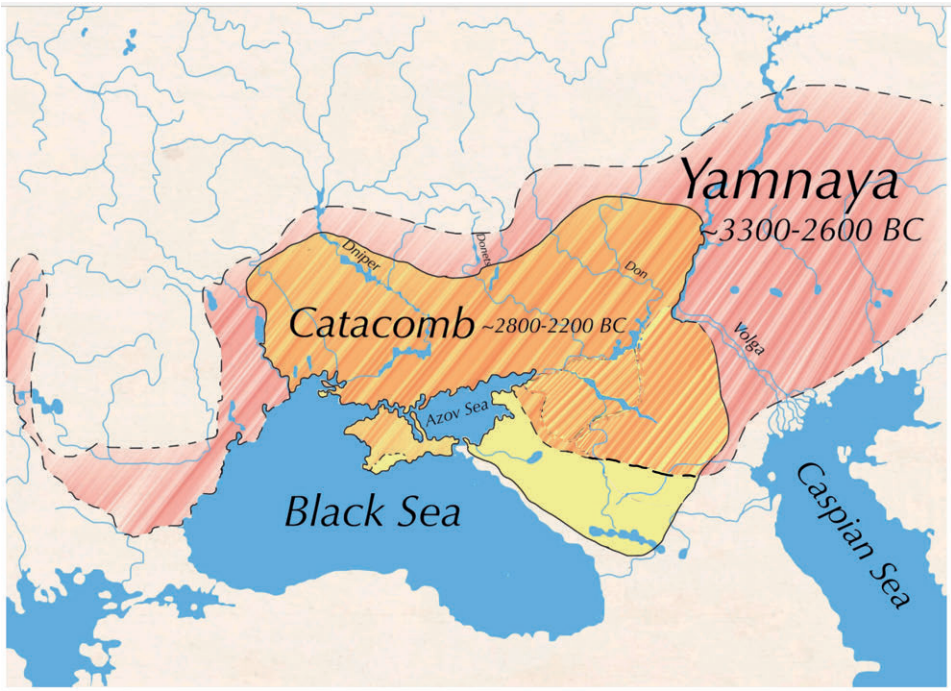

Fig. 1: The Yamnaya and Catacomb cultures: the first is marked with red, and the second with yellow (Ochir-Goryaeva, Kornienko et al. 2021, 4).

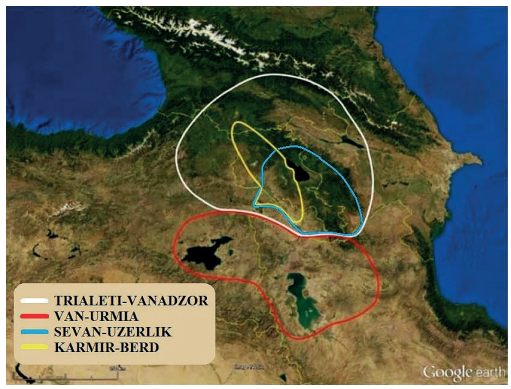

Fig. 2: The Middle Bronze Age in the Armenian Highland and adjacent regions. The Trialeti-Vanadzor culture is marked with a white line, the Van-Urmia/Karmirvank with red, the Sevan-Artsakh/Uzerlik with light blue, and the Karmirberd with yellow (Biscione 2019, 77).

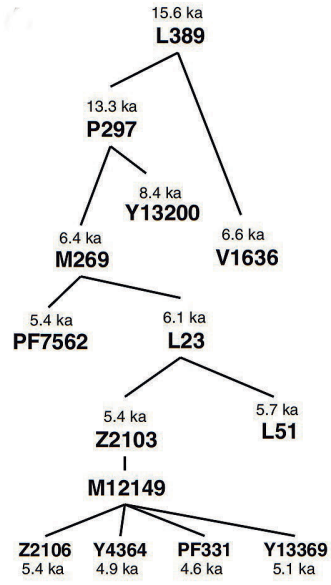

Fig. 3: The R1b haplogroup tree; "ka" indicates the possible age of the branch in millennia, i.e. the Z2103 is 5400 years old (Lazaridis 2022a, 10).

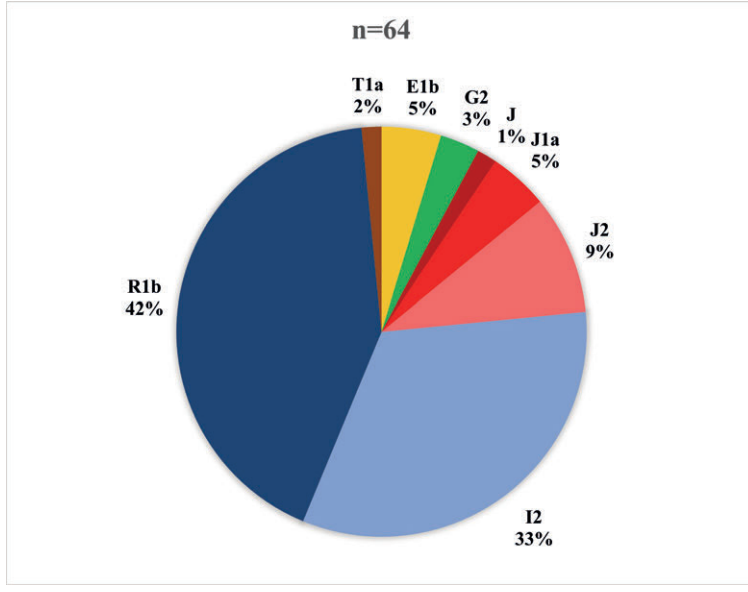

Fig. 4: The distribution of 64 Y DNA haplogroups of the Lchashen-Metsamor culture (1500–800 BC) from the RA. The R1b and I2 are the paternal chromosome haplogroups from steppe, and the rest are inherited from the local Kura-Araxes culture. A significant part of I2 was excavated from ancient sites in the Sevan basin (Allentoft et al. 2015; Damgaard et al. 2018; Lazaridis et al. 2022a, Suppl. Data 1).

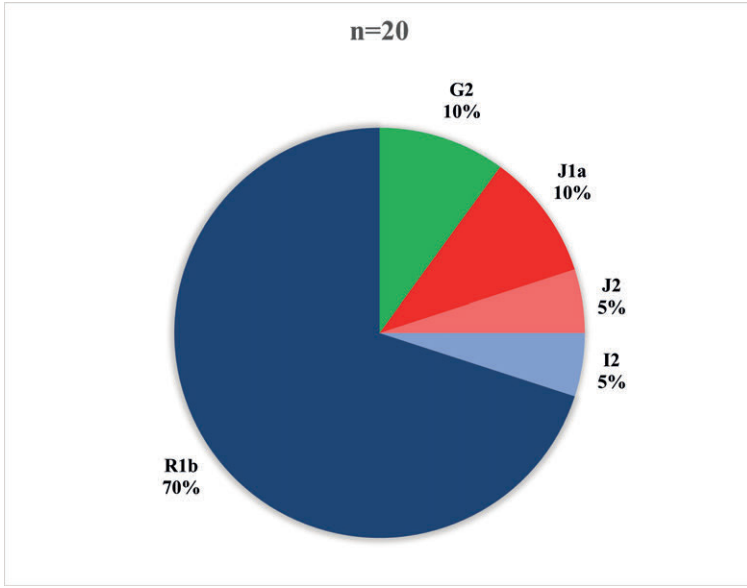

Fig. 5: The distribution of 20 Y DNA haplogroups of the Urartian period (800–600 BC) in the RA. All samples, except for two, were taken from ancient Lchashen-Metsamor sites. The scarcity of the I2 compared with the previous era is because of the fact that there are no specimens from the Lake Sevan basin (Lazaridis 2022a, Suppl. Data1).

Haplogroup	Ararat plain	Syunik	Artsakh	Gardman	Salmast	Erzurum	Alashkert	Bayazet	Van	Sassun	Total
E1b-M35 (xM78)	5,5	1,9	2,9	4,2	5	5,1	4,1	1	3,9	2,9	3,76
E1b-M78		1	2,9		7	4	1	2,9	3,9		2,67
G (xP15)	1,8	1	1,9	1	2	3		2,9			1,42
G2a-P15	9,1	5,7	8,6	5,2	5,5	13,1	12,2	16,7	7,8	12,5	9,27
F* with H2								1			0,09
I	2,7	1,9	1,9	8,3	1,5	4	3,1	3,9	1,9		2,75
J (xJ1, xJ2)					1						0,18
J1 (xP58)	8,2	5,7	11,4	2,1	8	3	7,1	8,8	7,8	6,7	7,03
J1a-P58	6,4	12,4	3,8	2,1	11,6	2	12,2	5,9	5,8	2,9	6,97
J2 (xM67, xJ2b)	10	18,1	8,6	14,6	12,6	21,2	14,3	14,7	19,4	9,6	14,10
J2a-M67	12,7	5,7	8,6	14,6	7,5	10,1	11,2	2,9	7,8	7,7	8,73
J2b	0,9		1,9	3,1	1	5,1	2	5,9	1,9		2,05
L	0,9		1,9	1	2	3	1		1,9	3,8	1,59
N				1							0,09
Q			1,9		1,5	2			1		0,71
R1 (xR1a, xR1b)					0,5						0,09
R1a	0,9	3,8		5,2	5,5		4,1	2		1	2,50
R1b (xM269)			1					1			0,18
R1b-M269	37,3	36,2	39	31,3	23,6	15,2	16,3	26,5	32	15,4	27,12
R2a		1,9			1,5		2	1	1	17,3	2,41
T	3,6	4,8	3,8	6,3	2,5	9,1	9,2	2,9	3,9	20,2	6,25
n	110	105	105	96	199	99	98	102	103	104	1121

Fig. 6: Distribution of Y DNA haplogroups of modern Armenians from historical provinces (the samples are taken from those with bilateral native ancestors). The table summarises data from several scientific

articles (Herrera et al. 2012; Hovhannisyan et al. 2014; Balanovsky et al. 2017). The G, H2, J, T, and possibly L haplogroups are of Near Eastern origin. The E1b and R2 were found from the ancient Neolithic Fertile Crescent (Lazaridis et al. 2016). Haplogroups R1b-M269, I, and R1a appeared in Armenia as a result of steppe migrations. A significant part of the Q haplogroup is also a result of steppe migrations. The N and a small part of Q are of East Asian origin. A portion of haplogroups E1b-M78 and J2b are returnees from Europe due to Indo-European migrations.

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