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ON OLD RUSSIAN SKIS

Abstract

The article discusses finds of ancient Russian skis of the 8th–17th centuries from the towns of Eastern Europe and Western Siberia.

The author analyses in chronological order different types of skis according to the character of the footplate and the underside of the skis.

Written sources indicate two main spheres of ski use, i.e. for military and everyday purposes.

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While studying written sources and ancient miniatures in 1944 the well-known Soviet archaeologist A.V. Artsikhovskiy made a conclusion about the wide use of skis in medieval Russ.¹ This conclusion was made only several years before the first finds of ancient skis dating back to the 8th–9th centuries were made in Eastern Russia. The first skis were found during the excavations of the lower layers (the "E" Horizon) of Ladoga and are an example of brilliant scientific foresight.

Some written information about the means of transport of the peoples of the North can be found in medieval literature in the Arabian and Persian languages. Marwasi (Sharaf iz-Zaman Tahir of Marwasi, a Spanish Arab) describes the way to the land of the Visu and Yura peoples (they inhabited the "land of darkness" in the North, a three-month journey from Bulgar) where Bulgarians took goods on sledges pulled by dogs across hills of snow permanently covering the ground; it is impossible to go on this snow in any other way but by fixing to their feet ox bones; they take two lances in their hands and plunge them in the snow behind them and in this way their feet slide along the ice surface; they move as fast as the wind and thus cover great distances during a day".² The text of this source mentions two ways of transport of the peoples of the "land of darkness" – sledges pulled by

dogs (nartys) and skis. But the design of the skis seems to be not quite clear to the author, which is reflected in his notes, though the technique of skiing is described quite correctly in general.

More accurate and detailed descriptions of skis are to be found in one of the variant of the account of Abu-Khamid's journey to Eastern Europe (the 12th century).³ Abu-Khamid gives even the size of the "boards", which Northern people attach to their feet – the length is one "bac" (i.e. 3 metres), the width is one "pyad", the front and the back parts of the boards are raised from ground level, in the middle part there is space for the skier's foot and "there is a hole in this space". Abu-Khamid gives a detailed description of the way to attach the skis to the feet: "they fix leather straps to their feet and attach the two boards they have on their feet with long straps not unlike horse reins; then they take them in the left hand and there is a pole in the right hand in proportion to the length of their legs; the lower part of the pole is very much like a ball made of some cloth packed with a considerable amount of wool. It is the size of a man's head, but very light; (the skier) leans on the pole against the snow and gets a push forward just like a sailor does on board a ship. (Thus) he moves quickly over the snow, and if it were not for this device no one could move so quickly there".

The long quotation from Abu-Khamid is given nearly complete, since this traveller of the 12th century gives a very vivid and realistic picture of the ski-design and the technique of skiing. Why do Russian sources give only a very limited description of skis? There can be only one explanation – for a Russian man, skis were household objects not requiring description, in the same way that a detailed description of a cart, sledge or axe is unnecessary.

Written sources made it possible to single out two main spheres of wide use of skis in Ancient Russ – first and foremost the military sphere and, secondly, the household sphere. But the main stress in the written sources is upon the use of skis for military purposes. This is quite natural because the raids of large military units on skis were often reflected in Russian chronicles and other written sources since these events were of much greater importance than the less-covered household sphere in which skis were most widely used.

The information obtained by A.V. Artsikhovskiy about military raids of Russian skiers in the 15th–16th centuries is almost exhaustive: the 1444 raid of the Great Prince Vasily Vasilyevich against the Tatars; the 1499 ski-raid against the Yugra tribes; the 1535 ski-raid against Lithuania and, finally, the raid from the Sviyaga fortress which was carried out with special skis called "rty" ("na rtakh").⁴ The earliest pictures of skiers in ancient Russ date back to the 15th century – a hunting scene in the life of Boris and Gleb with miniatures and a representation of the 1444 military ski-raid (two miniatures depicting military skiers).⁵ A.V. Artsikhovskiy considers the skis in the two miniatures to be of a sliding type, both skis being of the same length. The skiers in the miniatures do not use ski poles as they are armed with lances. We deliberately stress the fact that both skis are of the same length, which was not always the case, and the length of the right and left skis is of importance.

Tactical use of skiers for military purposes was a longstanding tradition in ancient Russ. In 1535 a great Russian array including those who "... are on skis. . . went to Lithuania".⁶ Skiers could deliver a message quickly and without being easily spotted (in 1610 "two men on skis came to Pskov from Porkhov with a deed. . .").⁷ They could undertake a sudden and unresisted assault

against the enemy (in 1633 "the tsar's great army and infantry men on skis" made some sorties from Smolensk besieged by Lithuanians".⁸ In 1661 Russian *voivodes* when making plans "how to destroy Lithuanians" decided "to use infantry men on skis as soon as there is hardcrusted snow".⁹ As a result the Russian troops were capable of quick manoeuvring whereas the enemy was not able to deploy large military units: ". . . hussars cannot attack infantry men when there is deep or hardcrusted snow". Russian military skiers inspired fear in the Lithuanians who even suggested that a truce should be concluded for the winter period: ". . . they fear the tsar's men, but most of all they are afraid of skiers. . . cannot stand against them and there is no possibility of destroying them".¹⁰

In 1614 a *ukase* demanded that "some infantry men on skis with bows and other kinds of ammunition"¹¹ should be sent to Moscow from Vyehgda and Sol-Vyehegodskaya. Alongside with the formation of ski units there was a kind of ski tax on Russian fortresses – in 1655 "people of all ranks and grades" had to supply a pair of skis from each household.¹²

The intensive colonization of the Transural lands especially since the end of the 16th century called for greater use and development of traditional means of transport that could be effective in hunting and military raids in the winter periods in the unmapped outlying regions of Siberia (fig. 1).

In December of 1582 during the well-known raid of the Cossack chief Yermak part of his army was sent to the Perm estate of the Stroganovs for a supply of provisions and ammunition. They went along "a wolf path using sledges (nartys), deer and skis".¹³ In winter of 1594 a 274-strong unit of military skiers led by Boris Domozhirov left the Tar jail in search of Khan Kuchuk's hideaway. In the spring of 1595 another raid was made. This time 480 military skiers started for the Barabin steppe but the April thaw forced them to return: "there came a great thaw and it was impossible to ski".¹⁴ Russian military units repeatedly "carried out various tasks both in summer and in winter, on horseback, on board a ship and also on skis".¹⁵ In 1600 a supply of provisions and a unit of Cossacks were sent on board several ships to the Mangasea region. They were led by Prince Miron Shakhovskoy and Danila Khripunov. After a shipwreck with the onset of cold and snow the unit continued its way under winter conditions: the deer carried the load but "the men skied all the way as far as Mangasea".

* a term used for "skis" in ancient Russ, "lyzhi" being of Slavonic origin whereas "rty" was taken from the Finno-Ugrian languages.



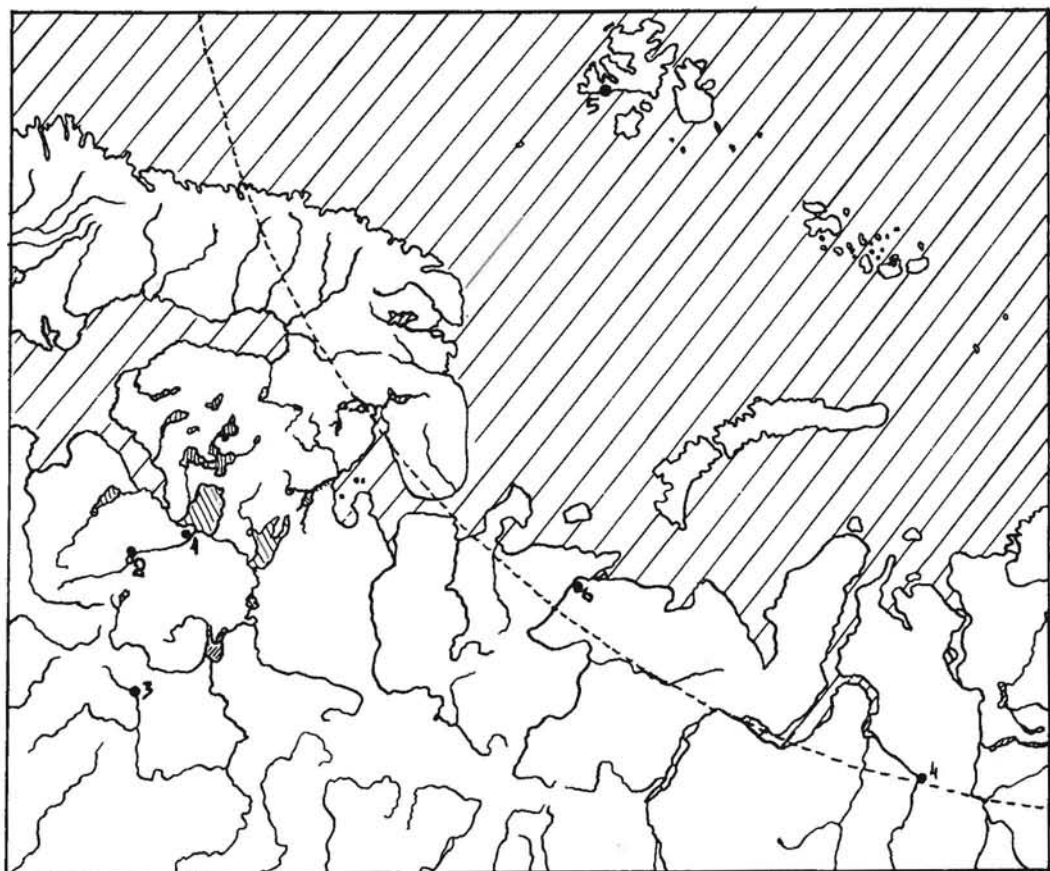
Fig. 1. Means of transport in Siberia in the 17th century. A miniature from short Siberian (Kungur) chronicle.

The tactics of unobserved raids on skis proved its value in Siberia where military operations were carried out throughout the 17th century and in the beginning of the 18th century – "because of deep snow, horse raids were impossible . . . and they had to use skis".¹⁷

We find a colorful description of the hardships of Russian skiers in a petition sent to the tsar by Matvei Krovkov, the former *voivode* from Yakutsk, who had participated in many raids. He wrote: "I had to endure famine and cooked the flesh of fallen horses and also the under-ski lining and my leather boots".¹⁸

During the 16th–17th centuries, the time of great discoveries in the North and in North-Eastern Asia, the cultural and territorial isolation of the small peoples of North Siberia was broken. Russian migrants influenced the local population and were influenced by them in turn. It is but natural that during this process more perfect means of transport, more suitable for local conditions were borrowed.

Information on the use of skis by the peoples of Siberia in the 17th century is very limited. The general classification of skis suggested by V.A. Antrina does not indicate the period in which



Sites mentioned in the text: 1 – Old Ladoga, 8–9th c.; 2 – Novgorod, 13th–14th c.; 3 – Moscow, 16th c.; 4 – Mangasea, 17th c.; 5 – Spitsbergen, 18th c.; 6 – Pystozersk, 19th c.

a specific type of ski (broad short skis or sliding skis) came into use among the peoples of Siberia. Did the Russian skis influence changes of construction in skis used by the peoples of the Arctic regions of Siberia? Or was it vice versa? It is hard to give an exhaustive answer to the question as the problem has not been sufficiently covered in the ethnographic literature. However, ethnographers have to admit the interesting fact of the wide use of the "Russian type" skis by the local tribes of West Siberia, Yakutia and the Kamchatka area.²⁰

The examples that have been given (though far from exhaustive) testify to the fact that skis in ancient Russia were in wide use and represent a whole sphere of material culture connected with various fields of social and economic activities, but not accidental or "curious" facts.

That is why finds of skis and their description

according to their type are of special interest to us.

In 1950 remnants of skis were found in the lower layer (the E horizon) of the ancient stronghold in Old Ladoga.²¹

Ski no. 1 (LS-21018). The length of the ski with the tip (the end is slightly broken) is 181.5 cm; its overall length may have been about 200 cm, the width in the middle part is 13 cm, in the forward and back parts – 12.5 cm; the ski board itself is 0.7 cm thick, fig. 2:1. The forward part ends with a figured tip, the back part is gradually narrowed. The ski has a foot plate which is 36 cm long and 7 cm wide. Inside the plate there is a slot for bindings. The upper part of the ski is ornamented with 8 lines of shallow grooves which cross at the tip and at the tail or end of the ski. The under part is of great interest because of two lengthwise grooves which interlock at the

tip and tail of the ski. The grooves testify to the fact that the ski under study is the so-called "golitsa", i.e. a ski without a fur-covered sole. Ski no. 1 could supposedly have had as its pair a shorter ski for giving a good push while skiing. The ski was found in the "E" horizon which dendrochronological analysis dates to 750–830 (A.D.).²²

The drawings of ski no. 2 were made right after it was found;²³ now it is poorly preserved (fig. 2:2). The length of the ski with the tip is 178.8 cm; the width in the forward part is 13 cm; the width of the back part is 11 cm, the ski board is 0.7 cm thick. The forward part of the ski is tapered and ends in a narrow tip; the back part is gradually narrowed and ends in a rounded tail. The ski has a distinctly raised foot plate the length of which is 29 cm; the width is 5.8 cm, the height (above the upper surface of the ski board) is 1 cm.²⁴ Inside the foot plate there is a rectangular slot for straps (the size of the slot is 4.4 × 0.6 cm). The upper part of the ski is covered with lengthwise grooves. A small part of the foot plate is decorated with carved triangular ornament. Along the perimeter of the ski board there are openings for fastening the fur lining (called "podvoloka") to the under side of the ski. That is why there was no guiding groove on it. The ski was found in the passage of a large dwelling complex in the "E" layer dating back to 840–850.

Thus, chronologically the Ladoga skis can be dated back to the period between 750 A.D. to 850 A.D. and are represented by two types:

1) the ski without an underside fur lining (the so-called "golitsa").

2) the ski with an underside fur lining (the latter is called "podvoloka").

However, the resemblance of their upper-part ornaments decorated with lines makes them very similar. They may be considered to belong to the same cultural tradition. The linear type ornament relates the Ladoga finds closely to a large group of ancient finds from the territories close to the Gulf of Bothnia.²⁵

There are some doubts about the Slavonic origin of the Old Ladoga cultural layer dating back to the period before the 10th century.²⁶ During the last few years, however, researchers, taking into account the "international" aspect of Ladoga in the 8th–9th centuries, are more and more inclined to attribute its coming into existence to the fact of the Lower Volkhov area being inhabited by the Slavs.²⁷

Skis similar to those found in Old Ladoga have been found at two sites of the Karelian

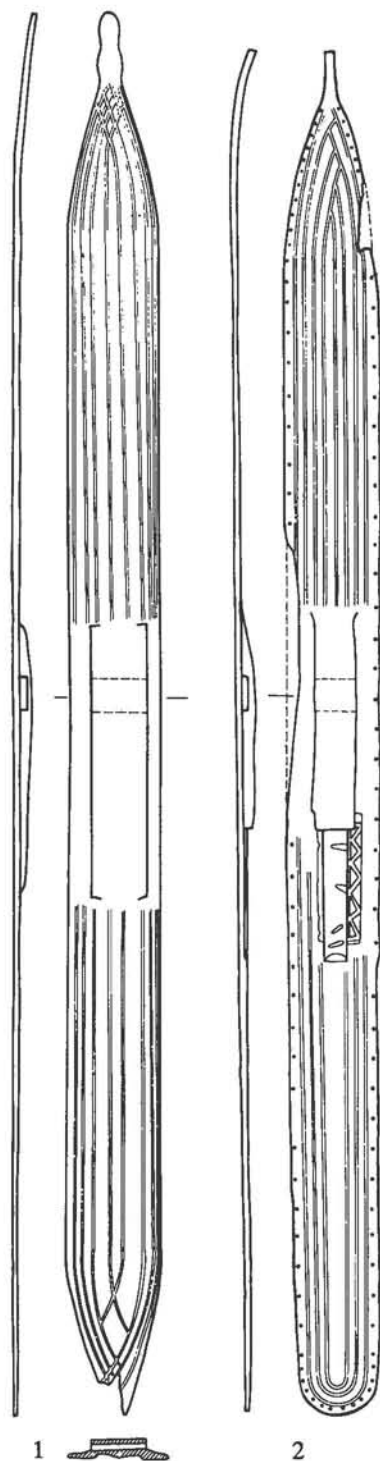


Fig. 2. Skis from Old Ladoga excavations
1. Ski of 750–830 y.
2. Ski of 840–850 y.

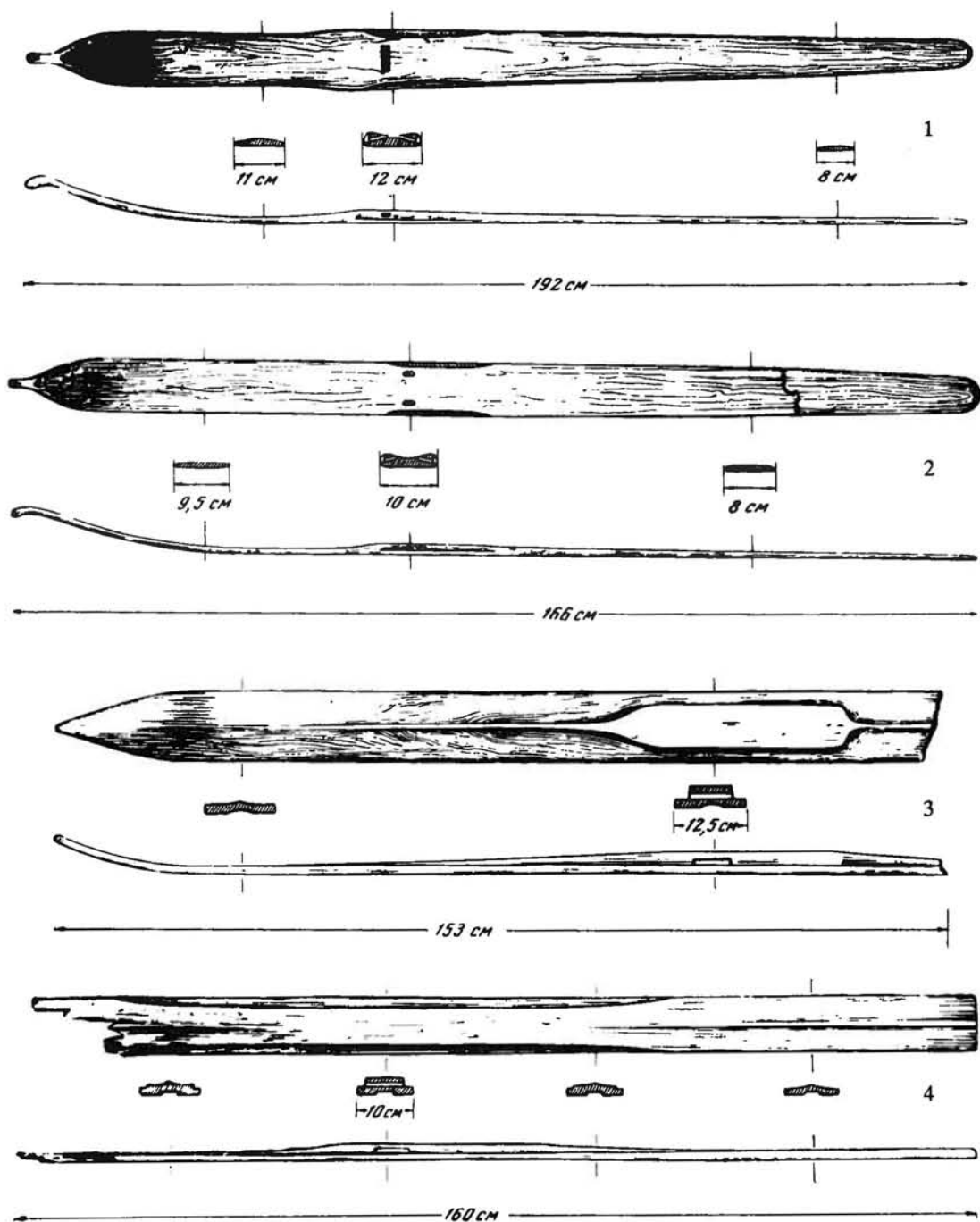


Fig. 3. Skis from Novgorod Velikiy excavations. The 13th–14th centuries.
 1–2. Type I skis
 3–4. Type II skis.

Isthmus.²⁸ Their length is up to 2 m; the width is from 9.5 to 13.3 cm. The skiboard is up to 3 cm thick. The upper part of the skis is also covered with linear ornament (on one of the skis it is composed of 6 lines), the underside of the skis has two guiding grooves. The skis have a raised footplate. Finnish scholars date these finds to the 10th–12th centuries, calling them the "Karelian type".²⁹ This conclusion can be accepted not as an ethnic but rather as a regional definition of the ski type which was in use in the territory from the coast of the Gulf of Finland up to the areas adjoining Lake Ladoga. We maintain that the Ladoga finds dating back to the 8th–9th centuries are very similar in their ornaments to the so-called Bothnian type.³⁰ B.A. Kolchin was mistaken when he wrote in 1968 that before the Novgorod finds Russian skis had been unknown in archaeology.³¹ We are of the opinion that it is the Ladoga finds that open up the history of Russian ancient skis.

The Novgorod finds are represented by two types of sliding skis. In Type I the foot plate is right on the upper side of the ski and is trimmed at the sides by two oval edges which are slightly raised; the slots for the toe straps are inside the ski board and pass through the raised edges (fig. 3:1, 2).³² The length of the skis is 166–192 cm, there being no guiding groove on the under-side of the skis. Both skis of this type were found at the Nereva excavation site in the 13th century layer.

In Type II the foot plate is slightly raised above the upper surface of the ski; at the end of the foot plate there is a rectangular slot for the strap and on the underside of the ski there is a guiding groove, fig. 3:3, 4. Skis of this type were also found at the Nereva excavation site, but in the layer of the 14th century.³³ It is interesting that both skis, of Type II that were found have foot plates of different design. In one of the finds the foot plate begins and ends in a long narrow rib passing lengthwise right in the middle of the ski board. The other ski has a foot plate but slightly noticeable at the end of the ski board is also a rib which is not high.

It must be underlined that the chronological difference of the two types does not testify to a process of evolution at the time. The difference should be considered rather as functional. The Type II skis are racing ones which is confirmed by the streamlined form of the foot plate approximately in the middle part of the ski and by the guiding groove on the underside of the ski. The Type I skis are slower, the foot plate is moved forward from the middle part of the ski

board. The skier could not gather momentum as he had to pull a heavy fur-lined ski.

One should be very careful in making any conclusions about the finds of Russian skis of the 15th–16th centuries. Only a fragment of a ski from an early 16th century cultural layer has been found in Moscow (the author of the find M.G. Rabinowich considers the ski to be of a sliding type).³⁴ The fragment has a length of 60 cm and a width of 12.5 cm.

In the miniature (fig. 4) illustrating Yermak's raid in 1582 one can see wide skis of the same length; the forward end of the skis is raised upward with a small ballshaped tip. In each hand the skiers have a pole fitted with a ring (it looks like a modern one and is possibly made of wood and interlaced with leather straps). Ski bindings can be clearly seen; they are of simple type – a small strap ties the toe part of the boots.

We owe most of the Siberian finds to the work of the Mangasea expedition. The Mangasea collection of skis dates back to 1600–1650 and is the most significant of all found in ancient Russian fortresses. Its historical and cultural importance is hard to overestimate – the skis are of great value not only for the study of the cultural history of the Russian population of Siberia, its economic structure and economic activity, but also for the cultural history of all of Moscow Russ.³⁵ They supply us with the most valuable data for the study of different types of ancient Russian skis and for defining the main areas where specific types were in use.

All the Mangasea skis were found in the process of studying both the Kremlin and the settlement. Chronologically they seem to continue the development of the main types of Russian sliding skis of the 11th–16th centuries.

All the skis that were found are of a sliding type. They are of different length, the thickness and the width of the ski board are also different as is the quality of manufacture. It is not always possible to define whether the under-side of the ski was furlined or was a "golitsa", i.e. without a fur-lining. For this reason the main principle of classification is the design of the foot plate, i.e. the part of the ski board where ski bindings used to be.

Type I skis. The skis of this type are characterized by a highly raised foot space. Inside the foot plate there are openings which are oval or triangular in cross-section – these were slots for the ski traps. All in all, 18 intact ski boards and several fragments were found. It is obvious, though, that the skis with a raised foot plate are



Fig. 4. Yermak's fighting squad on skis with "nartys". The 1582 raid. A miniature from Short Siberian (Kungur) chronicle.

not all of the same design, but can be subdivided into two groups (I-A and I-B).

Group I-A includes two almost intact ski boards (table) and some fragments, fig. 5. The ski boards are not very long (the overall length is not more than 150–160 cm and a considerable width – 17 cm to 22 cm). The thickness of the foot space is inconsiderable – 0,2 to 0,4 cm. The instep with the skis of the first type has a highly raised foot plate (the space on which the skier's foot stood was called "podlaz").³⁶ In the base of the foot plate there are two slots – one rather small and almost oval, the other one is wider, rectangular in cross section and intended for the ski straps. Of special interest is the ski (fig. 5:5) which has small indentations along the edge of the ski board; these dents are traces of affixing a fur lining (called "podvoloka") to the underside of the ski.

It is interesting that one of the two skis of similar design has the traces of the "podvoloka" but the other has not. It is quite possible that one of them is the so-called "golitsa", i.e., a ski without a fur underside lining, but it is also possible that alongside with pinning the fur lining to the underside they also used to glue the fur lin-

ing or bind it with leather straps – traces of this kind are practically unnoticeable.³⁷

The fact that draws our attention in some of the skis is that on the upper surface of the foot plate one can see several big indentations filled with small wooden dowels (fig. 5:2, 3). The indentations are thoroughly made with a drill and accurately filled with dowels. The purpose of it can be accounted for by two reasons – first, the dowels were used for fixing birch bark paddings under the skier's foot, and second, the raised foot plate with a narrow base was not solid enough and had to be made stronger. Wooden pins or dowels were driven through the foot plate which provided on additional fastening of it to the ski board. The location of the foot plate is worth mention; it is closer to the tail of the ski.

But the raised foot plates of the skis of the type described above were not yet solid enough. The additional affixing of the foot plates with wooden pins or dowels did not prevent them from breaking. Material evidence of this consists of numerous fragments of foot plates that were broken in ancient times. Three fragments of Type I-A skis were found – they are high and all of them have indentations filled with dowels

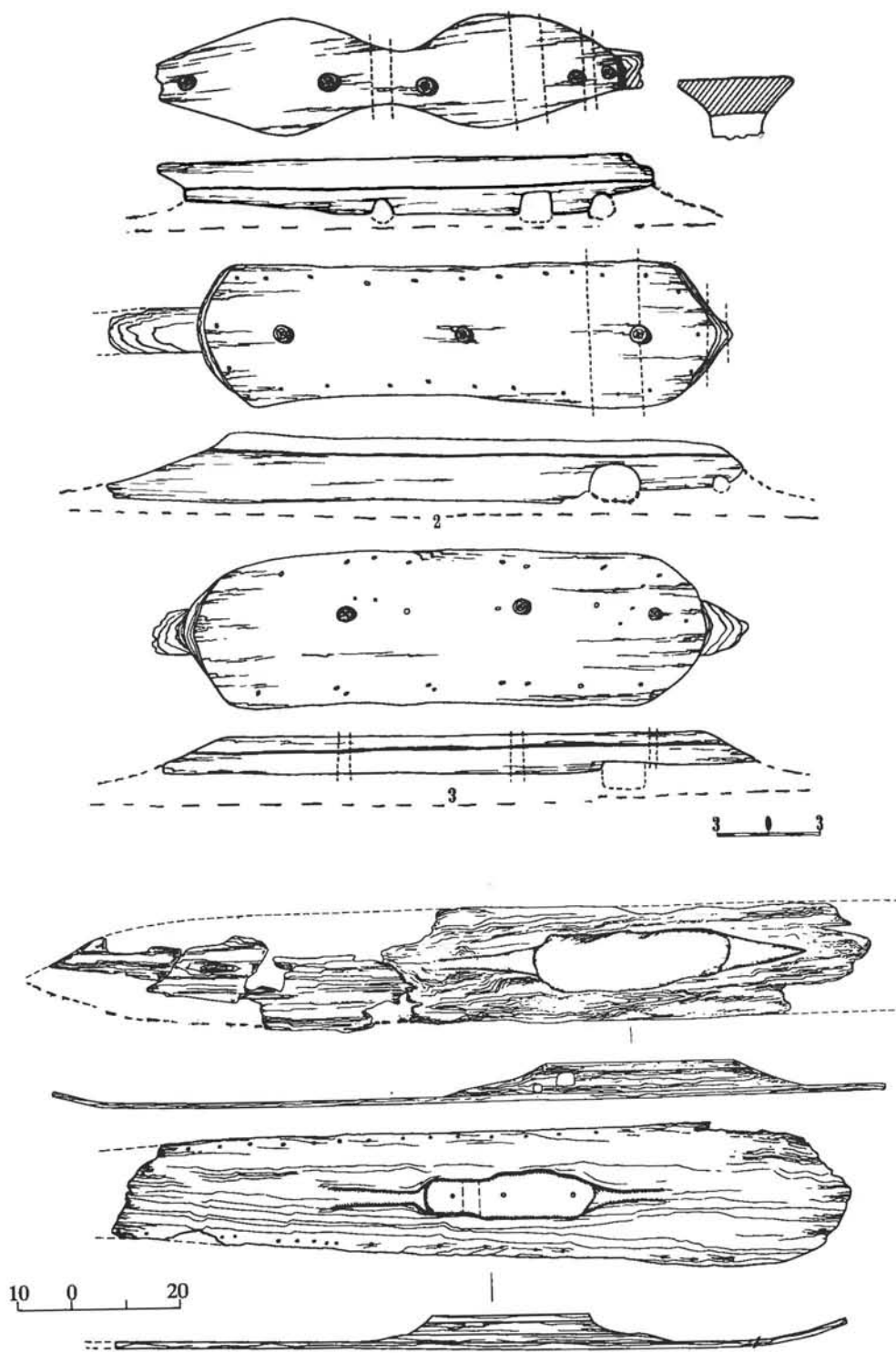


Fig. 5. Type I Mangasea skis.
 1-3. with broken foot plates
 4. "golitsa"
 5. a ski with "podvoloka" (fur lining)



Fig. 6. Fragment of Type I-A Mangasea ski.

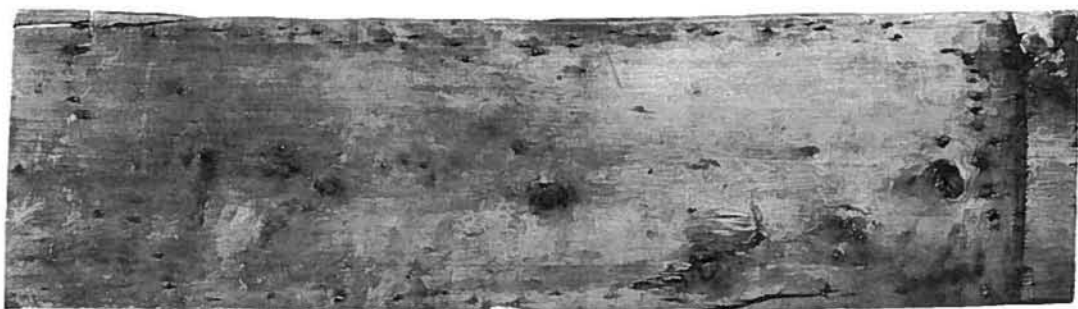
or pins (figs. 5:1, 2, 3; 6; 7) seen from the underside the foot plate which had broken off from the ski board still has some traces of indentations for fastening the ski-bindings; some foot plates have small indentations left from the birch bark padding. Especially graceful is a figured foot plate (fig. 5:1) – in the middle part it is very narrow while the tail part and the front end are wider. The foot plate broke off from the ski board although it had been fixed with four pins. On the upper side was a birch bark padding, also figured. Although the ski board was thin in the Type I skis, the skier could not run fast because



Fig. 7. Foot plate of Type I-A Mangasea ski.

of the raised foot plate (besides one should not forget that the ski board was fur-lined).

Type I-B. This group includes more massive long skis with a large foot plate which was long and wide but not raised. The skis of this type include both fur-lined skis and the so-called "golitsas", i.e. skis with no fur lining. All in all, 10 intact or almost intact skis have been found, along with several fragments.



1



2

Fig. 8. Fragment of I-B Mangasea ski.
1. a fragment of the sliding surface
2. a foot plate.

Ski no. 1. The ski was found during the excavations of the coastal part of the settlement and dates back to the first quarter of the 17th century (fig. 8). The ski board is long (the length: 196 cm; width: 16.7 cm) and massive. The tip of the ski is roughly pointed and the tail is chopped off in a slipshod manner. The ski-maker from Mangasea had not chosen a very good piece of wood – it is very knotty. The foot plate is made in the same manner as the ski board itself – massive and heavy, its mid-part is moved a little from the centre to the front end. In the front part of the foot plate two openings were drilled for the straps; the first one is small and round and the second one is rectangular. On the upper side of the ski one can notice numerous small holes making a kind of edge for the foot plate – these are traces of the affixing fur lining. A transversal groove can be noted in the mid-part of the underside of the ski. To the front end of it the ski board is somewhat thicker whereas to the back end the ski becomes thinner, and is hewn. Thus the ski was a combined one – the greater part of the sliding surface was not fur-lined (i.e. a "golitsa") while the underside of the foot plate was. This rather original. The fur covered the part of the ski which carried most of the skier's

weight. The ski, only partly fur-lined, was much lighter and at the same time, it gave the skier a possibility to overcome steep slopes and did not slow the skier much in flat terrain or skiing downhill.

Another ski, some fragments of which have been found, might have a similar construction. A foot plate with only a small part of the ski board was preserved. It may be assumed that the ski was broken in ancient times and the fragment that was found was chopped off so that it could be used later (fig. 9).

Ski no. 2. The ski was found together with no. 1 but it is not its pair (fig. 10, 11:1). The length of the ski is 182.5 cm, and the width is 17 cm, the tip of the ski is smoothly sharpened, the tail is of a triangular shape. The ski board is thoroughly worked, the foot plate is not highly raised. In its lower part there are two openings – an oval and a quadrangular one.

What makes this find especially valuable is the fact that the ski-binding is well preserved (fig. 10). The binding consists of a bent-wood plate put through a quadrangular opening in the footplate; it is fastened with the help of a small leather braid sewn up along the edges. These are the first ski-bindings of an ancient Russian skier



found in excavations. The choice of the material for the bindings, i.e. wood, can be accounted for by the simplicity of its making and its practicality – such ski-bindings would never get soaked with snow nor would they freeze – they are always ready for use which cannot be said about a leather one.

Ski no 3. The ski is not intact – it was partly damaged by fire (the burnt parts can be clearly seen) after which the skier must have chopped off its tail (fig. 11:2). The ski was found during the excavations of the shore area of the settlement and dates back to the first quarter of the 17th century.

The part of the ski which is preserved has a length of 120 cm (the original length being about 2 m) and a width of 16 cm. The foot plate which is only partly preserved had a shape which is already familiar from the previous finds. In its bottom part there were two slots – a round one and a quadrangular one. Of special interest is the tip of the ski – it is figured at the end.

Ski no. 4. The ski is intact (fig. 11:3). It was found in one of the investigated sites in the shore area of the settlement and may be dated back to 1610–1620. The ski board is not very long (the length is 152 cm) but it is wide, especially in the front part (up to 20 cm). The tip is sharpened and the tail is of a triangular shape. The foot plate is not highly raised, it is long and somewhat repeats the shape of a boot sole – it is wider at the toe and narrower at the heel. In the lower part of the foot plate there are two openings – two small rounded ones and a quadrangular one.

Ski no. 5. The ski board is 207.5 cm in length and 16.5 cm wide. The tip is sharpened, the tail part is figured and has grooves at the sides (fig. 11:4). The foot plate repeats the shape of a boot sole with two openings – a round one and a

Fig. 9. Fragment of I-B Mangasea type. The foot plate was chopped off the ski in ancient times.

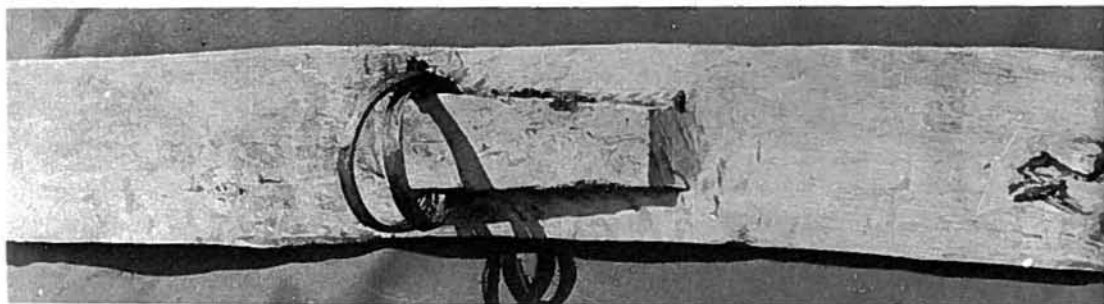


Fig. 10. Mangasea ski of Type I-B. Fragment of the whole ski with remnants of ski bindings of bast and leather.

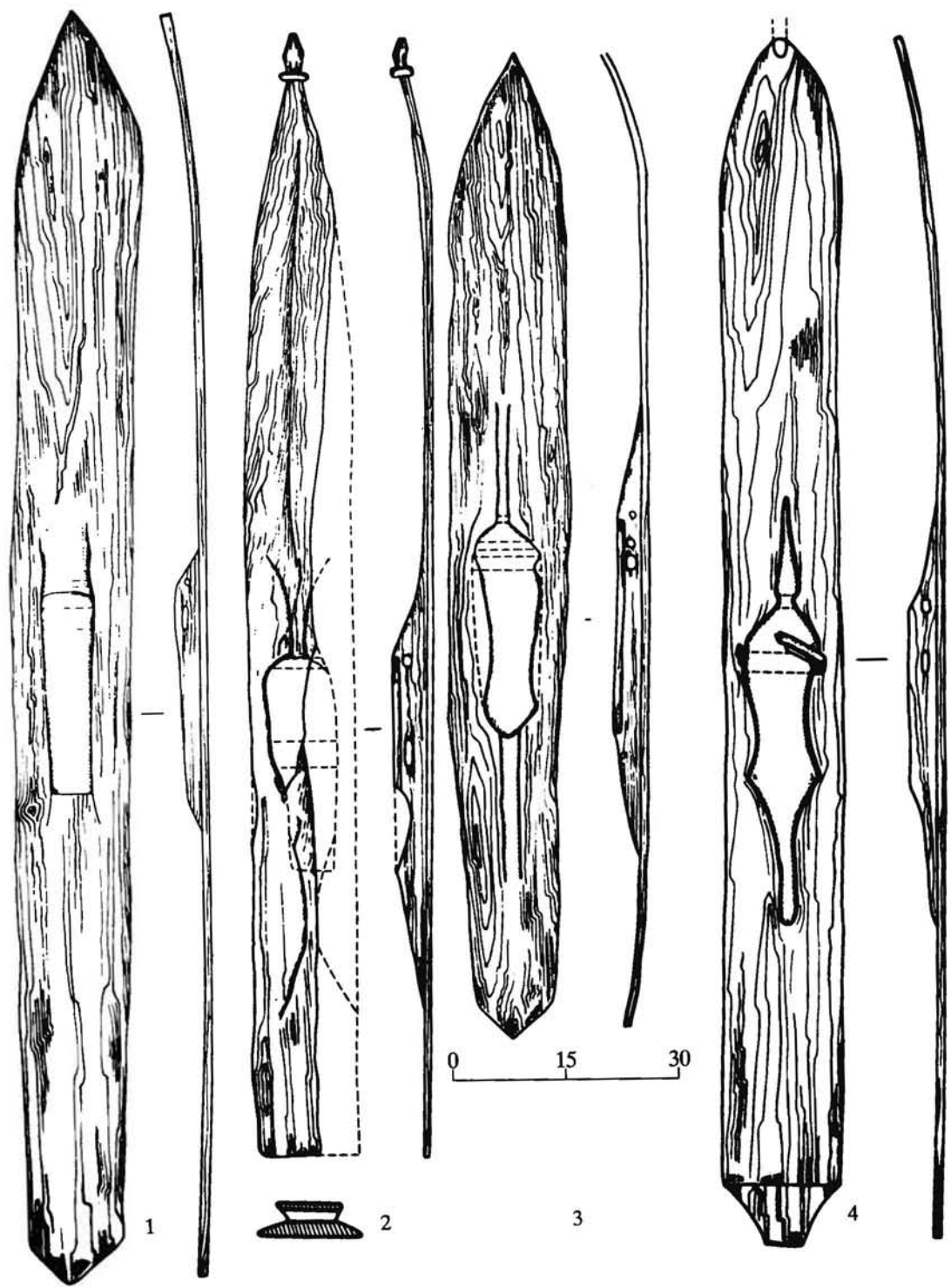


Fig. 11. Mangasea skis of Type I-B.

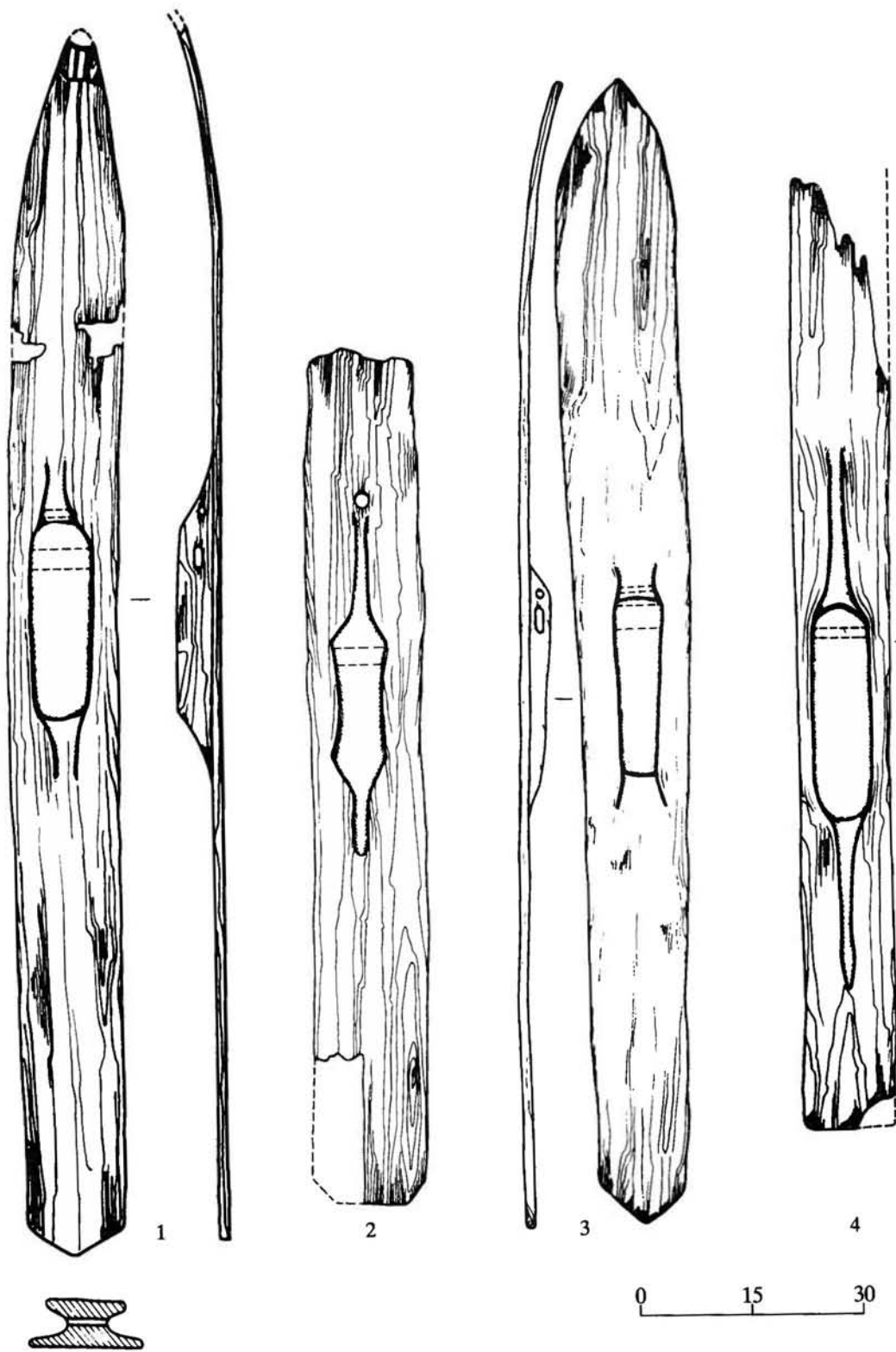


Fig. 12. Mangasea skis of Type I-B.

quadrangular one. In the latter remnants of wooden ski-bindings (similar to those of No. 2) were preserved.

Ski no. 6. Found in the passage of the *voivode's* farmstead. It is not a pair to the previous one – it differs both in its length and its configuration (fig. 12:1). The length of the ski is 184 cm; three or four centimetres of the tip, which may have been figured, are missing; the width of the ski board is 17 cm. The tail of the ski is of triangular shape. The foot plate is long, it is of simple shape with two openings.

Ski no. 7. Slightly more than half the ski is preserved; its tail part is trapeziform. The foot plate has only one opening which is quadrangular (fig. 12:2).

Ski no. 8. The ski board is intact, its length is 216 cm, and its width is 15 cm. The foot plate is not highly raised and there are two openings in it – the first going from the toe, the second is of an oblong shape. The tip of the ski is sharpened, the tail part is cut at a right-angle. To the front and to the back of the footplate there are two "ribs" gradually coming down to the ski board.

Ski no. 9. The ski is 171 cm long, its width is 15 cm (fig. 12:3). The ski is intact. The tip is sharpened and the tail part is of triangular shape. The footplate is not highly raised; in its front part there are two openings – a round one and an oval one.

Ski no. 10. The ski board is only partly preserved (fig. 12:4). The length of this part is 144 cm, the width of the ski board is 145 cm. The foot plate is massive, in its front part there is a quadrangular opening. There are two long "ribs" running from the ends of the foot plate.

Some fragments of the foot plates found in the cultural layer of the settlement belong to the sliding-type skis described above. They are highly raised, their shape may or may not be figured, and in some of them there are two openings.

Besides the sliding-type skis with a highly-raised foot plate excavations in Mangasea also revealed sliding skis, the appearance of which differs greatly from the skis described above. The main difference is in the construction, there being no highly raised foot plate. The slots for ski-bindings are in the ski board on which the skier put his foot. Several skis of the type were found in Mangasea – 7 of them are almost intact – and also several fragments. The skis without a highly raised foot plate can be divided into two groups (II-A and II-B).

Group II-A. This group included the ski

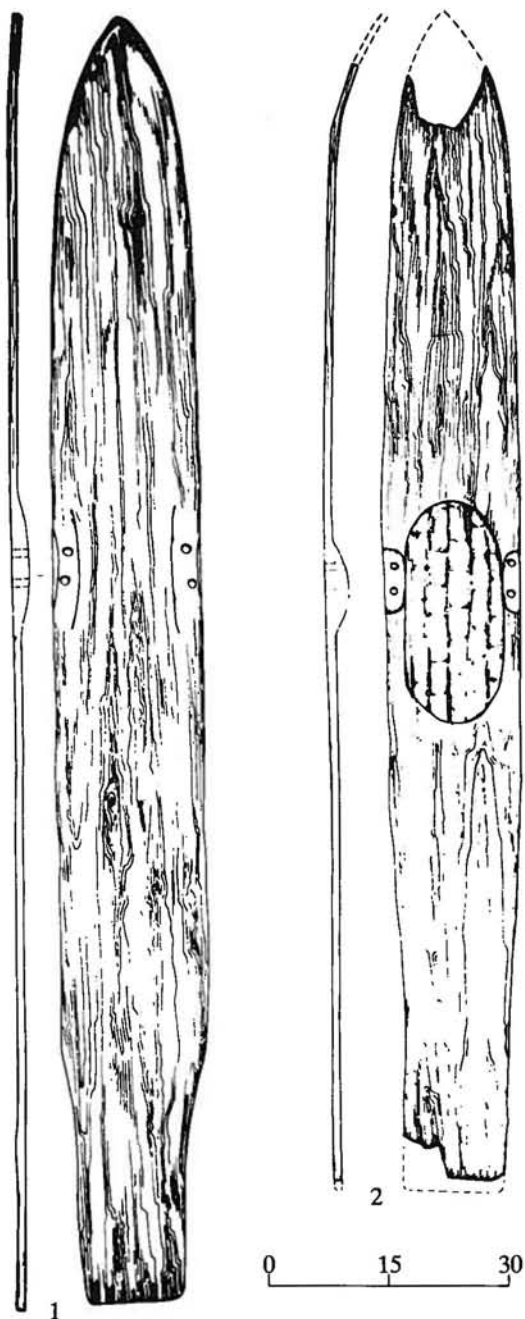


Fig. 13. Mangasea skis of Type II-A.

boards with a footspace trimmed with small edges on both sides.³⁸ In the edges there were vertical slots for ski-bindings.

Ski no 1. The ski (fig. 13:1) was found during the excavations of the administrative complex in the coastal part of the settlement. It is a long

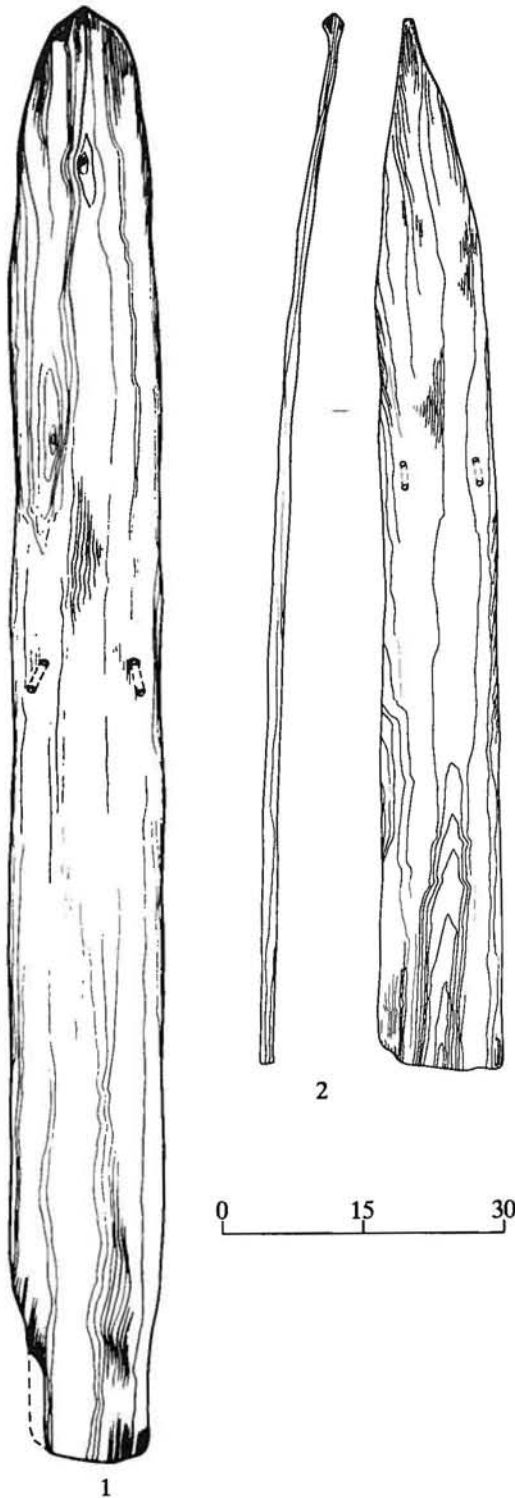


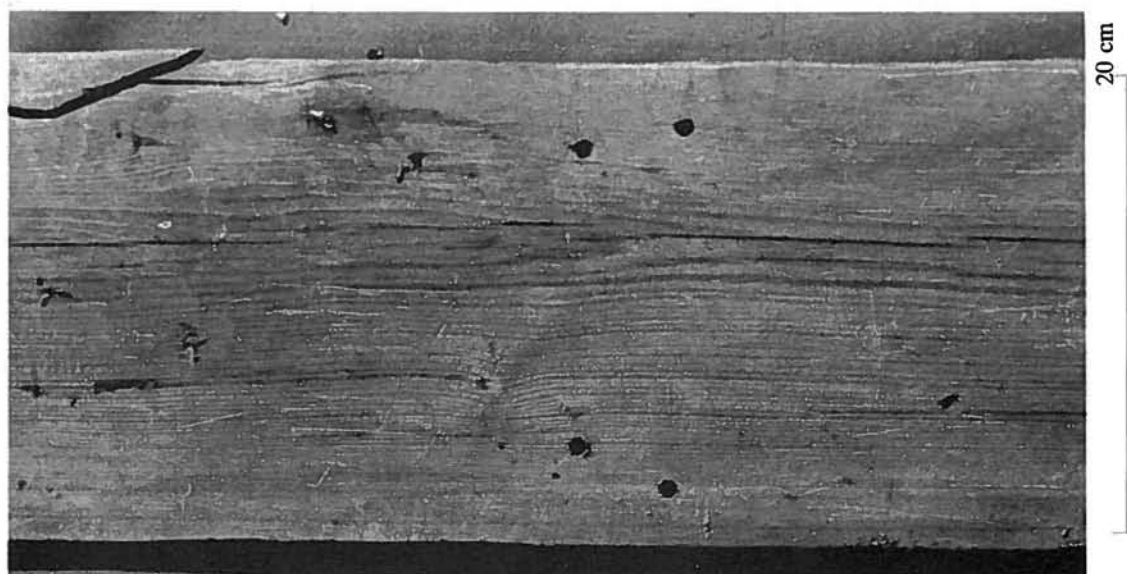
Fig. 14. Mangasea skis of Type II-B.

(230.5 cm) massive board (the width of the foot-space is 17.5 cm, the height 0.5 cm, the board slightly thicker near the slots). The tip is sharpened and the tail part is figured. The foot-space is trimmed with two rather low edges. The edges would support the foot of the skier sideways, there being two vertical slots drilled in each of the edges. The slots were made for leather straps. To fasten the straps in the slots wooden pins or dowels were driven in the slots. On the sliding surface of the ski each pair of vertical slots was linked by small grooves. The straps, passing through the "working" surface of the ski, were concealed in the grooves and did not affect the sliding motion. The straps on the underside of the ski did not run across the ski board as they were connected only above the ski. There are no traces of a fur-lining on the underside of the ski but one should bear in mind that the fur-lining may not have been attached with pins but glued.

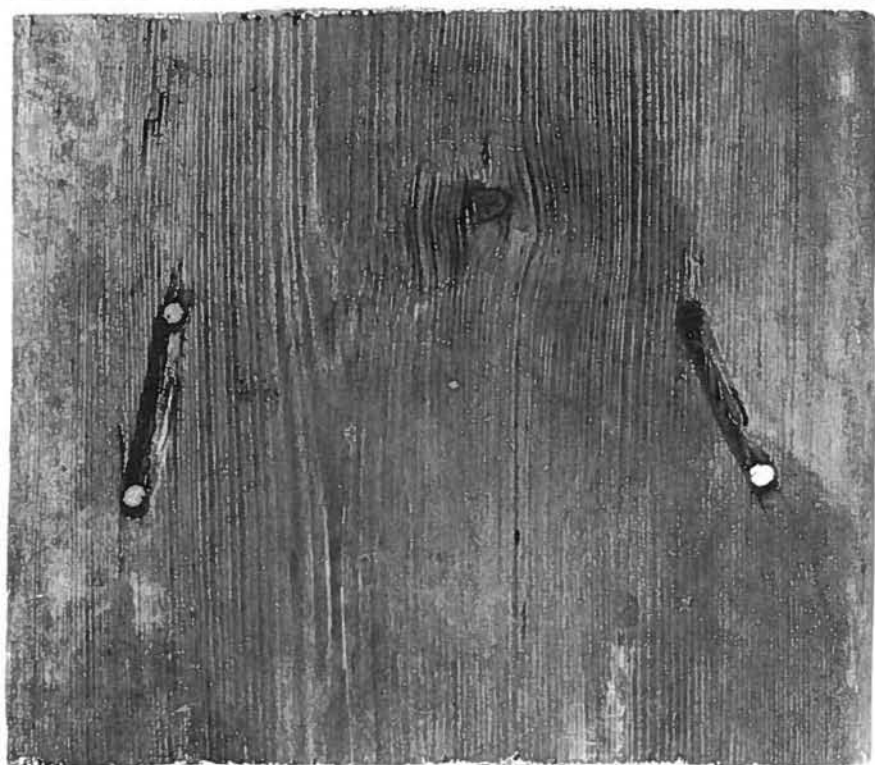
Ski no. 2. The ski is nearly intact and only one small fragments of the tip and the tail are missing (fig. 13:2). The length of the preserved ski board is 144 cm (the original length of ski board could have been 160 cm), the width of the ski board in the front part is 18.8 cm, near the foot space — 15.5 cm (the board is 0.6–1.3 cm thick). The foot space looks very much like No. 1; it is trimmed with two rather low edges. In each of the edges two vertical slots are drilled for the straps. When the ski was in use, the front part of the ski board cracked. The ski owner "repaired" it — for this purpose two shallow openings connected by a shallow groove were drilled in the underside of the ski; the cracked parts were tightened and tied with a leather strap the ends of which were fastened in the drilled openings with wooden dowels. On the foot space of the ski birch bark padding is still preserved. The two-layer birch bark was fastened to the ski surface with thin wooden pins.

Ski no. 3. The length of the ski is not great — 106 cm, the width of the ski boards near the foot space is 13 cm. The tip of the ski is sharpened and the tail is figured and tapered. The foot space is trimmed on both sides with low edges in which two vertical slots were drilled for the ski-straps. The ski in all probability may have belonged to a child.

Ski no. 4. The ski is only partly preserved. The front part of the ski from the foot space to the tip as well as the tail part are missing. The width of the ski board is 16 cm. The footspace is also trimmed by two edges, but what makes this find especially interesting is the location of the two



1



2

Fig. 15. Mangasea skis of Type II-B.

slots for leather straps. In each of the edges there are also two slots but one of them is drilled vertically, whereas the other is inclined does not reach the underside of the ski.

Group II-B. This group of Type II skis includes ski boards the foot space of which has no

supporting edges and the slots for the straps are drilled in the ski board itself.

Ski no. 1. The ski was found in the cultural layer of the coastal part of the settlement (fig. 14:1). The length of the ski is 200 cm and the width of its middle part is 20.5 cm. The tip of the

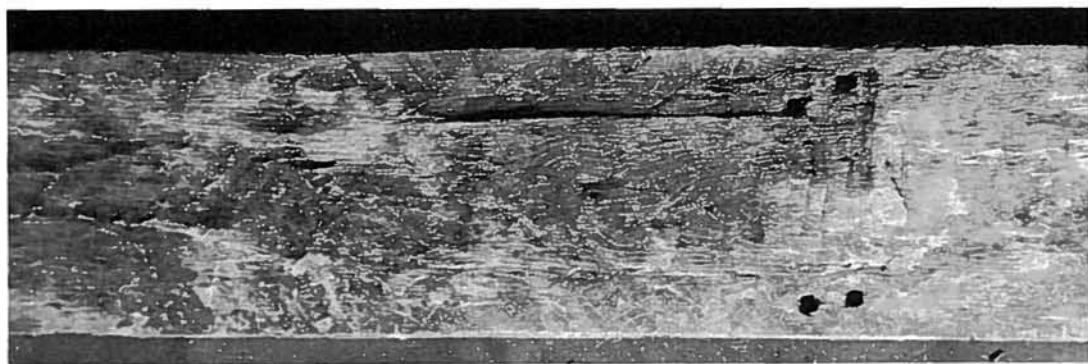


Fig. 16. Mangasea ski of Type II-B.

ski is sharpened, the tail is figured and has lateral cuts. The foot space has no supporting edges, four vertical slots for the straps fastening being located right in the ski board (fig. 15:1). Each slot passes through the ski board, each pair being linked on the underside of the ski by a concealed "countersunk" groove (fig. 15:2).

Ski no. 2. The ski was found when exploring the lower horizon of the voivode complex and dates back to the first quarter of the 17th century. The length of the ski is 181 cm, the width in the middle part is 16 cm. The ski tip is figured and the tail part is rounded. The ski has a low but noticeable footspace. The way of fastening the leather straps is the same as with skis nos. 1-3, i.e. there are two pairs of vertical slots on the sliding surface which are connected by a groove (fig. 16). Both ends of the ski, the front and the back, are slightly turned up. It should be noted that in most of the Mangasea skis the boards are hardly turned up at all. This may be accounted for by the peculiarities of the cultural layer of the Mangasea settlement. The underside of the ski is "weathered" and signs of wear can be clearly seen. We may assume that the ski had no fur lining and was used as a "golitsa".

Ski no. 3. The ski was found in the passage of the lower horizon of the voivode farmstead and dates back to the first quarter of the 17th century. The length of the ski board is not great - 138.5 cm., the width in the middle part is 15 cm (fig. 14:2). The ski tip is slightly turned up and ends in a figured projection. In the ski board there are two vertical slots. No traces of a fur lining can be seen.

Ski no. 4. The ski was found in the coastal part of the settlement. The length of the ski board is 80.5 cm, the width near the foot space is 18 cm (Fig. 17:1). The ski shape is triangular but its side edges are convex. The width of the ski is the

greatest in the place where the footspace is, i.e. in the area which carries most of the skiers's weight. The footspace has three pairs of vertical slots drilled into the ski board itself. On the underside of the ski there is an arrow-shaped groove which may have had something to do with the way the ski board was lined with fur. As the length of the ski was not great, it may have belonged to a child (though it may also to the conclusion that the ski was a sort of a transitional type from a stepping ski to a racing one) (see also fig. 17:2).

A considerable number of skis that were found during the excavations of the Russian fortresses that appeared in the NW Siberia in the early 17th century is proof that skis were of vital importance during the early period of the colonization of the Siberian lands (fig. 18). Skis were an important part in the equipment of the Russian population of Siberia engaged in hunting or in military service. They were in use from the Urals to the Pacific coast. It should be noted that in descriptions of ski marches "narty", i.e. sledges are mentioned. In 1648 soldiers from the Yana River came to the Indigirka River "along the winter ski road with nartys", and we read in their petitions: "by the winter road, on skis, with narty".³⁹ This, however, cannot be interpreted as using sledges pulled by dogs or reindeer. In ski marches for rather considerable distances the sledges used for carrying food and ammunition were pulled by hand. Thus in 1683 during the march from the Krasnogorsk fortress "against the Kirghiz", the Russian warriors went on skis but "pulled their ammunition on sledges".⁴⁰ It was in this way that in December 1582 part of the Yermak fighting squads went along "the wolf road" from the Stroganovs' domain in Perm across the Urals. In all probability, the sledges pulled by hand were rather light and not large,

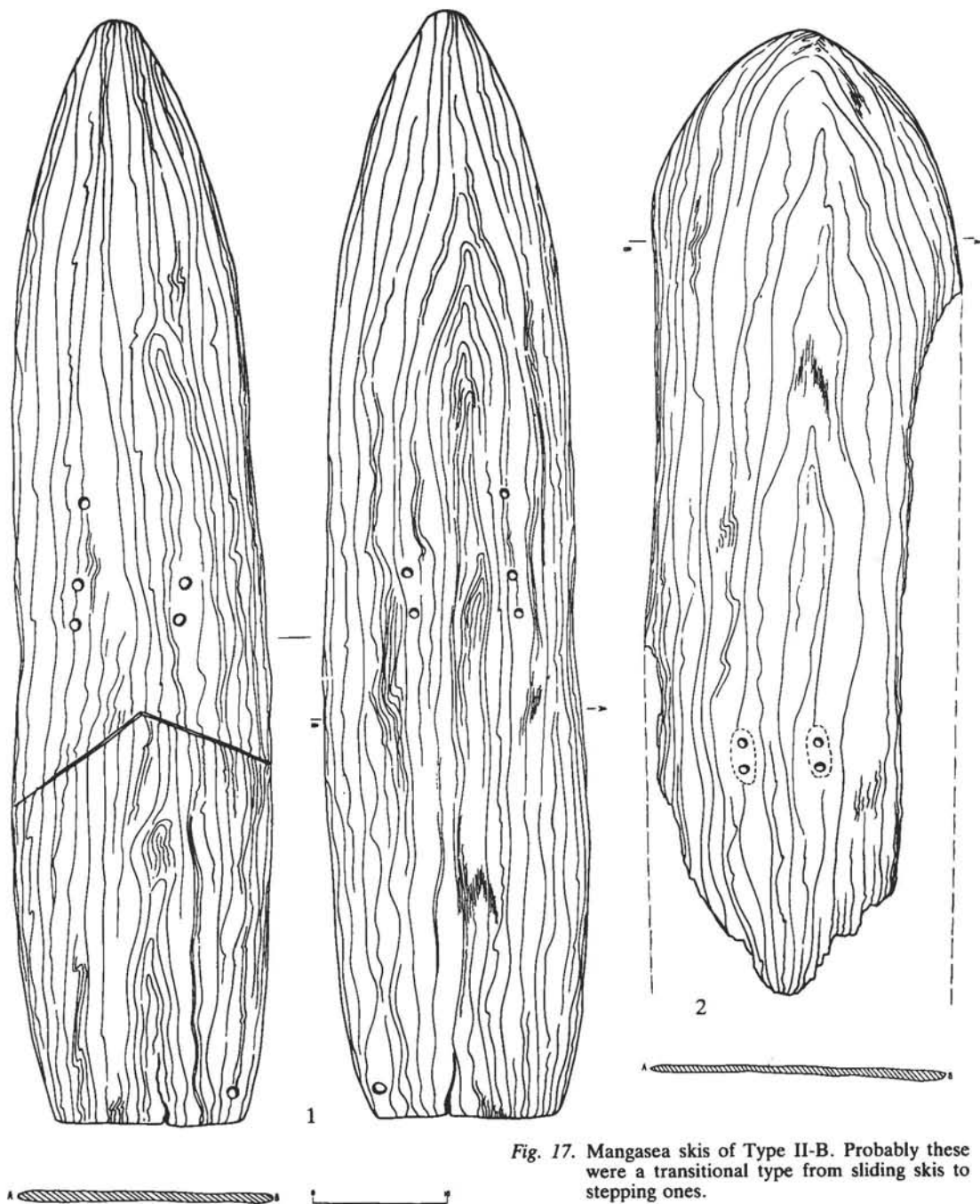


Fig. 17. Mangasea skis of Type II-B. Probably these were a transitional type from sliding skis to stepping ones.

although the Mangasea finds do not contain the material to reproduce their appearance. It is interesting that in the 18th century, according to I. Lepekhin, sledges pulled by hand were in wide use with Voguls during hunting seasons: "They get over deep snow and thick forests on skis and pull their ammunition on special sledges called

nartys".⁴¹ Such sledges (nartys) had a length of 4.24 metres, wide runners and three pairs of vertical stays. A hunter on skis was able to handle this type of sledge with ease — besides a rope attached to it the sledge had a long shaft on one side to make turning easier.

We may be sure as to whether the Mangasea

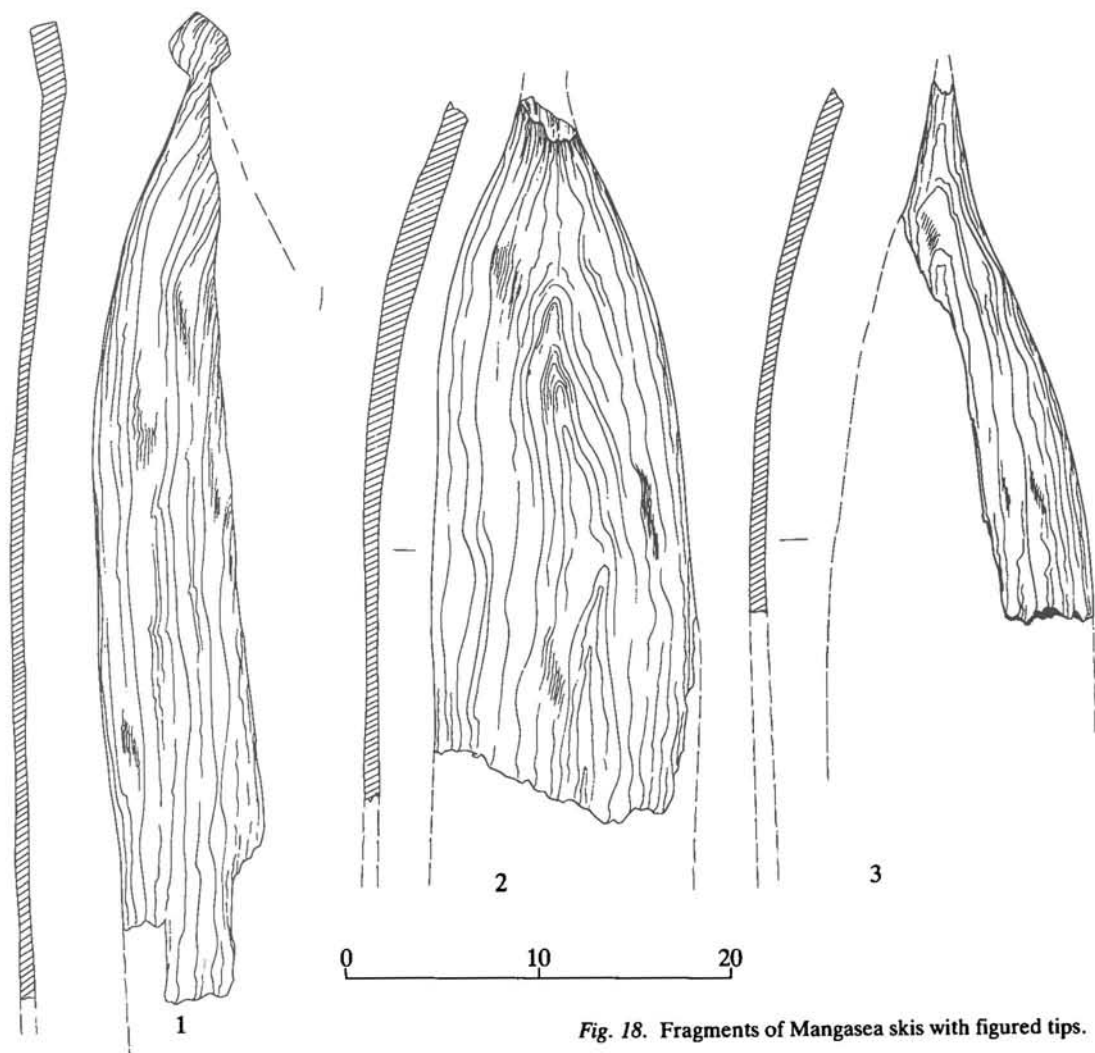


Fig. 18. Fragments of Mangasea skis with figured tips.

skis had a "podvoloka", i.e. a fur lining on the underside of the ski, only in cases where there are traces of its affixing to the ski board. In all other cases it is hard to reach a definite conclusion because a fur lining could either be glued, or fixed with wooden pins or dowels.

The above-mentioned Novgorod skis with a highly raised footspace already had a groove along the sliding surface which steadied the skier. In the case of a groove such skis should be considered "golitsas", i.e. having no fur lining on the underside. Not a single Mangasea ski had a groove on the underside. Ski "podvolokas", i.e. fur linings were salable goods at the Siberian markets in the 17th century. "Ski podvolokas" were brought to Mangasea – in Yeniseysk one could buy ski podvolokas made of glutton and beaver fur. The written sources of the 17th century mention "the ski podvolokas made of

beaver fur"⁴³ of the Tungus.

The Mangasea skis are evidence of the main types of Russian skis being traditional and successional. The skis found at the excavations of Novgorod Velikiy and dating back to the 11th–14th centuries are represented by two types – one with a highly raised foot plate and the other with a footspace located on the upper surface of the ski itself. In fact all the Mangasea skis are of these two types. But there are also some differences. The foot plates in the Novgorod skis are much closer to the front than in the Mangasea skis. Due to this the Mangasea skis had better racing qualities, the skier was able to run at a greater speed, but the quality of manufacture is higher in the Novgorod skis and they were furnished more thoroughly.

It would be very tempting to define the skis with a highly raised foot plate (Type I) as racing

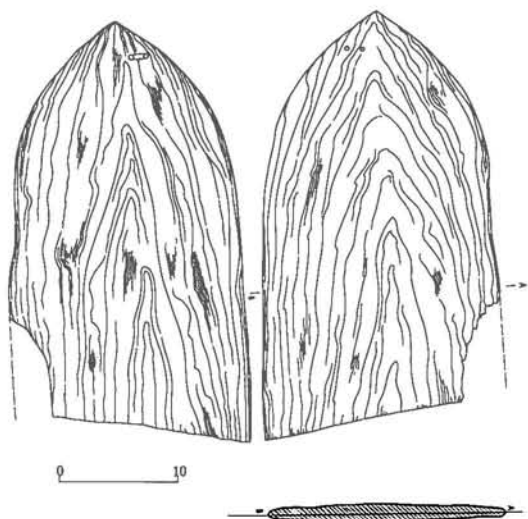


Fig. 19. Fragments of Mangasea ski with opening near the tip.

skis and the skis of Type II as hunting skis. But it is hardly possible to speak of this with certainty. There is no doubt that skiing technique with the two different types had its specific peculiarities.

Skis were no doubt made locally by people who needed them. In Siberia this was usual. For example, in 1645 seventy four soldiers from the Verkholsk Buryat fortress started against the Buryat people who rose in rebellion "on skis and nartys" which they "had made"⁴⁴ previously.

But not all the details of ski construction can be accounted for. It is had, for instance, to explain why in some skis there are three openings (one big rectangular and two round ones) in the highly raised foot plate, whereas some other skis have only two (these openings may have something to do with the way the skis were fastened to the skier's boots). It may be only assumed that the openings in some skis in the very tip and also the figured front end of the ski served for tying up a towline (a sort of reins) intended to free the ski tip from snow, bushes etc. when skiing.

As mentioned above, several lower parts of ski poles were identified among the finds. They are conical. The upper diameter of the cone is 3-4 cm., the lower diameter is 9-11 cm (the lower part of the cone was a "working area upon which the skier was leaning). The cone was hafted on a pole up to 3 cm in diameter (in some cones one can see broken lower parts of poles). V.P. Levashova mentions finding a pole with rings during the excavations of ancient layers in

Pskov⁴⁵ but we were not able to find it in the Pskov collections. Poles, not unlike modern ones, are depicted in some miniatures of the Kungur manuscript. The Russian population of Eastern Europe and Siberia needed skis and this demand resulted in the fact that ski-making in the first half of the 17th century was no longer a monopoly of craftsmen. There appears a specialization of ski-makers supplying the local markets with their products.

Archaeology has only started studying this interesting sphere of material culture of ancient Russ. There is no doubt that further studying of different means of transport including skis will make it possible to see some new features of the Russian household structure and diversity of its forms.

The two main types of racing skis which appeared in the pre-Mongolian period proved to be stable and lasted until the late Middle Ages (they owe their longevity not to traditionality or slow technical progress but to their rational shape which made possible their wide use in different spheres, under various local and weather conditions and for different purposes). All these problems can be solved when and if a considerable number of ancient skis from different regions of the ancient Russian state are available for study.

NOTES

- 1 A.V. Artsikhovskiy. *Lyzhi na Rusi*. AN SSSR // Referaty nauchno-issledovatel'skoi raboty za 1944 g. Otdelenie istorii i filosofii. M.-L., 1945. S. 39. Later this work was revised and enlarged: A.V. Artsikhovskiy. *Lyzhi na Rusi* // Trudy Instituta Etnografii AN SSSR. Novaya Seria, vol. I. M.-L., 1947. SS. 55-64.
- 2 V.N. Zakhoder. *Kaspiyskiy svod svedeniy o Vostochnoi Evrope*, vol. II. M., 1967. S. 65.
- 3 V.N. Zakhoder. *Kaspiyskiy svod* vol. II. S. 67. Abu Khamid's information about skis was used by L. Mongait. See L. Mongait. 12 vek. Puteshestvie v Rossiyu // *Nauka i zhizn*. No. 1, 1965. S. 36 and others.
- 4 A.V. Artsikhovskiy. *Lyzhi na Rusi* // Trudy Instituta Etnografii AN SSSR. S. 60.
- 5 A.V. Artsikhovskiy. *Drevnerusskie miniatury kak istoricheskiy istochnik*. M., 1944. Fig. 21.
- 6 *Polnoye sobranie russkikh letopisei* vol. IV. St. Petersburg. 1848. SS. 299-300.
- 7 id. vol. IV. St. Petersburg, 1849. S. 328.
- 8 *Akty Moskovskogo Gosudarstva (AMG)* vol. I. St. Ptsrb., 1840. S. 457.
- 9 id., vol. III St. Ptsrb., 1901. S. 234.
- 10 id., vol. III. St. Ptsrb., 1901. SS. 298-307.
- 11 S.B. Veselovskiy. *Sem sborov zaprosnykh i pyatynnykh deneg v pervye gody tsarstvovaniya Mikhaila Fedorovicha*. M., 1908. S. 94.

- ¹² Akty Moskovskogo gosudarstva, vol. II St. Ptrsb. 1894. S. 394.
- ¹³ Kratkaya sibirskaya (Kungurskaya) letopys. St. Ptrsb., 1880. S. 84.
- ¹⁴ M.K. Yurasova. Gorod nad Irtyshom. Omsk, 1953 SS. 11–13.
- ¹⁵ Dopolnenie k Aktam Istoricheskym (DAI), vol. VI, St. Ptrsb. 1857. S. 5.
- ¹⁶ G.F. Miller. Istoria Sibiri, vol. I, M.-L., 1937, SS. 394–395.
- ¹⁷ Dopolnenie k Aktam Istoricheskym (DAI), vol. X, St. Ptrsb., 1867. S. 393.
- ¹⁸ N.N. Ogloblin. Obozreniye stolbtsov i knig Sibirskogo prikaza (1592–1759), vol. II. M., 1898. S. 91.
- ¹⁹ V.V. Antropova. Lyzhi narodov Sibiri // Sbornik Muzeya antropologii i etnografii, sb. IV. M.-L., 1953. SS. 7–26.
- ²⁰ id. S. 29.
- ²¹ We take into account only two skis which are rather well preserved and kept in the State Hermitage (State Hermitage, OIPV No. No. LG 2019). See: O.V. Ovsyannikov. Srednevekovye russkie lyzhi // Kratkiye soobshcheniya Instituta Arheologii AN SSSR (KSIA), No. 125, 1971. SS. 35–40; O.V. Ovsyannikov. Lyzhi Severnoi Rusi // Novoye v arheologii SSSR i Finlyandii. L., 1984. SS. 194–198.
- ²² About the dating of Old Ladoga cultural lager see: Kirpichnikov A.N., Lebedev G.S., Bulkin V.A., Dubov I.V., Nazarenko V.A. Russkoskandinavskie svyazi epokhi obrazovania Kievskogo gosudarstva na sovremennom etape arheologicheskogo izucheniya. KSIA, No. 160, 1980. S. 27.
- ²³ Rukopisnyy arkhiv LO IA AN SSSR, f. 35, 1950, d. No. 83, l. 52; d. 51, l. 22.
- ²⁴ It is hard to judge about the character and purpose of the concave behind the footplate using the drawing made on the find location, the ski itself is poorly preserved.
- ²⁵ Itkonen T.I. Muinaissuksia ja jalaksia // SM No. 38–39, 1931–1932. S. 55, kuv. 1; No. 45, 1938. S. 16, kuv. 3, b; Valonen N. Varhaisia lappalais-suomalaisia kosketuksia in Ethnologia Fennica 10, 1980. S. 43, 44. A considerable number of skis found on the territory of Finland made it possible to make a typological and chronological scale of skis' development and to define some regional peculiarities. See: Valonen N. Euran suksilöytö in Satakunta ja satakuntalaisia // III, 1972. S. 256–276; Valonen N. Varhaisia lappalais-suomalaisia kosketuksia // Ethnologia Fennica 10, 1980. S. 22–38; Vilku J. Perinnetieteet ja arkeologia // Karhunhammas 7, 1983. S. 126–130; Valonen N. Nauhaornamentikkaa eränkävijään miljöössä // Suomen Museo, 1970. S. 64–68.
- ²⁶ G.F. Kozukhina. O vremeni poyavleniya ukreplennogo poseleniya v Ladoge // Sovetskaya Arkheologia, 3, 1961. SS. 76–84. G.F. Kozukhina. Etnicheskiy sostav poseleniya drevneishei Ladogi // Tesysi dokladov II nauchnoi konferentsii po istorii, ekonomike, yazyku i literature skandinavskikh stran v Finlyandii. M., 1965. SS. 12–14.
- ²⁷ Ye.A. Ryabinin. Novye otkrytiya v Staroi Ladoge (itogi raskopok na Zemlyanom gorodishche 1973–1975) // Srednevekovaya Ladoga. L. 1985. SS. 74–75.
- ²⁸ T.I. Itkonen. Muinaissuksia. // SM No. 38–39, 1931–1932. S. 55, kuv. 1; No. 45. 1938. S. 16, kuv. 3, 6.
- ²⁹ N. Valonen. Varhaisia lappalais. . . , 43, 44.
- ³⁰ Vilku J. Ancient skis of Central Finland // Fennoscandia archaeologica I, 1984. S. 31–40.
- ³¹ Kolchin B.A. Novgorodskiy drevnosti. Derevyannyye izdeliya. Svod Arheologicheskikh Istochnikov. EI-55, M., 1968. S. 57.
- ³² B.A. Kolchin. Novgorodskiy drevnosti. Tb. 48, figs. 1–2.
- ³³ id. tb. 48, figs. 3–4.
- ³⁴ Rabinovich M.G. O drevney Moskve. M., 1964. Fig. 136.
- ³⁵ Ovsyannikov O.V. O srednevekovykh russkikh lyzhakh // KSIA, No. 125, 1971. S. 35–40; Belov M.I., Ovsyannikov O.V., Starkov V.F. Mangasea. Materialnaya kultura russkikh nolyarnykh morekhodov i zemleprokhodtsev XVI–XVII vekov. M., 1981. SS. 61–69.
- ³⁶ id. S. 67.
- ³⁷ For fur-linings ("podvolokas") they used "kisy" (skin stripped off animals legs) or "kamasy" (reindeer or elk skin). In Siberia they used podvolokas made of deer skins or furs. In written sources we find "ski podvoloka made of beaver fur".
- ³⁸ Probably it is just this type of ski that we see in the works Witsen's (Nicolfes Witsen, Noord en Ost Tartarye, t. II; Amsterdam, 1705 820) and Gerberstein (Sigiemund Gerberstein. Zapiski o Moskovskyykh delakh. St. Ptrsb., 1908. S. 239.
- ³⁹ DAI, vol. IV. St. Ptrsb., 1951. S. 3.
- ⁴⁰ DAI, vol. V. St. Ptrsb., 1867. S. 393. A very similar description of a ski raid we find in a message of Tomsk voivodes to Tobolsk about the 1703 raid to the "Kirghiz Land" – 500 men lead by Mikhail Lavrov, a boyar sen "want on skis with nartys and all ammunition" (Pamyatniki sibirskoi istorii XVIII veka, books I, II 1882. SS. 237–238).
- ⁴¹ Prodolzhenie dnevykh zapiskok Ivana Lepekhina po raznym provintsiyam Rossiskogo gosudarstva v 1771 godu. St. Ptrsb., 1814. SS. 25–26.
- ⁴² Alongside with fur-linings brought to Mangasea separately from skis they also brought some ready-made skis with "podvolokas", ski-boots with a turned up tip made of rough leather (called "ulednitsy" or "uledi"). See: Tolkoviy slovar zhivogo russkogo yazyka by V. Dahl, vol. IV. St. Ptrsb. M. S. 997; They may have been brought from Ustug Veliky, the biggest provider of leather boots of all kinds (A.U. Merzon; Yu. A. Tikhonov. Rynok Velikogo Ustuga v period skladyvaniya vserossyiskogo rynka XVII veka. M., 1960. S. 80. On the front part of ski boots some additional pieces of leather were sewn so that the front cramp of the ski-bindings (called "ottuga") would not make a sore place on the skier's toe. The back part of the boots was fastened to the foot plate by leather straps (called "yukusy"). A. N. Kopylov. Russkiye na Yenisee v XVII veke. Novosibirsk, 1965. S. 152.
- ⁴³ Stepanov N.N. Sotsialnyy stroy tungusov v XVII veke // Sovetsky Sever, No. 5, 1939. S. 50.
- ⁴⁴ Kolonialnaya politika Moskovskogo gosudarstva v Yakutii XVII veka (sbornik dokumentov, L., 1936. S. 223).
- ⁴⁵ Lavashova V.P. Isedliya iz dereva, duba i beresty // Ocherki po istorii russkoi derevni. Trudy Gosudarstvennogo Istoricheskogo Muzeya. Issue 33. M., 1959 S. 73.
- ⁴⁶ Russkaya istoricheskaya biblioteka. Vol. XVII. St. Ptrsb., 1898. S. 143; Istoria Sibiri, vol. II. L., 1968. S. 260; Ogloblin N.N. (see 18 in this list) vol. II. S. 16.