

Andronovo culture

The **Andronovo culture** (Russian: Андроновская культура *Andronovskaya 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 culture, is now considered separately to Early Andronovo cultures.^[5]

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.^[6] 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.^[7]

Andronovo culture



Geographical range	<u>Eurasian steppe</u>
Period	Late <u>Bronze Age</u>
Dates	c. 2000 BC – 1450 BC
Preceded by	<u>Corded Ware culture</u> , <u>Sintashta culture</u> , <u>Okunev culture</u>
Followed by	<u>Karasuk culture</u>

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Discovery

The name derives from the village of Andronovo in the Uzhursky District of Kranoyarsk Krai, Siberia, where the Russian archaeologist Arkadi Tugarinov 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.^[8]

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)^{[9][2]} in southern Siberia (earliest evidence of cremation and fire cult^[10])

Other authors identified previously the following sub-cultures also as part of Andronovo:

- **Eastern Fedorovo** (1750–1500 BC)^[11] in Tian Shan mountains (Northwestern Xinjiang, China), southeastern Kazakhstan, eastern Kyrgyzstan
- **Alekseyevka** (1200–1000 BC)^[12] "final Bronze Age phase" in eastern 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.^[13]

Geographic extent

The geographical 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,^[14] overlapping with the area of the earlier Afanasevo culture.^[15] 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.^[14] More recently, evidence for the presence of the culture in Xinjiang in far-western China has also been found,^[13] mainly concentrated in the area comprising Tashkurgan, Ili, Bortala, and Tacheng area.^[16] In the Volga basin, interaction with the Srubna culture was the most intense and prolonged, and Fedorovo style pottery is found as far west as Volgograd. Mallory notes that the Tazabagyab culture south of Andronovo could be an offshoot of the former (or Srubna), alternatively the result of an amalgamation of steppe cultures and the Central Asian oasis cultures (Bishkent culture and Vakhsh culture).^[3]

In the initial Sintashta-Petrovka phase,^[16] 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),



Archaeological cultures associated with Indo-Iranian migrations (after EIEC): The Andronovo, BMAC and Yaz cultures have often been 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 cultures move intensively eastwards, expanding as far east as the Upper Yenisei in the Altai Mountains, succeeding the non-Indo-European Okunev culture.^[3]

In southern Siberia and Kazakhstan, the Andronovo culture was succeeded by the Karasuk culture (1500–800 BC). On its western border, it is roughly contemporaneous with the Srubna 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 beyond the Danube, north of the Thracians, and by Strabo near the Caspian Sea. Both 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]

Andronovo livestock included cattle, horses, sheep, goats and camels.^[14] 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] Agriculture also played an important role in the Andronovo economy.^[17] The Andronovo culture is notable for regional advances in metallurgy.^[14] They mined deposits of copper ore in the Altai Mountains from around the 14th century BC.^[18] Bronze objects were numerous, and workshops existed for working copper.^[18]

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 adult and child.^[19]

At Kytmanovo in Russia between Mongolia and 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.^[20] 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^[21] (although it was not *the* plague).^[22] The three people in that grave all died at the same time, and the researcher believes that this para-plague is what killed them.^[23]

Soma may have originated in the Andronovo culture.^[24] 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.^{[25][26]}

"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 Novoilnovsky-2 burial ground. The rider has a significant advantage over the infantryman. 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.^[27]

Ethnolinguistic affiliation with Indo-Iranians

It is almost universally agreed among scholars that the Andronovo culture was Indo-Iranian.^{[3][28]} It is credited with the invention of the spoke-wheeled chariot around 2000 BC,^{[29][30]} if we include the Sintashta culture where the oldest known chariots have been found.^{[31][32]} 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 earliest parts of the "Andronovo horizon".^[33] It is conjectured that the language spoken was still in the Proto-Indo-Iranian stage.^[34]

Comparisons between 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-Iranianization of Greater Iran and the Indian subcontinent rely heavily on the supposition that the Andronovo expanded southwards into Central Asia or at least achieved 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 took place via the Inner Asia Mountain Corridor.^[35]

According to Hiebert, an expansion of 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,"^[36] despite the absence of the characteristic timber graves of the steppe in the Near East,^[37] or south of the region between Kopet Dagh and Pamir-Karakorum.^{[38][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-Iranians taking over Bactria-Margiana cultural traits but preserving their language and religion while moving into Iran and India.^{[40][36]}

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 as Indo-Iranian. Klejn (1974) and Brentjes (1981) found 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.^[41]

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.^[42] Vladimir Napol'skikh has proposed that borrowings in Finno-Ugric indicate that the language was specifically of the Indo-Aryan type.^[43]

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.^[44]

Physical anthropology

The Andronovo have been described by archaeologists as exhibiting pronounced Europoid features.^[30] The population of present-day Kazakhstan was Europoid during the Bronze and Iron Age period.^[45]

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 third millennium BC and that the peoples who first entered this region were Caucasoid of the Afanasevo culture who came from the Aral Sea area (Kelteminar culture).^[46]

Physical remains of the Andronovo has revealed that they were Europoids with dolichocephalic skulls. Andronovo skulls are very similar to those of the preceding Fatyanovo–Balanovo culture, Abashevo culture and Sintashta culture, and the contemporary Srubnaya culture. They differ slightly from the skulls of the Yamnaya culture, Poltavka culture, Catacomb 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

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.^[49]

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 Z1, 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 other two extractions were determined to belong to haplogroup R1a1a, which is thought to mark the eastward migration of 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.^[30]

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 male was determined to belong to R1a1a1b. Extractions of mtDNA were determined to represent two samples of U4 and two samples of U2e.^{[50][51]} The people of the Andronovo culture were found to be closely genetically related to the preceding Sintashta culture, which was in turn closely genetically related to the Corded Ware culture, suggesting that the Sintashta culture represented an eastward expansion of Corded Ware peoples. The Corded Ware peoples were in turn

found to be closely genetically related to the Beaker culture, the Unetice culture and particularly the peoples of the Nordic Bronze Age. Numerous cultural similarities between the Sintashta/Andronovo culture, the Nordic 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.^[52]

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 were found to be closely genetically related to the people of the Corded Ware 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 almost indistinguishable" from Sintashta people. The genetic data suggested that the Andronovo culture and its Sintashta 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

- a. 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".^[39]
- b. "[M]assive broad-faced proto-Europoid type is a trait of post-Mariupol' cultures, Sredniy Stog, as well as the Pit-grave culture of the Dnieper's left bank, the Donets, and Don... During the period of the Timber-grave culture the population of the Ukraine was represented by the medium type between the dolichocephalous narrow-faced population of the Multi-roller Ware culture (Babino) and the more massive broad-faced population of the Timber-grave culture 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 Iranian-speaking 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. Its population possessed distinct Europoid features, was tall, with massive skulls... The tribes of the Abashevo 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 population... One may assume a genetic connection between the populations of 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 of the Sintashta culture... [T]he western part of the Andronovo culture population belongs to the dolichocranic type akin to that of the Timber-grave culture.^[47]

- c. "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-speaking populations of Iran and India is the result of a new population spreading among aboriginals with whom a new language is probably to be associated. This conclusion is confirmed by the evidence of Indo-Iranian tradition. The Aryans in the Avesta are tall, light-skinned people with light hair; their women were light-eyed, with long, 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 varṇa, literally 'color'. The varṇas of Aryan priests (brāhmaṇa) and warriors (ksatriyah or rājanya) were opposed to the varṇas of the aboriginal Dáśa, called 'black-skinned'..."^[48]
- d. "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 Sintashta/Andronovo rituals and those described in the Rig Veda and such similarities even extend as far as to the Nordic Bronze Age."^[50]
- e. "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."^[35]
- f. "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 European agriculturalist-related or Anatolian agriculturalist-related ancestry."^[35]
- g. "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 harbored a 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 populations and mixture with local European agriculturalists, there was an eastward reflux back beyond the Urals."^[35]

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