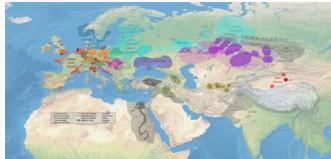
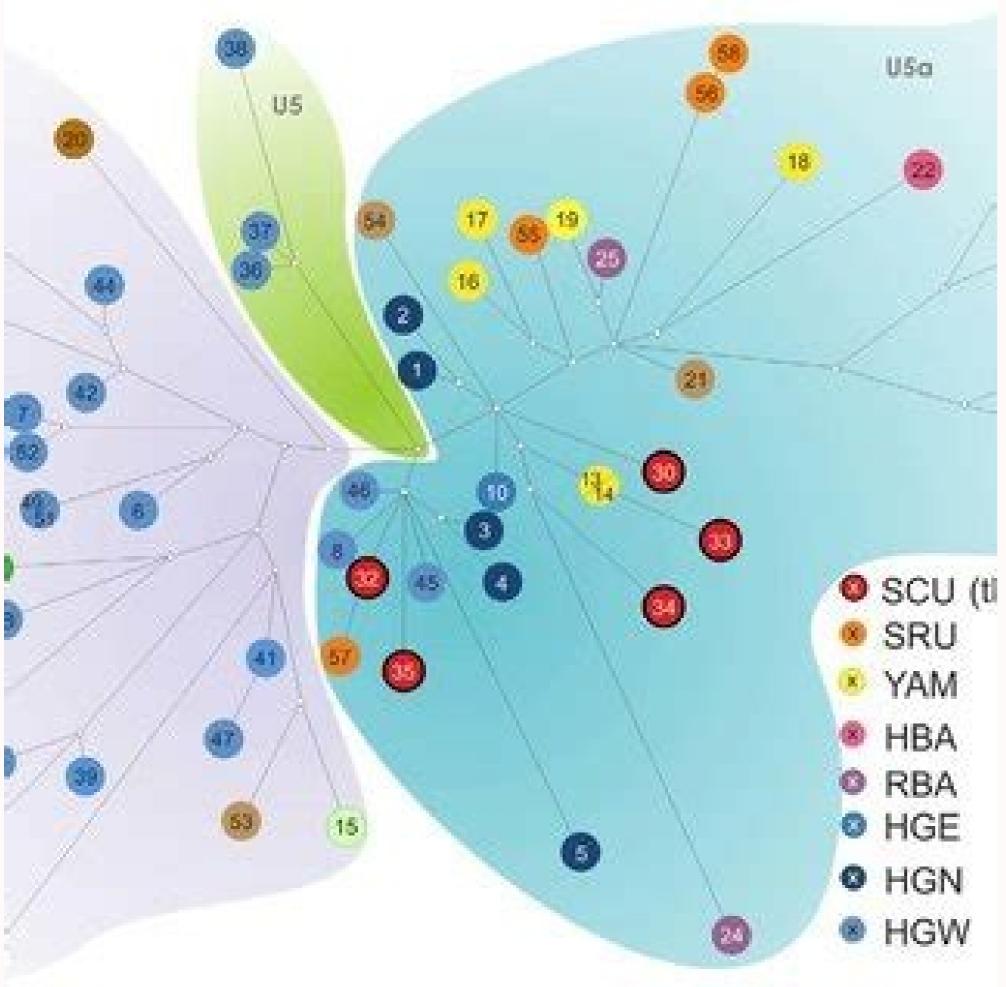
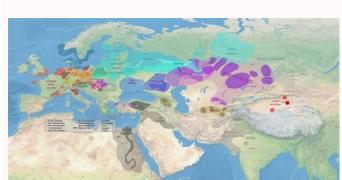
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ANIMAL HERDER-MINERS OF THE ANDRONOVO CULTURE

Hande Özyarkent

of square kilometres. It stretches between differ- changes between their seasonal pastures. ent climatic zones; including forest steppes, grass their appearance in the neighbouring regions.

practices. Therefore it is vital to understand the herd management and subsistence strategy of the popu- (Kerven et al 2006). lations to see the picture of land use and its relation

cerned with the exploitation of domestic animals spring autumn and travelling to mountains in summer. their location seasonally or inter-seasonally to sustain the vegetation zones are the differences occurring in

the fodder for their herd. In this respect mobile pastoralism is considered as an adaptation strategy, which The Central Asian Middle Bronze Age culture is developed/practiced towards generally arid envi-Andronovo is known to researchers as one of the ronments with strong seasonal climate (Hole, 2009, strong candidates of possible tin suppliers for Near p.261). While the restrictions of the climatic conditions Eastern and Mediterranean civilizations. From the can be debated, the movements of traditional Kazakh Ural to Venisey, the culture's area covers millions herders were also following climatic and vegetation

The climate in Eurasia is significant for its continensteppes, mountainous areas, dry steppes and it is even tall character. Summers are short and warm, winters proximate to deserts. Ruins of the Andronovo groups are long and below freezing temperatures. The most are frequently presented all over this region with determinant factor for the Eurasian steppe belt vega mobile character and strong evidences that they etation formation is the annual precipitation values. were dealing with metallurgical activities. (Boroffka The variations of precipitation occur in a north-south et al. 2002). Chernykh describes this time period as direction from high to lower values (Woodward, 2008, "the second phase of Eurasian Metallurgical Province" p.17), Areas receiving less than 300 mm annual pre-(2008, pp.87-88), which he underlines as "the stability cipitation are semi-arid. The growing season for plants zation of the system". He interprets this development (according to photoperiod) is also shorter, and it gets also as a factor for unification of the major cultural longer towards the south to the desert zone. The features; ceramic tradition, mortuary practices, and duration of snow cover is another important aspect. the spread of bronze products produced with tin and which has an effect towards the availability of fodder, and thus to the movements of groups. In grasslands Animal husbandry played a vital role in this dynam- of higher altitudes, for example in Eastern Kazakhstan, ic environment, enabling a mobile lifestyle. Today we snow stays on the ground from October to May. Two know from several mining regions, that the exploi- other aspects are biomass and crude protein yield tation was going hand in hand with the pastoral of the fodder vegetation, so to say the nutrition

Traditional Kazakh herders are known to be travwith exploitation of metals and pastoral movement of elling between these distinct zones and use various movement strategies to take the advantage of them in different seasons (Kerven et al. 2006, p.99). According to this, two main characteristic annual cycles were classified (/bid); 1) Latitudinal form: South-North-South; starting in spring and travelling a distance of 200 to Pastoralism is defined as a mode of production con- 2000 km. 2) Vertical form: staying in plains in winter,

(Abdi, 2003, p.398). Instead of "village based animal" Were the climatic conditions the same during herding", which is practiced sedentary and done to the Andronovo-Fedorovka time (2nd millennium BC)? support agriculture, communities which are special- Mid-Holocene is remarkable with climate fluctuations, ized on mobile form of pastoralism depend primarily between arid/humid and cold/warm trends. As we on their domestic animals for subsistence and change see above, the most important aspect which changes

8 5600 6 201 200 147

Group of Bronze Age cultures 2000-900 BC Andronovo culture Followed by Karasuk culture Followed by Karasuk culture Fort of a series on Indo-European topics Languages List of Indo-European languages Extant Albanian Armenian Balto-Slavic Baltic Slavic Celtic Germanic Hellenic Greek Indo-Iranian Indo-Aryan Iranian Mysian Paeonian Phrygian Thracian Reconstructed Proto-Indo-European language Phonology: Sound laws, Accent, Ablaut Hypothetical Daco-Thracian Graeco-Armenian Graeco-Armenian Graeco-Armenian Proto-Germanic (Proto-Italic) Proto-Italic) Proto-Graek Proto-Graek Proto-Balto-Slavic (Proto-Slavic Proto-Italic) Proto-Graek Pr Baltic) Proto-Indo-Iranian (Proto-Iranian) Philology Hittite texts Hieroglyphic Luwian Linear B Rigveda Avesta Homer Behistun Gaulish epigraphy Runic epigraph European migrations Eurasian nomads Alternative and fringe Anatolian hypothesis Armenian hypothesis Beech argument Indigenous Aryans Baltic homeland Paleolithic Continuity Theory Archaeology Chalcolithic (Copper Age) Pontic Steppe Domestication of the horse Kurgan Kurgan stelae Kurgan culture Steppe cultures Bug-Dniester Sredny Stog Dnieper-Donets Samara Khvalynsk Yamnaya Mikhaylovka culture Rovotitorovka culture Caucasus Maykop East Asia Afanasievo Eastern Europe Usatovo Cernavodă Cucuteni Northern Europe Usatovo Cernavodă Cu Abashevo culture Andronovo Sintashta Europe Globular Amphora Corded ware Beaker Unetice Trzciniec Nordic Bronze Age Terramare Tumulus Urnfield Lusatian South Asia BMAC Yaz Gandhara grave Iron Age Steppe Chernoles Europe Thraco-Cimmerian Hallstatt Jastorf Caucasus Colchian India Painted Grey Ware Northern Black Polished Ware Peoples and societies Bronze Age Anatolian peoples (Hittites) Armenians Mycenaean Greeks Indo-Aryans Iranians Persians Medes Parthians Saka Sarmatians Massagetae Alans East Asia Wusun Yuezhi Europe Celts Gauls Celtiberians Insular Celts Cimmerians Hellenic peoples Italic peoples Germanic peoples Paleo-Balkan/Anatolia Thracians Dacians Illyrians Paeonians Phrygians Middle Ages East Asia Tocharians Europe Indo-Aryan Medieval Europe In religion Ancient Iranian religion Historical Hittite Indo-Aryan Vedic Hinduism Buddhism Jainism Sikhism Iranian Persian Zoroastrianism Kurdish Yazidism Yarsanism Kurdish Yazidism Yarsanism Sovetian Others Armenian Europe Paleo-Balkan (Albanian · Illyrian · Thracian · Dacian) Greek Roman Celtic Irish Scottish Breton Welsh Cornish Germanic Anglo-Saxon Continental Norse Baltic Latvian Lithuanian Slavic Practices Fire sacrifice Sati Winter solstice/Yule Indo-European Studies in Indo-European Publications Encyclopedia of Indo-European Culture The Horse, the Wheel and Language Journal of Indo-European Studies Indogermanisches etymologisches Wörterbuch Indo-European Etymologisches Indo-European Etymologisches Indo-European Etymologisc Principality of Polotsk 987-1397 Principality of Chernigov 988-1402 Rostov-Suzdal 1093-1157 full list... 1240-1480: Feudal Rus' Council of Liubech • Council Great Stand on the Ugra River • Time of Troubles • Zemsky Sobor • Treaty of Nystad • Petrovian reforms • 1812 Patriotic War • Second Patriotic War Tsardom of Russia 1547-1721 Russian Empire 1721-1917 Russian Empire 1721-1 Grand Duchy of Finland 1809-1917 Congress Poland 1867-1915 Russian Manchuria 1900-1905 Urvankhay Krai 1914-1921 1917-1923; Russian Revolution • Provisional Government • Dvovevlastive • Iuly Days • Kornilov affair • Directorate • Constituent Assembly (election) • Bolshevik Coup • Civil War • White Guard • Congress Poland 1867-1915 Russian Revolution • Provisional Government • Dvovevlastive • Iuly Days • Kornilov affair • Directorate • Constituent Assembly (election) • Bolshevik Coup • Civil War • White Guard • Congress Poland 1867-1915 Russian Revolution • Provisional Government • Dvovevlastive • Iuly Days • Kornilov affair • Directorate • Constituent Assembly (election) • Bolshevik Coup • Civil War • White Guard • Congress Poland 1867-1915 Russian Revolution • Provisional Government • Dvovevlastive • Iuly Days • Kornilov affair • Directorate • Constituent Assembly (election) • Bolshevik Coup • Civil War • White Guard • Congress Poland 1867-1915 Russian Revolution • Provisional Government • Dvovevlastive • Iuly Days • Kornilov affair • Directorate • Constituent Assembly (election) • Bolshevik Coup • Civil War • White Guard • Congress Poland 1867-1915 Russian Revolution • Provisional Government • Dvovevlastive • Iuly Days • Kornilov affair • Congress Poland 1867-1915 Russian Revolution • Provisional Government • Dvovevlastive • Iuly Days • Congress Poland 1867-1915 Russian Russ Red Army • Soviet-Polish War • PriamuryeGovt. • War Communism • USSR • Emigrants Russian SFSR 1917-1918 — General Secretariat of Ukraine SSR 1917-1922 — Byelorussian SFSR 1920-1922 — Transcaucasian SFSR 1922-1922 Russian State 1918-1920 — Provisional Priamurye Govt. 1921-1923 full list... 1923-1991: Soviet Era NEP • Cultural revolution • Korenization • Stalinism • Collectivization • Guld War • Warsaw Pact • Comecon • Crimeatransfer • Era of Stagnation • Afghan War • Perestroika • Chernobyl disaster • KarabakhWar • Parade of sovereignties (War of Laws) Soviet Union 1922-1991 Russian SFSR 1922-1991 Russian SFSR 1922-1991 Russian SFSR 1922-1991 Russian SFSR 1922-1991 Street Union 1922-1991 Russian SFSR 1922-1991 Russian SFSR 1922-1991 (War of Laws) Soviet Union 1922-1991 Russian SFSR 1922-1991 (War of Laws) Soviet Union 1922-1991 Russian SFSR 1922-1991 Russian Ru Putinism • Five-Days War • Presidential termsamendments • Eurasian Economic Union • Ukrainian War (Crimea) • 2020 amendments Russian Federation 1991-present Republic of Crimea 2014-present Gull list... Timeline860-1721 • 1721-1796 • 1796-18551855-1892 • 1894-1917 • 1917-19271927-1953 • 1953-1964 • 1964-19821982-1991 • 1991-present Russia portalyte Archaeological cultures associated with Indo-Iranian migrations. The Gandhara grave (or Swat), Cemetery H, Copper Hoard and Painted Grey Ware cultures are candidates for the Indo-Aryan migration into South Asia. The Andronovo culture (Russian: Aндроновская культура, romanized: Andronovokaya kul'tura) is a collection of similar local Late Bronze Age cultures that flourished c. 2000-1450 BC,[1][2] in western Siberia and the central Eurasian Steppe.[3] Some researchers have preferred to term it an archaeological complex or archaeological horizon.[4] The slightly older Sintashta culture (2050-1900 BC), formerly included within the Andronovo cultures. [5] New research shows Andronovo culture's first stage could have begun at the end of the 3rd millennium BC, with cattle grazing, as natural fodder was by no means difficult to find in the pastures close to dwellings.[6][7] Most researchers associate the Andronovo horizon with early Indo-Iranian languages, though it may have overlapped the early Uralic-speaking area at its northern fringe.[8] Allentoft et al. (2015) concluded from their genetic studies that the Andronovo culture and the preceding Sintashta culture should be partially derived from the corded Ware culture, given the higher proportion of ancestry matching the earlier farmers of Europe, similar to the admixture found in the genomes of the Corded Ware population.[9] Discovery The name derives from the village of Andronovo in the Uzhursky District of Kranoyarsk Krai, Siberia, where the Russian archaeologist Arkadi Tugarinov [ru] discovered its first remains in 1914. Several graves were discovered, with skeletons in crouched positions, buried with richly decorated pottery. The Andronovo culture was first identified by the Russian archaeologist Sergei Teploukhov in the 1920s.[10] Dating and subcultures Currently only two sub-cultures are considered as part of Andronovo culture:[1] Alakul (2000-1700 BC)[2] between Oxus (today Amu Darya), and Jaxartes, Kyzylkum desert Fëdorovo (2000-1450 BC)[11][2] in southern Siberia (earliest evidence of cremation and fire cult[12]) Other authors identified previously the following sub-cultures also as part of Andronovo: Eastern Fedorovo (1750-1500 BC)[13] in Tian Shan mountains (Northwestern Xinjiang, China), southeastern Kazakhstan, contacts with Namazga VI in Turkmenia Some authors have challenged the chronology and model of eastward spread due to increasing evidence for the earlier presence of these cultural features in parts of east Central Asia.[15] Geographic extent The geographic extent of the culture is vast and difficult to delineate exactly. On its western fringes, it overlaps with the approximately contemporaneous, but distinct, Srubna

culture in the Volga-Ural interfluvial. To the east, it reaches into the Minusinsk depression, with some sites as far west as the southern Ural Mountains, [16] overlapping with the area of the earlier Afanasevo culture. [17] Additional sites are scattered as far south as the Koppet Dag (Turkmenistan), the Pamir (Tajikistan) and the Tian Shan (Kyrgyzstan) The northern boundary vaguely corresponds to the beginning of the Taiga.[16] More recently, evidence for the presence of the culture in Xinjiang in far-western China has also been found,[15] mainly concentrated in the area comprising Tashkurgan, Ili, Bortala, and Tacheng area.[18] In the Volga basin, interaction with the Srubna culture was the most intense and prolonged, and Federovo style pottery is found as far west as Volgograd. Mallory notes that the Tazabagyab cultures and the Central Asian oasis cultures (Bishkent culture and Vakhsh culture).[3] In the initial Sintashta-Petrovka phase,[18] the Andronovo culture is limited to the northern and western steppes in the southern Urals-Kazakhstan.[3] Since then, at the 2nd millennium, in the Alakul Phase (2000–1700 BC),[2] the Fedorovo Phase (1850–1450 BC),[2] and the final Alekseyevka Phase (1400–1000 BC), the Andronovo cultures move intensively eastwards, expanding as far east as the Upper Yenisei in the Altai Mountains, succeeding the non-Indo-European Okunev culture, which partly derives from the Abashevo culture. The earliest historical peoples associated with the area are the Cimmerians and Saka/Scythians, appearing in Assyrian records after the decline of the Alekseyevka culture, migrating into Ukraine from ca. the 9th century BC (see also Ukrainian stone stela), and across the Caucasus into Anatolia and Assyria in the late 8th century BC, and possibly also west into Europe as the Thracians (see Thraco-Cimmerian), and the Sigynnae, located by Herodotus and Strabo identify them as Iranian. Characteristics The Andronovo culture consisted of both communities that were largely mobile as well as those settled in small villages. Settlements are especially pronounced in its Central Asian parts. Fortifications include ditches, earthen banks as well as timber palisades, of which an estimated twenty have been discovered. Andronovo villages typically contain around two to twenty houses, but settlements containing as much as a hundred houses have been discovered. Andronovo houses were generally constructed from pine, cedar, or birch, and were usually aligned overlooking the banks of rivers. Larger homes range in the size from 80 to 300 m2, and probably belonged to extended families, a typical feature among early Indo-Iranians.[3] Soma may have originated in the Andronovo culture.[19] Livestock, horse, and agriculture Andronovo livestock included cattle, horses, sheep, goats and camels.[16] The domestic pig is notably absent, which is typical of a mobile economy. The percentage of cattle among Andronovo remains are significantly higher than among their western Srubna neighbours.[3] The horse was represented on Andronovo sites and was used for both riding and traction.[3] According to the Journal of Archaeological Science, in July 2020, scientists from South Ural State University studied two Late Bronze Age horses with the aid of radiocarbon dating from Kurgan 5 of the Novoilinovsky 2 cemetery in the Lisakovsk city in the Kostanay region Researcher Igor Chechushkov, indicated that the Andronovites had an ability on horse riding several centuries earlier than many researchers had previously expected. Among the horses investigated, the stallion was nearly 20 years old and the mare was 18 years old. According to scientists, animals were buried with the person they accompanied throughout their lives, and they were used not only for food, but also for harnessing to vehicles and riding. [20][21] Agriculture also played an important role in the Andronovo economy. [22] Pottery One of the characteristics of Andronovo economy. Bactria-Margiana Archaeological Complex in the south. This pottery is called Incised Coarse Ware (ICW), which is handmade and grey to brown in color, as well as incised with geometrical decoration, [23] spread over much of Eurasian region, from Southern Urals to Kashgar, a pottery made by late Bronze Age nomads. [24] Metallurgy The Andronovo culture is notable for regional advances in metallurgy.[16] They mined deposits of copper ore in the Altai Mountains from around the 14th century BC.[25] Bronze objects were numerous, and workshops existed for working copper.[25] Warfare "It is likely that militarized elite, whose power was based on the physical control of fellow tribesmen and neighbors with the help of riding and fighting skills, was buried in the Novoilinovsky-2 burial ground. There may be another explanation: These elite fulfilled the function of mediating conflicts within the collective, and therefore had power and high social status. Metaphorically, this kind of elite can be called Sheriffs of the Bronze Age" said Igor Chechushkov.[26] Burials The Andronovo dead were buried in timber or stone chambers under both round and rectangular kurgans (tumuli). Burials were accompanied by livestock, wheeled vehicles, cheek-pieces for horses, and weapons, ceramics and ornaments. Among the most notable remains are the burials of chariots, dating from around 2000 BC and possibly earlier. The chariots are found with paired horse-teams, and the ritual burial of the horse in a "head and hooves" cult has also been found.[3] Some Andronovo dead were buried in pairs, of adults or Kazakhstan, dated 1746-1626 BC, a strain of Yersinia pestis was extracted from a dead woman's tooth in a grave common to her and to two children. [28] This strain's genes express flagellin, which triggers the human immune response. However, by contrast with other prehistoric Yersinia pestis bacteria, the strain does so weakly; later, historic plague does not express flagellin at all, accounting for its virulence. The Kytmanovo strain was therefore under selection toward becoming a plague [29] (although it was not the plague). [30] The three people in that grave all died at the same time, and the researcher believes that this para-plague is what killed them. [31] Ethnolinguistic affiliation with Indo-Iranians Main article: Indo-Iranians It is almost universally agreed among scholars that the Andronovo culture was Indo-Iranian.[3][32] It is credited with the invention of the spoke-wheeled chariot around 2000 BC,[33][34] if we include the Sintashta culture where the oldest known chariots have been found.[35][36] The association between the Andronovo culture and the Indo-Iranians is corroborated by the distribution of Iranian place-names across the Andronovo horizon and by the historical evidence of dominance by various Iranian peoples, including Saka (Scythians), Sarmatians and Alans, throughout the Andronovo horizon during the 1st millennium BC.[3] Sintashta on the upper Ural River, noted for its chariot burials and kurgans containing horse burials, is considered the type site of the Sintashta culture, forming one of the archaeological evidence of the Andronovo and textual evidence of Indo-Iranians (i. e. the Vedas and the Avesta) are frequently made to support the Indo-Iranian identity of the Andronovo. The modern explanations for the Indo-Iranian identity of the Andronovo. The modern explanations for the Indo-Iranian identity of the Andronovo. linguistic dominance across the Bronze Age urban centres of the region, such as the Bactria-Margiana Archaeological Complex. While the earliest phases of the Andronovo culture are regarded as co-ordinate with the late period of Indo-Iranian linguistic unity, it is likely that in the later period they constituted a branch of the Iranians.[3] According to Narasimhan et al. (2019), the expansion of the Andronovo culture towards the BMAC into Iran and the margin of the Indus Valley is "the best candidate for an archaeological correlate of the introduction of Indo-Iranian speakers to Iran and South Asia,"[40] despite the absence of the characteristic timber graves of the steppe in the Near East,[41] or south of the region between Kopet Dagh and Pamir-Karakorum.[42][a] Mallory acknowledges the difficulties of making a case for expansions from Andronovo to northern India, and that attempts to link the Indo-Aryans to such sites as the Beshkent and Vakhsh cultures "only gets the Indo-Iranian to Central Asia, but not as far as the seats of the Medes, Persians or Indo-Aryans". He has developed the Kulturkugel model that has the Indo-Iranian to Central Asia, but not as far as the seats of the Medes, Persians or Indo-Aryans". He has developed the Kulturkugel model that has the Indo-Iranians taking over Bactria-Margiana cultural traits but preserving their language and religion while moving into Iran and India.[44][40] Based on its use by Indo-Aryans in Mitanni and Vedic India, its prior absence in the Near East and Harappan India, and its 16th-17th century BC attestation at the Andronovo site of Sintashta, Kuzmina (1994) argues that the chariot corroborates the identification of Andronovo site of Sintashta, Kuzmina (1994) argues that the Andronovo culture much too late for an Indo-Iranian identification since chariot-using Aryans appear in Mitanni by the 15th century BC. However, Anthony & Vinogradov (1995) dated a chariot burial at Krivoye Lake to around 2000 BC.[45] Eugene Helimski has suggested that the Andronovo people spoke a separate branch of the Indo-Iranian group of languages. He claims that borrowings in the Finno-Ugric languages support this view.[46] Vladimir Napolskikh has proposed that borrowings in Finno-Ugric indicate that the languages support this view.[47] Since older forms of Indo-Iranian words have been taken over in Uralic and Proto-Yeniseian, occupation by some other languages (also lost ones) cannot be ruled out altogether, at least for part of the Andronovo area, i. e., Uralic and Yeniseian.[48] Physical anthropology The Andronovo have been described by archaeologists as exhibiting pronounced Caucasoid/Europoid during the Bronze and Iron Age period.[49] Archaeological investigations likewise suggest that in the steppe region of Central Asia and the Altai Mountains, the first food production began towards the end of the Afanasevo culture who came from the Aral Sea area (Kelteminar culture).[50] Physical remains of the Andronovo has revealed that they were Caucasoids/Europoids with dolichocephalic skulls. Andronovo skulls are very similar to those of the preceding Fatyanovo-Balanovo culture, Abashevo culture, and the contemporary Srubnaya culture, and the contemporary Srubnaya culture. They differ slightly from the skulls of the Yamnaya culture, Poltavka culture, Catacomb culture and Potapovka culture and Potapovka culture, which although being of a similar robust Europoid type, are less dolichocephalic. The physical type of Abashevo, Sintashta, Andronovo and Srubnaya is later observed among the Scythians.[b] Through Iranian and Indo-Aryan migrations, this physical type expanded southwards and mixed with aboriginal peoples, contributing to the formation of modern populations of India.[c] Genetics See also: Fatyanovo-Balanovo culture § Genetics, and Srubnaya culture § Genetics, and Srubnaya culture § Genetics Fox et al. (2004) established that, during the Bronze and Iron Age period, the majority of the population of Kazakhstan (part of the Andronovo culture during Bronze Age) was of West Eurasian origin (with mtDNA haplogroups such as U, H, HV, T, I and W), and that prior to the thirteenth to seventh century BC, all Kazakh samples belonged to European lineages.[53] Keyser et al. (2009) published a study of the ancient Siberian cultures, the Andronovo culture, the Karasuk culture, the Tagar culture and the Tashtyk culture. Ten individuals of the Andronovo horizon in southern Siberia from 1400 BC to 1000 BC were surveyed. Extractions of mtDNA from nine individuals were determined to represent two samples of haplogroup U4 and single samples of T1, T1, U2e, T4, H, K2b and U5a1. Extractions of Y-DNA from one individual was determined to belong to Y-DNA haplogroup C (but not C3), while the early Indo-Europeans. Of the individuals surveyed, only two (or 22%) were determined to be Mongoloid, while seven (or 78%) were determined to be Caucasoid, with the majority being light-skinned with predominantly light eyes and light hair.[34] In a June 2015 study published in Nature, one male and three female individuals of Andronovo culture were surveyed. Extraction of Y-DNA from the majority being light-skinned with predominantly light eyes and light hair.[34] In a June 2015 study published in Nature, one male and three female individuals of Andronovo culture were surveyed. Extraction of Y-DNA from the majority being light-skinned with predominantly light eyes and light hair. samples of U4 and two samples of U2e.[54][55] The people of the Andronovo culture were found to be closely genetically related to the Corded Ware peoples. The Corded Ware culture, suggesting that the Sintashta culture represented an eastward expansion of Corded Ware peoples. The Corded Ware peoples are culture, suggesting that the Sintashta culture represented an eastward expansion of Corded Ware peoples. The Corded Ware peoples are culture, suggesting that the Sintashta culture represented an eastward expansion of Corded Ware peoples. Ware peoples were in turn found to be closely genetically related to the Beaker culture, the Wordic Bronze Age and the peoples of the Rigveda have been detected.[d] A genetic study published in Nature in May 2018 examined the remains of an Andronovo female buried ca. 1200 BC. She was found to be a carrier of the maternal haplogroup U2e1h.[56] In a genetic study published in Science in September 2019, a large number of remains from the Andronovo horizon was examined. The vast majority of Y-DNA extracted belonged to R1a1a1b or various subclades of it (particularly R1a1a1b2a2a). The majority of mtDNA samples extracted belonged to U, although other haplogroups also occurred. The people of the Andronovo culture, the Potapovka culture, the Sintashta culture and Srubnaya culture. These were found to harbor mixed ancestry from the Yamnaya culture and peoples of the Central European Middle Neolithic.[e][f] People in the northwestern areas of Andronovo were found to be "genetically largely homogeneous" and "genetically largely homogeneous" and its Sintastha predecessor were ultimately derived of a remigration of Central European peoples with steppe ancestry back into the steppe.[g] See also Aryan Prehistory of Siberia Tazabagyab culture Notes ^ Sarianidi states that "direct archaeological data from Bactria and Margiana show without any shade of doubt that Andronovo tribes penetrated to a minimum extent into Bactria and Margianian oases".[43] ^ "[M]assive broad-faced proto-Europoid type is a trait of post-Mariupol' cultures, Sredniy Stog, as well as the Pit-grave culture the population of the Ukraine was represented by the medium type between the dolichocephalous narrow-faced population of the Wulti-roller Ware culture (Babino) and the more massive broad-faced population of the Volga region... The anthropological data confirm the existence of an impetus from the Volga region to the Ukraine in the formation of the Timber-grave culture. During the Belozerka stage the dolichocranial narrow-faced type became the prevalent one. A close affinity among the skulls of the Timber-grave, Belozerka, and Scythian cultures of the Pontic steppes, on the one hand, and of the same cultures of the Forest-steppe region, on the other, has been shown... This proves the genetical continuity between the Iranianspeeking Scythian population and the previous Timber-grave culture population in the Ukraine... The heir of the Neolithic Dnieper-Donets and Sredniy Stog cultures was the Pit-grave culture appear in the forest-steppe zone, almost simultaneously with the Poltavka culture. The Abashevans are marked by dolichocephaly and narrow faces. This population had its roots in the Balanovo and Fatyanovo cultures on the Middle Volga, and in Central Europe... [T]he early Timber-grave culture (the Potapovka) population was the result of the mixing of different components. One type was massive, and its predecessor was the Pit-grave-Poltavka type. The second type was a dolichocephalous Europoid type genetically related to the Sintashta population... One more participant of the ethno-cultural processes in the steppes was that of the tribes of the Pokrovskiy type. They were dolichocephalous narrow-faced Europoids akin to the Abashevans and different from the Potapovkans... The majority of Timber-grave culture skulls are dolichocranic with middle-broad faces. They evidence the significant role of Pit-grave and Poltavka components in the Timber-grave culture of the Urals region and the Alakul' culture of the Urals and West Kazakhstan belonging to a dolichocephalous narrow-face type with the population belongs to the Alakul' culture. [51] ^ "The Eurasian steppe nomadic Saka were not immigrants from the Near East but direct descendants of Andronovans, and the mixed character of the Indo-Iranian tradition. The Aryans in the Avesta are tall, light-skinned people with light tresses... In the Rigveda light tresses... In the Rigveda light skin alongside language is the main feature of the Aryans, differentiating them from the aboriginal Dáśa-Dasyu population who were a dark-skinned, small people speaking another language and who did not believe in the Vedic gods... Skin color was the basis of social division of the Vedic Aryans; their society was divided into social groups varna, literally 'color'. The varnas of the aboriginal Dása, called 'black-skinned'..."[52] ^ "European Late Neolithic and Bronze Age cultures such as Corded Ware, Bell Beakers, Unetice, and the Scandinavian cultures are genetically very similar to each other... The close affinity we observe between peoples of Corded Ware and Sintashta cultures suggests similar genetic sources of the two... Among Bronze Age Europeans, the highest tolerance frequency was found in Corded Ware and the closely-related Scandinavian Bronze Age cultures... The Andronovo culture, which arose in Central Asia during the later Bronze Age, is genetically closely related to the Sintashta peoples, and clearly distinct from both Yamnaya and Afanasievo. Therefore, Andronovo represents a temporal and geographical extension of the Sintashta gene pool, as there are many similarities between Sintasthta/Androvono rituals and those described in the Rig Veda and such similarities even extend as far as to the Nordic Bronze Age."[54] "We observed a main cluster of Sintashta individuals that was similar to Srubnaya, Potapovka, and Andronovo in being well modeled as a mixture of Yamnaya-related and Anatolian Neolithic (European agriculturalist-related) ancestry."[39] ^ "Genetic analysis indicates that the individuals in our study classified as falling within the Andronovo complex are genetically similar to the main clusters of Potapovka, Sintashta, and Srubnaya in being well modeled as a mixture of Yamnaya-related and early similar to the main clusters of Potapovka, Sintashta, and Srubnaya in being well modeled as a mixture of Yamnaya-related and early similar to the main clusters of Potapovka, Sintashta, and Srubnaya in being well modeled as a mixture of Yamnaya-related and early similar to the main clusters of Potapovka, Sintashta, and Srubnaya in being well modeled as a mixture of Yamnaya-related and early similar to the main clusters of Potapovka, Sintashta, and Srubnaya in being well modeled as a mixture of Yamnaya-related and early similar to the main clusters of Potapovka, Sintashta, and Srubnaya in being well modeled as a mixture of Yamnaya-related and early similar to the main clusters of Potapovka, Sintashta, and Srubnaya in being well modeled as a mixture of Yamnaya-related and early similar to the main clusters of Potapovka, Sintashta, and Srubnaya in being well modeled as a mixture of Yamnaya-related and early similar to the main clusters of Potapovka, Sintashta similar to the main clusters of Potapovka European agriculturalist-related or Anatolian agriculturalist-related or Anatolian agriculturalist-related ancestry."[39] ^ "Many of the samples from this group are individuals buried in association with artifacts of the Corded Ware, Srubnaya, Petrovka, Sintashta and Andronovo complexes, all of which harboreda mixture of Steppe EMBA ancestry and ancestry from European Middle Neolithic agriculturalists (Europe_MN). This is consistent with previous findings showing that following westward movement of eastern European agriculturalists, there was an eastward reflux back beyond the Urals."[39] References ^ a b Grigoriev, Stanislav, (2021). "Andronovo Problem: Studies of Cultural Genesis in the Eurasian Bronze Age", in Open Archaeology 2021 (7), p.3: "...By Andronovo cultures we may understand only Fyodorovka and Alakul cultures of Prehistoric Indo-Iranian Languages", in Studia Orientalia Electronica, Vol. 8, No. 1, Oct 23, 2020, p.188: "...the Alakul' culture (c.2000-1700 BCE) in the east...." a b c d e f g h i j k Mallory 1997, pp. 20-21 Anthony, David W. (2007). The Horse The Wheel And Language. How Bronze-Age Riders From the Eurasian Steppes Shaped The Modern World. Princeton University Press. ^ Hoshko, Tatiana, (2019). 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