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Traditional Bow of the Selenga Buryats (Based on a 2019 Field Study)

Three Buryat bows, studied at Tashir village, in the Selenginsky District, Republic of Buryatia, in 2019, are described. They are relatively well preserved, and one is still functioning. A detailed description of their design is given. The specimens are similar in terms of morphology and technology (specifically, an outline without strings), design of transition zones, section of elastic part, and the shape and position of horn overlays. The tension force of the bows is evaluated, and conclusions are made about the impact of force and practical use. Comments made by a Buryat archer (the bow's owner) are cited about specific use under various weather conditions. The information is compared with that gained from ethnographic sources, and archival illustrations made in late 1800s and early 1900s are given.

Keywords: *Traditional bow, Selenga Buryats, weapons, Trans-Baikal, 19th–20th centuries, hunting.*

Introduction

Bows and arrows are traditional weapons that are studied today by weapons specialists based mainly on materials from archaeological excavations, museum collections, and various illustrations. Many such items, preserved in family collections, often remain beyond the awareness of researchers. The analysis of these items is very important, because they usually retain their design and reflect the final stage in the evolution of hand-held projectile weapons. Despite their sporting or fishing purpose, these are genetically related to ancient weapons. Their study allows us to trace those essential details that in most cases are not preserved at archaeological sites. In addition, the analysis of entire structures makes it possible to verify and correct the known classifications of archaeological material for the correct identification of the main features.

Trans-Baikal is one of the regions of Russia where the tradition of archery has been preserved to this day. The

composite Buryat traditional bow has repeatedly become the object of study by domestic researchers (Badmaev, 1997: 74–76; Gombozhapov, 2016; Zhambalova, 1991: 52–56; Mikhailov, 1993: 11–16; Sandanov, 1993: 11–14; Tugutov, 1958: 39–42). Publications most often provide general information about the process of making composite bows in different territories, provide characteristics of the materials used and brief descriptions of the components. Attempts were also made to characterize individual decorative features (Badmaev, 1997: 75). According to published data, the Buryat bow is a form of the “composite Central Asian bow”. To date, local variants, their morphological features, and qualitative characteristics have not been described. This does not allow us to single out the Buryat bow as a unique phenomenon among the projectile weapons of the peoples of Siberia and Central Asia.

Shooting according to traditional rules is popular in Buryatia. This explains the special attention paid

to ancient bows, which are carefully stored, repaired, and even occasionally used. Buryat athletes also show interest in them. One of the representatives of modern Olympic archers who are not indifferent to the history and traditional competitive culture of the Buryats is Vilikton Yuryevich Irintseev, an archery coach at the Sports School of the Olympic Reserve in Gusinoozersk. At his invitation, in August 2019, we visited the village Tashir of the Selenginsky District of the Republic of Buryatia in order to study the traditional bows he has.

This territory is inhabited by the Selenga Buryats—an ethno-territorial (rather complex and heterogeneous) subgroup within the Buryat ethnic group. As noted by D.D. Nimaev, “in the pre-revolutionary period, in general terms, Selenga people were understood as the Buryat population living in the Selenga valley south of Verkhneudinsk to the Mongolian border and along the tributaries of the Selenga: Temnik, Dzhida, Chikoy, and Khilok... In other words, these are the territories of modern Ivolginsky, Selenginsky, Dzhidinsky, Kyakhtinsky and, partially, Bichursky districts of Buryatia” (2015: 9). The stabilization of the ethnic composition of the Selenga Buryats was facilitated by the conclusion of the Burin Treaty between Russia and China in 1727, which prohibited the free movement of people on both sides of the Russian-Chinese border. By 1735, the bulk of the Selenga Buryats consisted of representatives of clans of “Western Buryat origin” and “Mungal natives” (Ibid.). In the 18th century, many Buryats were resettled to Trans-Baikal from other territories to perform Cossack service on the border (Nanzatov, Sodnompilova, 2019a: 126). The tribal composition of the Selenga Buryats in the 19th century, according to research by B.Z. Nanzatov and M.M. Sodnompilova (Nanzatov, 2019; Nanzatov, Sodnompilova, 2019a, b), included such ethnic groups as *Sartuls*, *Atagan*, *Tabangut*, *Alagui*, *Uzon*, *Tsongol*, *Ashibagat*, *Kharanut*, *Khatagin*, *Buyan*, etc. According to D.D. Nimaev, on the territory of the Iroi valley, in the 1970s, lived representatives of the *Olzon*, *Yengut*, and *Bulut* clans, and today, *Kharanut*, *Alagui*, *Shono*, and *Khatagin* (2015: 10). The complex tribal composition of the Selenga Buryats was formed as a result of the resettlement of various Mongol-speaking groups of Cisbaikalia, Western Transbaikalia, and Mongolia to the region. It is natural that the material culture of the Selenga people was formed under the influence of ethnic groups from the designated territories, and retained their individual features.

The purpose of this study is to introduce the data on composite bows identified during field surveys in 2019 in the village of Tashir, Selenginsky District, Republic of Buryatia, and to provide their interpretation.

Study methods and materials

The methodological basis of the study is an integrated approach. The presented items are considered as complex systems, the individual elements of which reflect the features of manufacturing technology and functional specificity. The study is carried out using morphometric and functional analyzes of individual structural elements. The characteristics of the whole structure are given according to the following indicators: the external geometry of the whole item in the position without a bowstring, the method of designing the transition zones between the elastic limbs and ears, and the combination options of the presented overlays. Noteworthy is also the importance of the retrospective method, which evaluates the design and characteristics of the traditional bow from the point of view of modern national archers.

In 2019, in the village of Tashir, three completely preserved Buryat bows were recorded (bows 1–3). A photo of bow 1 was published earlier by A.A. Badmaev (2005: Fig. 10). The exact time and place of manufacture of the items is unknown; however, according to the testimony of V.Y. Irintseev, bows 1 and 2 were stored at Tashir for a long time, and were probably made by craftsmen from the Selenga Buryats (Fig. 1, 2). Bow 3 was handed over to Irintseev for “repair” by an archer from the village of Zhargalanta (Fig. 3).

All three items are damaged to varying degrees. Bow 1 was damaged around the lower elastic limb and reinforced on the outer and inner sides with the limb plates of a modern sports bow using insulating tape. On one side surface, in the arched cutouts for the bowstring, thin wooden plates are glued, probably necessary to align the bow axis. Bow 2 was split along the wood fibers (could not withstand the load) in the elastic limb; it also lacks supports for the bowstring and a short plate of one long end frontal overlay. Bow 3 has one string support removed, and the birch-bark on the back is partially damaged. The items show numerous minor signs of damage and abrasion; in some places, there are additional strips of reinforcement with insulating tape.

The original geometry of the items, although they had been used for a long time, probably changed insignificantly. This makes it possible to compare the items in question with each other and with traditional bows from other collections.

The bows described are classified as composite*. They are typologically close: the profile without a bowstring is similar—the items have a straight handle, elastic limbs smoothly curved towards the back, rather long

*Composite bows mean traditional bows that have stiff end zones that work like a lever, which are a fundamental improvement in the design.

Fig. 1. Bow 1.

1, 2 – general view; 3 – stiff bow ear; 4 – inner surface of the elastic limb, reinforced with a frontal overlay made of hollow horn; 5 – inner surface of the handle, reinforced with a frontal overlay made of deer antler; 6 – transition zone, reinforced with a frontal overlay made of deer antler; 7 – diagram of the arrangement of overlays on the core: *a* – made of deer antler, *b* – made of hollow horn, *c* – made of reed/wood.

(about a quarter of the length of the body) uniformly curved transition zones, and relatively short straight bow ears. Bows without strings are curved in the direction of the arrow's flight, and in this state resemble half a flattened ellipse; in the transition zones, they bend evenly, are reinforced with frontal overlays made of deer antler, and do not differ in cross-section from the elastic limbs; the latter have a biconvex shape in cross-section. All the items have a similar set of overlays: solid frontal limb overlays (hollow horn), side limb (made of reed?, the integrity cannot be established) overlays, long end frontal overlays, those covering transition zones and stiff bow ears (deer antler, bow 1 has solid overlays, bow 2 and 3 have composite overlays); end lateral overlays (hollow horn (bows 1 and 3) or combination with deer antler (bow 2)), end rear overlays (deer antler (bow 1) or reed (bows 2, 3)) (Table 1). Bow 1 has a visible middle frontal sub-rectangular overlay made of deer antler; bows 2 and 3 have hidden handles, but that their handles most likely

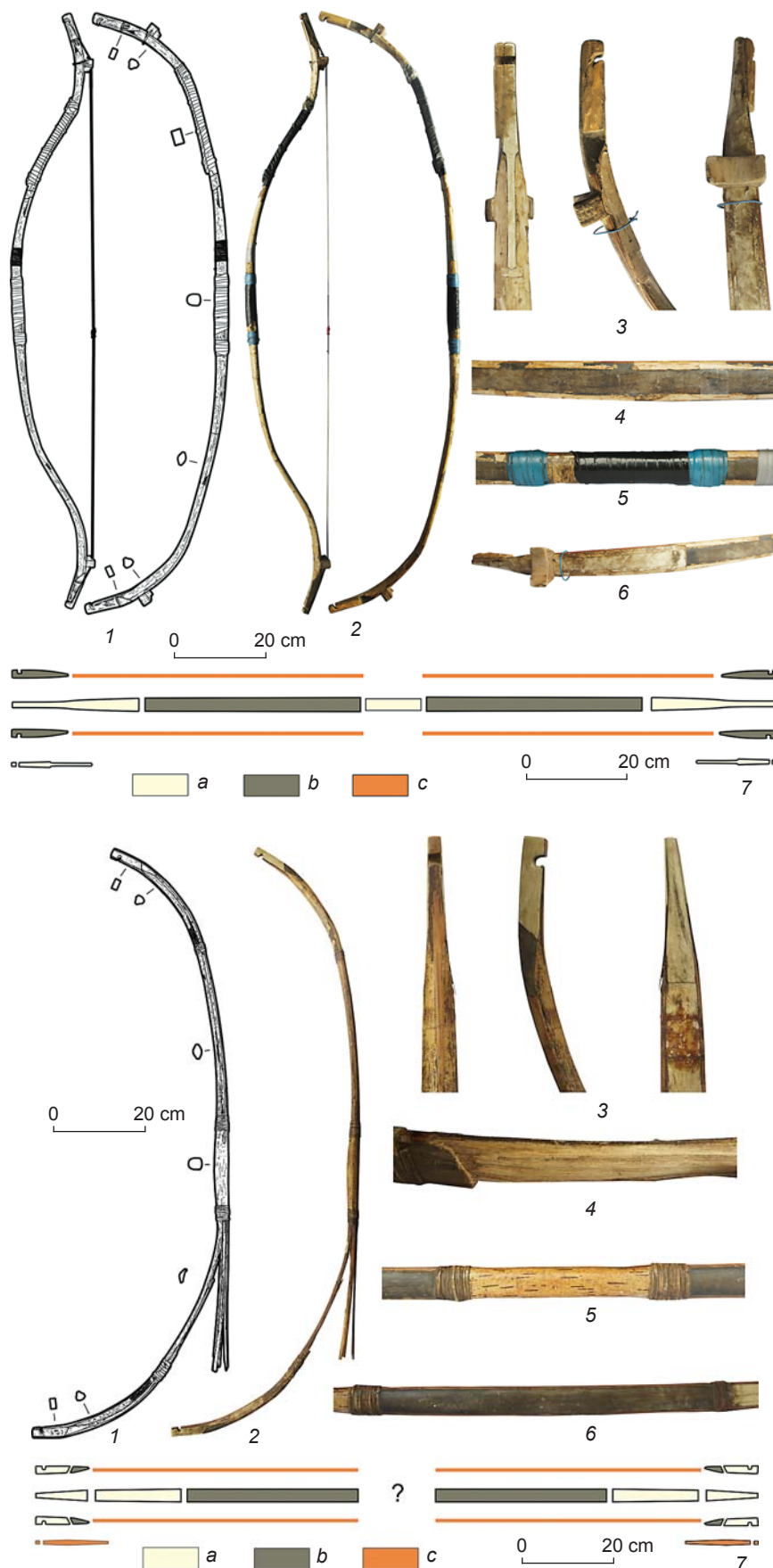
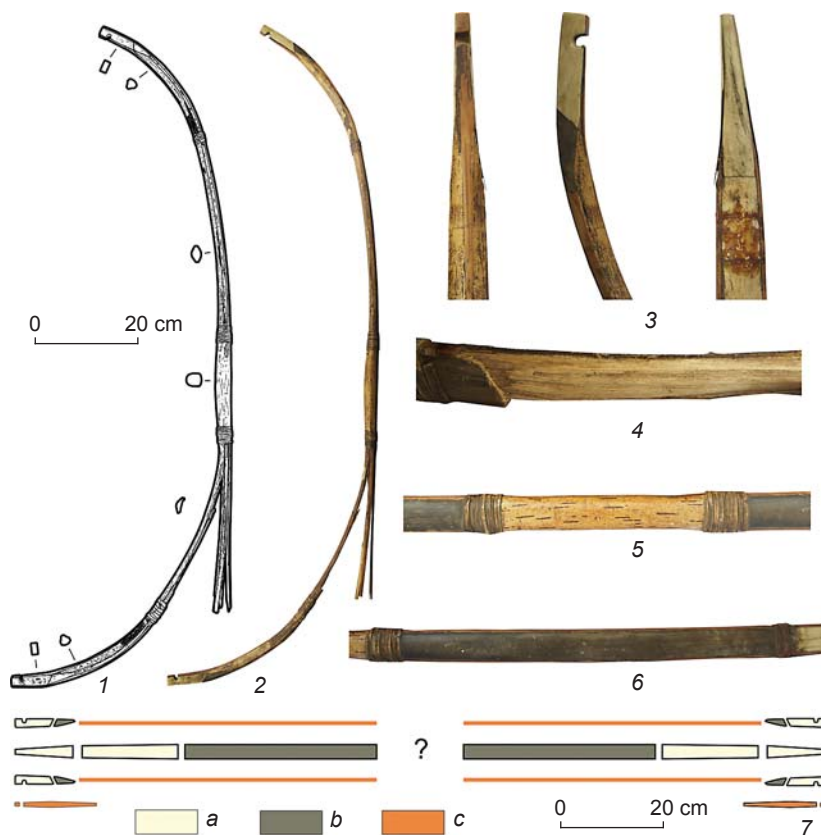


Fig. 2. Bow 2.

1, 2 – general view; 3 – stiff bow ear; 4 – place of breakage of the core; 5 – inner surface of the handle, reinforced with a frontal overlay made of hollow horn; 6 – inner surface of the limb, reinforced with a frontal overlay made of hollow horn; 7 – diagram of the arrangement of overlays on the core: *a* – made of deer antler, *b* – made of hollow horn, *c* – made of reed/wood.



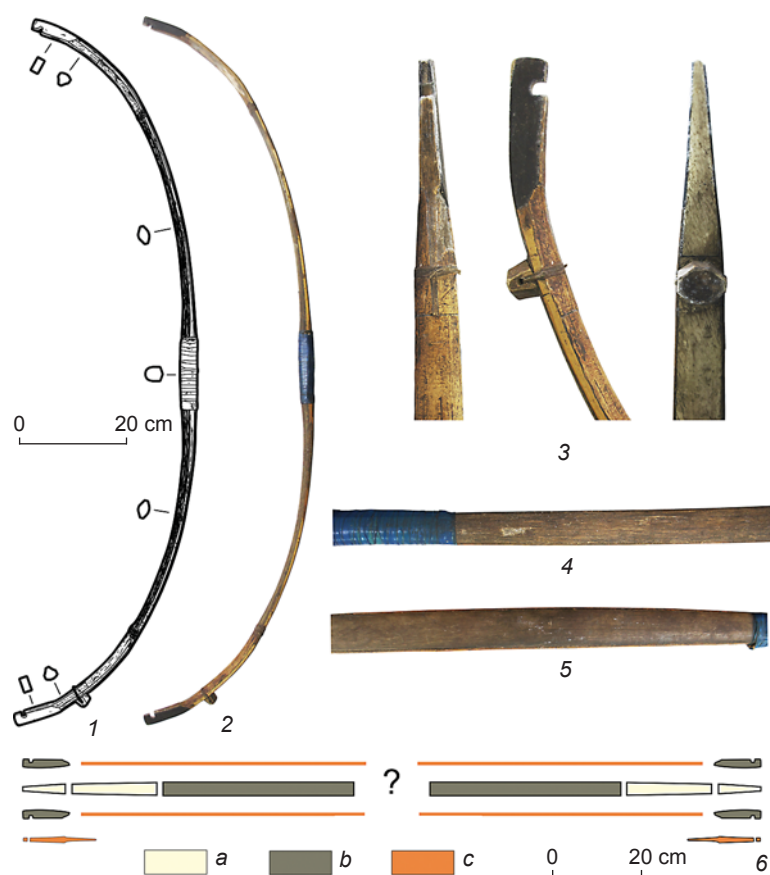


Fig.3. Bow 3

1, 2 – general view; 3 – stiff bow ear; 4 – outer surface of the body, reinforced with sinew; 5 – inner surface of the elastic limb, reinforced with a hollow horn overlay; 6 – diagram of the arrangement of overlays on the core: *a* – made of deer antler, *b* – made of hollow horn, *c* – made of reed/wood.

were also reinforced with middle frontal plates, though their shape, size, and material could not be determined. The variability of shape and arrangement of overlays is insignificant and does not fundamentally affect the design. On the back, along the entire length of the body, each item is reinforced with several layers of sinew and covered with birch-bark.

All items are similar in size and proportions of individual zones (Table 2). The length of the body is close to 160 cm. In the grip area (a section with insulating tape (bows 1, 3), or between the leather windings at the junction of the handle with the limbs (bow 2)), it is straight and rounded in cross-section. The width of the body in this place is unchanged (bows 1, 3) or increases slightly from the center to the limbs (bow 2); the thickness is also either unchanged (bows 1, 2) or decreases towards the limbs (bow 3). Owing to the continuous wrapping of the handle with insulating tape (bows 1, 3) or pasting over with birch-bark (bow 2), it is impossible to establish the shape and size of the middle overlays; however, as noted above, these most likely were present.

The handle merges into curved elastic limbs (the elastic working part of the body). Their length corresponds to the distance from the handle to the areas where the body is reinforced with long frontal end overlays made of deer antler. The cross-section changes to elliptical. The elastic limbs are almost the same in length; relative to the handle, the width increases slightly, and the thickness gradually decreases towards the end. The internal surface in these areas is reinforced with solid frontal limb overlays made of hollow horn, repeating the shape and size of the elastic limbs, as well as with side limb overlays made of reed, which also cover the area of transition zones. The edges of the frontal overlays at the handle and at transition zones are hidden under windings and pastings.

In curved transition zones, the cross-sectional shape of the bow's body, from the elastic limbs to the stiff ears, does not change. The length of these sections is limited by the junction of the hollow horn and deer antler overlays on one side and by a sharp change in the cross-section of the stiff bow ears (it becomes sub-rectangular) on the other. The width of the body from the elastic limbs towards the ears decreases slightly, the thickness increases. On the inside, the body in these areas is reinforced with long frontal end overlays made from deer antler. For bows 2 and 3, these overlays are composite,

the joint of the plates falls on the border between the transition zones and the ears (however, taking into account the fact that these are made of the same material, it is more correct not to separate them and consider them as long end ones); for bow 1, the overlays are solid. Like the limb frontal ones, the long end frontal overlays follow the shape and size of the body in these areas, except for thickness.

The joints of the limb frontal plates and the long end frontal plates were reinforced with leather cord (bow 2) or sinew (bow 3). Bow 1 does not have such a winding, but the traces of it are clearly visible.

In the zone of stiff bow ears, the cross-section of the items changes to sub-rectangular. Towards the ears, the body narrows, the thickness either decreases (bow 1) or remains unchanged (bows 2, 3). Cutouts are made 2 cm from the ears on the back, to secure the bowstring. The ears of the bow are reinforced with the above-mentioned long end frontal, rear, and side overlays.

All the overlays follow the shape and size of the body. The frontal plates are made of deer antler, the side plates

with a cutout for the bowstring are made of hollow horn (bows 1, 3) or of two plates of deer antler and a hollow horn (bow 2). The rear plates are damaged, but their shape is clearly discernable: they have a narrow area covering part of the transition zone (most likely, this is an imitation of the additional edge in the transitional zones of bows of the Manchu design), and a wide area, following the shape of the ear, including after the cutout. Back plates are made of reed (bow 2, 3) or deer antler (bow 1).

On the outside, wooden cores, along their entire lengths, are reinforced with several layers of sinew. The outer surface with sinew (bows 1–3), the entire handle (bow 2) and partially the inner surface along the overlays (bow 1) were covered with birch-bark. Currently, in some places, birch-bark is missing or damaged. The limb side and end overlays were not covered with birch-bark.

All the items were equipped with wooden supports for the bowstring. Bow 1 has preserved two trapezoidal supports with a curved sub-rectangular platform 13 cm from the ends; bow 3 has one straight support with an octagonal platform (the second is lost) 13 cm from the ends; bow 2 lacks the supports, but shows their traces 16 cm from the ends.

In some areas on bow 2, a wooden base is visible. At the place of breakage of the limb, a solid base consisting of one plate is discernible. There are also no complex wooden joints at the place of missing end frontal overlay. This allows us to assume that the core, even if it was not solid wood, was not reinforced with several layers of longitudinal plates.

Bow 1, despite its age and damage, is still functional. Irintseev uses a modern bowstring ca 140 cm long. The distance from the string to the handle (bow base) is 19 cm. With the string on, the limbs relative to the handle are smoothly curved back; approximately in the middle of the limb, the bend changes direction towards the back. The ears are slightly directed forward.

According to Irintseev, bow 1 showed smooth tension and the absence of strong recoil. At the time of fixation, the strength of this bow reaches 12.9 kg, with a string tension of 72 cm. Importantly, the above-described transition zones of the bow (long curved, reinforced with frontal overlays made of deer antler) have elasticity and are

Table 1. Dimensions (from handle to ends) and shapes of the overlays on the studied traditional Buryat bows

Overlays	Bow 1		Bow 2		Bow 3	
	Length / width / thickness, cm	Shape / material	Length / width / thickness, cm	Shape / material	Length / width / thickness, cm	Shape / material
Middle frontal	– / 2.5 / –	Sub-rectangular / deer antler	–	–	–	–
Frontal limb	45 / 2.8–2.6 / –	Sub-rectangular / hollow horn	40 / 3 / 0.2–0.5	Sub-rectangular / hollow horn	45 / 3.2 / –	Sub-rectangular / hollow horn
Side limb	<60 / 0.5–0.7 / 0.1–0.2	Sub-rectangular (thin plates) / shrub	<60 / 0.7 / 0.2	Sub-rectangular (thin plates) / shrub	<60 / 0.5 / 0.2	Sub-rectangular (thin plates), composite / shrub
Long end frontal	27 (17 – wide part, 10 – narrow part) / 2.6–2.0–1.2 / –	Trapezoidal, with narrowing at the end / deer antler	19 / 3.0–2.5 / – 12 / 2.5–1.0 / 0.3	Trapezoidal (composite), with narrowing at the end (junction of overlays on the edge of functional zones) / deer antler	19 / 3.0–2.3 / – 10 / 2.3–1.0 / –	Trapezoidal (composite), with narrowing at the end (junction of overlays on the edge of functional zones) / deer antler
End lateral	12 (widening 2.5) / 0.7–1.7–1.5 / –	Sub-rectangular, with cutout for the bowstring and semi-arch widening / hollow horn	8 / 1.3 / 0.2 6 / 0.3–1.5 / 0.2	Composite: sub-rectangular, with cutout for the bowstring / deer antler, and sub-triangular widening / hollow horn	11 (widening 1.8) / 1.0–2.2–2.0 / –	Sub-rectangular, with cutout for the bowstring and semi-arch widening / hollow horn
End rear	20 (8 – narrow part, 12 – wide part) / 0.7–1.5–1.0 / –	Sophisticated shape / deer antler	17 (9 – narrow part, 8 – wide part) / 0.7–1.5–1.0 / –	Sophisticated shape / shrub (damaged)	15 (7.5 – narrow part, 7.5 – wide part) / 0.3–1.3–0.8 / –	Sophisticated shape / shrub (damaged)

Table 2. Dimensions of body (cm) and other features of the studied traditional Buryat bows

Indicator	Bow 1	Bow 2	Bow 3
Length of body	158	160	160
Angle of ears relative to the handle	105° / 105°	122° / –	110° / 110°
Length of limbs	72 / 72	71 / 71	74 / 74
Length of handle / grip area	14	18 / 15	12
Width / thickness of body in the center of handle	2.5 / 3.0	2.5 / 2.7	3.0 / 2.9
Width / thickness of body at the junction of limbs with handle	2.5 / 3.0	3.0 / 2.7	3.0 / 2.5
Length of elastic limbs	45	40	45
Maximum width of body at elastic limbs	3*	3.2*	3.4*
Minimum thickness of body at elastic limbs	1.7**	2**	1.6*
Length of transition zones	17	19	19
Width / thickness of body at the junctions of elastic limbs with transition zones	2.8 / 1.7	3 / 2	3 / 2
Length of stiff bow ears	10	12	10
Width / thickness of body at the junctions transition zones with stiff bow ears	2.0 / 2.1	2.7 / 2.0	2.5 / 2.2
Width / thickness of body at the ends	1.2 / 1.5	1.2 / 2.0	1.0 / 2.2
Distance from ends to supports	13 (glue)	16 (traces)	13 (glue)
Shape of platform, material of supports	Curved quadrangular, wood	–	Straight octagonal, wood

*In the center of elastic limbs.

**At transition zones.

not excluded from the work of the limbs. The use of bow 1 as a classic example of this design, according to Irintseev, is least effective during the hot season, since the weapon becomes somewhat weaker at high temperatures. Irintseev considers the autumn-spring period the most suitable for the bow functioning, because this is when sudden overheating that affects shooting is not an issue.

Discussion

All the bows under study are typologically similar. They have close morphological and technical characteristics; discrepancies appear in the details of the overlays design. The items are similar in metric parameters, but differ in certain design techniques. Thus, the bows can be attributed the same production tradition, but not to the products of a single artisan.

An important feature of the described design is the small spread of values of the metric indicators of individual zones: there is no sharp change in the proportions of handles and elastic limbs, as, for example, in bows of the Manchu design, in which the rounded handle sharply merges into flat and wide limbs (Solovyev,

Kharitonov, 2020: 621). Hence, the limbs of Selenga bows can be considered to be relatively narrow. The proportions change over rather extended areas, so the outlines look smooth.

The question arises as to the purpose of the bows in question. The tension force of bow 1 (12.9 kg with a 72 cm string tension) appears to be small. It is unlikely that the craftsmen of the past, who spent a lot of time on labor-intensive technological operations, expected to obtain such a weak bow, and even one that lost its properties in the heat. There is no doubt that the bow was originally much more powerful.

A preliminary expert opinion on the initial performance of bow 1, based on its design, was given by A. Karpowicz, a famous researcher of traditional bows, the author of popular publications translated into several languages, as well as many reconstructions of Turkish, Tatar, Scythian, Xiongnu, and other bows and their experimental studies (2006, 2015). He estimated the tension force of the bow string of 72 cm (28 in.), with all its materials functioning normally, at 25–29 kg (55–65 lb.), at an ambient temperature of 15–25 °C and air humidity close to 50 %. According to Karpowicz, the bow is intended for use with longer arrows—from 81 (32 in.) to 86 cm (34 in.). In this case, the tension force of the bowstring can range from

32 (70 lb.) to 36 kg (80 lb.)*; this will transfer more energy to the arrow, and produce a more effective shot. Notably, the dimensions of the arrows shown in ancient images are very close to those proposed by Karpowicz: with a conventional bow length of 160 cm, the length of arrows to the tip varies from 81 to 87 cm (Kharitonov R.M., Kharitonov M.A., 2021: Fig. 3, 4). The lengths of the arrows interpreted as Buryat, from the National Museum of the Republic of Buryatia, are the following: MIB OF 1169 is 87 cm (draw length to the tip 74 cm), MIB OF 1147 is 93 cm (draw length 81 cm).

The performance of bow 1 modeled by Karpowicz, based on the experience of the master manufacturer, although very conditional, is currently the only qualitative characteristics available to us of a traditional bow of the described design. More accurate data can only be obtained by creating experimental replicas.

The “weakening” of bow 1 is associated with the age of the item, the gradual wear of materials, according to Karpowicz, and the loss of glue properties. The proportions of the limbs, as well as the modeled performance given above, preclude the attribution of the weapon to the category of specialized combat weapons. Notably, there are no clear criteria for differentiation of Buryat bows by purpose. Most likely, the bows in question were made as multi-purpose, and were used mainly for hunting and competitions.

Bows 1–3, according to the owner, were most effective in the autumn-spring period. Certain issues related to the impact of climate change on the efficiency of structures were considered by foreign experts. Particular attention was paid to air humidity. It was found that one of the varieties of Turkish bows needed special drying before use (Klopsteg, 1987: 38). However, the issue of variability in the characteristics of traditional bows at different temperatures is not at all described in weapons science.

A classification of Buryat bows by decoration was proposed by A.A. Badmaev. He notes that the Irkutsk and Olkhon Buryats decorate bone overlays with elements of circular patterns and “parallel lines”; the Barguzin Buryats, with alternating “bone, ordinary horn, and figured horn plates”; Alar, Khori, Tunka, and Chita Buryats did not decorate the body at all (Badmaev, 2005: 75). Most likely, according to Badmaev, the items described above belong to the category of Barguzin Buryat bows: the items are reinforced with plates of deer antler and hollow horn, which, judging by their position on the core, “alternate”; at the ends, there are “figured” plates.

One of the bows (ANM OF-628) kept in the Tsibikov Aginskoye National Museum (Aginskoye, Aginsky District of the Transbaikal Territory), is decorated with “alternating plates” and circular patterns, although it

was made by a Buryat artisan in the territory of Trans-Baikal (according to the Badmaev’s classification, it can be attributed to two groups at once). One Buryat bow from the Russian Museum of Ethnography (St. Petersburg) is also noteworthy. The bow REM 4048-155, discovered near the Tsugol Datsan in 1923, is decorated with elements of a circular pattern. The combination of different decorative elements on one item may be due to contacts between different groups of Buryats; however, at present, it is not possible to draw clear conclusions about this. All this actualizes the problem and makes it possible to raise new questions in the study of the design features of Buryat bows.

In the context of the study of the described items, the most interesting is the work of I.E. Tugutov, which provides a detailed description of the process of manufacture of a traditional bow, compiled on the basis of information from an artisan from the Khargana ulus, Ivolginsky Aimak (now the village of Khargana, Selenginsky District, Republic of Buryatia) (1958). The scholar notes that Manchurian wapiti or elk antlers were used to reinforce bow ears, handle, and transition zones; solid birch was used as a base; the finished bow looks like a chord-semicircle (Ibid.: 40). An item sketched by Tugutov (Ibid.: 41), in its general appearance, almost completely corresponds to the bows of Irintseev. Most likely, Tugutov recorded the process of making a bow of the same design (or one of the variants) as described above.

An item identical to the bows of Irintseev, is kept in the National Museum of the Republic of Buryatia (Ulan-Ude), under the inventory number MIB OF-17848; it was described earlier (Kharitonov, Butukhanova, 2017). According to the museum data, the bow was made in the late 19th century by an artisan from the Tamcha ulus, Selenga region. The “redesigned” bow of D.-N.R. Erdyniev has the same ears with transition zones as bows 1–3 (Kharitonov, 2020: Fig. 1, 2). Despite the lack of reliable information about the origin of the items, the owner considered them to be products of the Selenga Buryats.

The items discussed differ from Mongolian and Chinese imports. They have a smoother geometry, a different cross-section of elastic limbs and transition zones (the Manchurian design and its variants have a pronounced additional rib on the back) (Solovyev, Kharitonov, 2020), without bright decoration. Items discovered in Tashir, unlike the bows of the northern peoples, are made using sinew, are reinforced with overlays and equipped with supports; a different wooden core design is presented. The above data indicate the manufacture of bows of this design by local Buryat craftsmen. This original design has become widespread in the territory of the modern Selenginsky District of the Republic of Buryatia.

*Data from the personal correspondence with A. Karpowicz.

There is no clear information about the time of manufacture of the items under study, so they can be dated tentatively. Traditional bows, similar in geometry, are shown in photographs from the late 19th to early 20th centuries (Kharitonov R.M., Kharitonov M.A., 2021). If the museum inventories are accurate, one of the identical bows (MIB OF-17848) was made in the 1880s. Most likely, this design became widespread much earlier, and is directly related to its military counterparts. Around the mid-20th century, Buryat craftsmen began to make bows of a different design, intended for sports competitions; these are still manufactured today by Agi artisans (this design has a number of differences (a classic example is the “broken bow” of D.N.-R. Erdyniev) (Kharitonov, 2020: Fig. 1, I)). Thus, the described items can be dated back to the mid-19th to early 20th centuries. At that time, specialized sports options had not yet appeared, and craftsmen made bows without simplifying their design, as evidenced by many overlays. Meanwhile, according to ethnographic information, bows and arrows were used by the Buryats of Trans-Baikal back in the 19th to early 20th centuries during battles (Zhambalova, 1991: 52).

Conclusions

The provided data suggest that the three described bows represent a distinctive local tradition, widespread in the modern territory of residence of the Selenga Buryats. In design, these bows differ from others. In shape, they resemble half a flattened ellipse: they have a straight handle, elastic limbs smoothly curved towards the back, distinct evenly curved transition zones, and straight, relatively short ears; the transition zones are reinforced with frontal overlays made of deer antler, and do not differ in cross-section from the elastic limbs; they are equipped with a similar set of overlays; the width and length of the body change slightly and relatively smoothly; limbs are relatively narrow, backs are reinforced with sinew.

Based on indirect evidence, the items can be dated to the mid-19th to early 20th centuries; however, most likely, bows of this design were common earlier, too. During this period, these were no longer related to military affairs and were used in commercial and hunting activities. These bows were somewhat weaker than their military counterparts, with more protected wooden bases. Meanwhile, the described design represents one of the stages in the evolution of hand-held projectile weapons, genetically related to earlier combat or multi-purpose forms.

Single specimens of similar items were recorded not only in the territory of the Selenga Buryats, which makes it impossible to accurately indicate the zone and time of their distribution. Now we can speak about the

existence of several variants of the Buryat traditional bow, similar in geometry and metric characteristics, but differing in the design of transition zones and the set of overlays from Selenga items (a preliminary typology of completely preserved Buryat bows was proposed earlier (Kharitonov, 2022)). This study demonstrated the importance of analyzing the items from private and family collections. A comprehensive study of them, with the involvement of a wide range of sources, opens new avenues for research.

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