Are the Emishi and Ainu Peoples Descendants of Scythians and Balkarians?

— An Examination of the Connection Between Scythian Swords and Ainu Tombs, Which May Have Influenced Historical Japanese Swords —

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Translated into English by Maki Ugumori

Introduction: Pottery from the Jomon Period (14,000 – 300 BCE) and the Ainu Gods

Emishi (or Amish) is the name of the people who lived in the eastern part of the Japanese archipelago (currently Kanto and Tohoku regions) and in the north (currently Hokkaido and Sakhalin). The origin of the Emishi is disputed, but some historians believe that the Emishi are related to the Ainu people, whose presence has been documented in Hokkaido, Sakhalin, the Kuril Islands, and the southern part of the Kamchatka Peninsula.

diagram 1. Symbol of Ocean God Orca. (note 2)

In 1970, the Italian photographer and anthropologist, Fosco Maraini, published a book entitled "Ainu Man with Ikupasuy." This book contained many illustrations, including the 13 gods of the Ainu people (hereafter "Ainu") and, as well, many unknown symbols. For context, some of the common, known symbols used by the Ainu are for the Ocean God embodied by the Orca (diagram 2) and symbolized by a ▲ (diagram 1) ; the Land God embodied by the Bear and symbolized by an X (diagram 7) ; the Sky God embodied by the Crane( ) and symbolized by a shape resembling a wide V (diagram 3); and the Mountain God symbolized by a shape resembling a sideways H (see diagram 4).

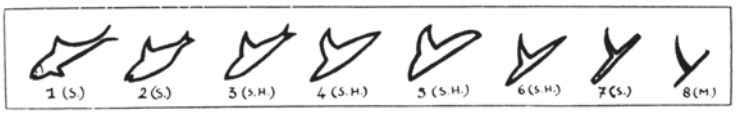


diagram 2. Orca (rep-un-kamui) (from"Ainu Man with Ikupasuy")

diagram 3. Sky god clane（＜＜＜）

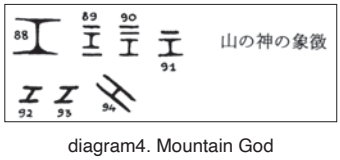


diagram4. Mountain God

I reside in Machida City, Japan, which is adjacent to Sagamihara City. I visited the Sagamihara City Museum during an exhibition of potteries from the Jomon Period. The artifacts were excavated from a site in Taima, Sagamihara City, and they were identified as the Katsusaka type. In the collection of artifacts from the middle Jomon Period, I was struck by what appeared to be many depictions of the Ainu Gods in the pottery. I then

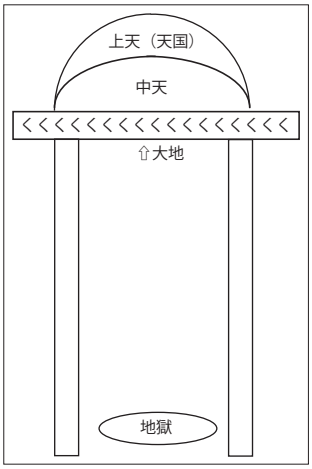


diagram 5.The shape of the entrance and windows of a house seen in Europe

diagram 6. Universe thought by ancient Indians (Shogakukan "Uchuu")

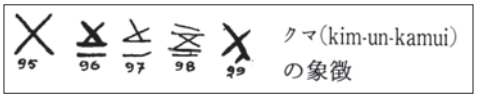


diagram 7. Land God, bear

began to think of the possibility that the Ainu were not only in Hokkaido but might also have been in the Kanto region during the Jomon Period.

For example, the Sansamon pattern (triangles) on Jomon pottery look very similar to the Ainu symbol for the Orca (see diagram 2). In addition, patterns that appear to look like the crane (repeating pattern of wide Vs) and the bear (repeating pattern of Xs) can also be seen on the top edges of some artifacts (see diagram 7). Despite the similarities between the patterns on the pottery and Ainu symbols, I did not see any suggestion of Ainu influence in the exhibit's descriptions of the pottery.

Among the Katsusaka-type pottery of the Jomon Period, there are artifacts known as human-faced pottery. This style of pottery contains a symbol that might be understood as the sun, perhaps inspiring in the viewer the beauty and mystery of the universe and nature.

I have heard that in European pottery, there is a style of art that emphasizes the four fundamental elements of heaven, sky, land, and hell. A similar understanding of the universe in Shamanistic practices might also be seen in the Jomon pottery. For example, in diagram 6, four elephants stand on a turtle, with a snake constellation wrapping heaven. This depiction originates from the Indian view of the universe and explains earthquakes, tornados, and the movement of the constellations and people in all directions.

If the Katsusaka-type pottery (see diagram 1) were viewed through the lens of Shamanism, then one might interpret the symbols to depict a crane flying in the sky and a bear roaming the land. Moreover, one might get the impression that the artifact is covered by Gods (i.e., animals of greater power than humans) encircled by a vigorous fire.

Shamanism apparently began in Siberia, but its view of the universe likely matured after the practice spread to Europe and India (see diagram 6). Some of the symbols associated with the practice resemble pictures often used by young children to symbolize nature, such as the sun (☀), undulating land (^^^), the four directions (+), flying birds (⌄), tornado (spiral ๑), mountain (△), and river (ss). Eventually, these basic patterns may have evolved into the unique symbols for the Ainu, such as the symbol for mountain morphing into an "X," which is the Ainu Land God embodied by the bear.

Because I believe that the Ainu Gods influenced not only the design of the Ainu sword but also the design of the Nihonto (Japanese sword), in 1994 I wrote an article for the Mogusato Research Bulletin entitled "Ainu Sword and the Jomon Pottery." In this article, I proposed that the various schools of Japanese swordsmiths carry on the legacy of the Ainu swordsmiths, as evident in the unique characteristics shared by the sword tangs of both Japanese and Ainu swords. Since then, I considered the similarity

between the Ainu sword and the Scythian sword.

The purpose of this article is to explore the possible connection between the Ainu and Scythian cultures. In so doing, I attempt to address three points: (1) comparing the Shamanistic symbols that appear in both Scythian and Ainu cultures; (2) comparing the handle and guard of the Acinaces (a short sword used in the Mediterranean region, including the Scythians) and Ainu tombs or grave markers; and (3) comparing the handle and guard of the Acinaces with those of Ainu swords such as the Warabite sword. To be sure, any connection between the Scythians and Ainu may be no more than coincidental. But perhaps there is a possibility that the commonalities between the two peoples can be explained by an actual connection, e.g., a result of migration, rather than mere coincidence.

diagram 8. Ancient Greece and Tauriz (ancient northwestern city of Iran) / Scythians.
Scythian culture is united (Emiene Sonnur Ozcan,"The Identity of Scythian and Turk" 2020. p.54)
Source: Michele Angel (drawing), Adrienne Mayor, The Amazon, Princeton Univ. Press 2014. p.

I. Scythian Bronze and Iron Swords

The Scythians arose north of the Black Sea (current day Ukraine), and it is said that their descendants can be traced to the modern-day Iranian population.

Bone swords () pre-date the Scythians. Then followed the bronze swords, which the Sarmatians developed. The Scythians used bronze swords but later developed iron swords around 300 B.C., and it is necessary to examine this transition period to understand the Scythian sword.

The Turkish scholar, Emiene Sonnur Ozcan, noted the similarity between the Turkish and Scythian cultures. He also wrote that the Scythians were part of the community in the Iranian city of Tauriz, and that Scythia and Tauriz were part of the greater community of ancient Greece. The Scythians may have adopted the Bronze Age

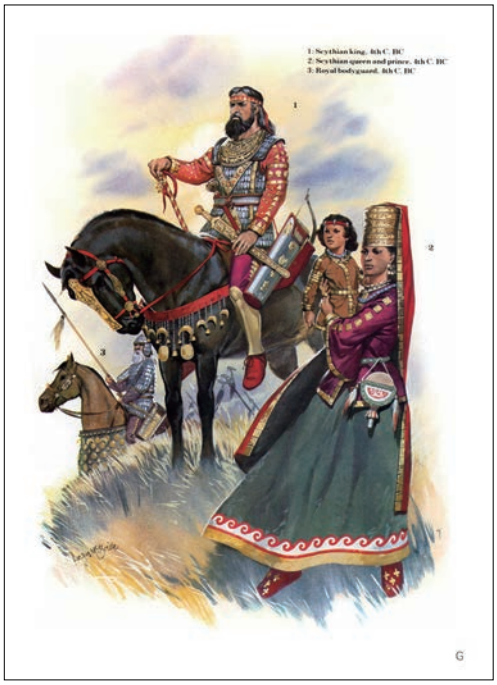


diagram 9. Scythians in the 7th-3rd centuries BC.
Dr. E V CERNENKO ANGUS McBRIDE Dr. M GORELIKV『The Scythains 700-300BC』P.28

diagram 11. Drink wine together for friendship 『Thracian Warrior』

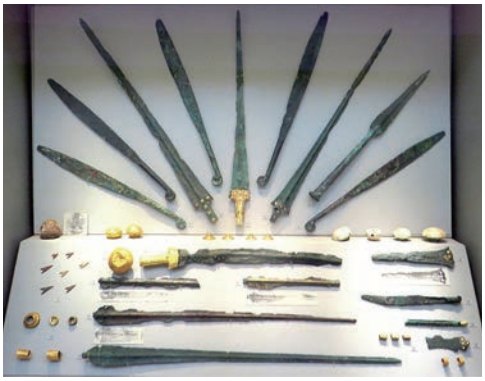


diagram 10. Greek bronze swords（Athen Museum)

technology from the neighboring Sarmatians. And, perhaps suggesting some deeper connection between Scythia and Greece, the Scythian bronze Acinaces — which is a word of Greek origin — is often seen in displays of ancient Greek artifacts.

When Scythians formed an alliance with another tribe or culture, they drew each other's blood, put it in a cup, and drank it (see note 6). This ritual formed an alliance bound by blood and was one method of avoiding conflict within the alliance.

To understand the reach of the Scythians, researchers have investigated anthropological evidence in seven locations where Scythians were thought to be present, namely, Hind (Deccan Plateau), Garb (West India), Sham and Maghrib (Damascus and North Africa), Iranshehr (Iran), Roman Lands and Saqalib, Hazar and Turkey, and China and Tibet. What is interesting is that the anthropological evidence appears to show that these areas were asserted by the Scythians at least by the time when they produced bronze swords. For example, when considering the Scythian influence on China, bronze swords from the Zhou Dynasty appear clearly influenced by the bronze Acinaces.

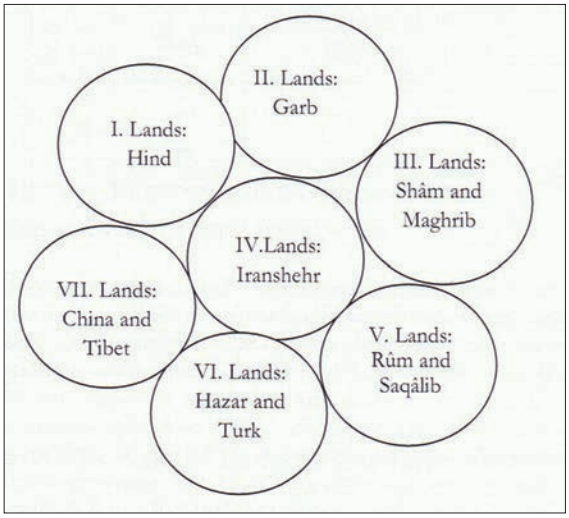


diagram 12. al-Birni's note: Persian territory Hermes

As for Scythian influence in Japan, perhaps that happened later when they were producing iron swords. While, according to Wikipedia, there is literature claiming that the Acinaces had made an appearance in Japan during the Heian Period, this is likely based on the introduction of the sword from China.

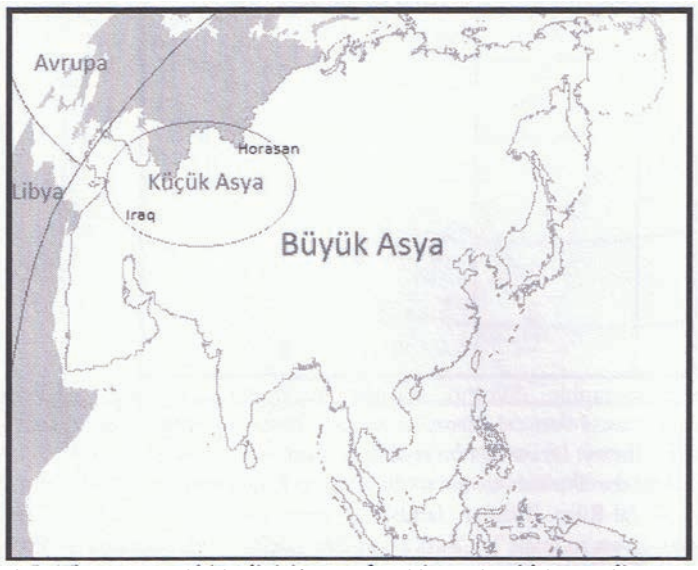


diagram 13. Geographic division of ancient world according to the Greeks (approximately). Template-map:University of Michigan. by E.S.Ozcan

Notably, the Scythians were not only a horse-based culture, but they also built large ships and were capable navigators and seafarers. For example, it is well-known that the Scythians navigated the Black Sea to protect their rights and interests against ancient Egypt.

According to oral tradition in the Kabardino Balkarian Republic, their people migrated from the Caucasus to Egypt over the course of 400 years

diagram 15. Scythian large pommel (iron made) sword from the collection of the Ermitazh Museum in Russia (Picture by author at Merida Museum).

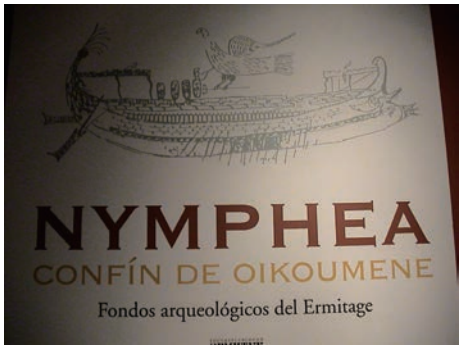


diagram 14. NYMPHEA (at the Merida Museum in Spain. Pic. by auther)

and even produced Pharaohs. The Scythians and Balkars (Kabardins) fought against each other in the Battle of Kadesh (major battle between Egyptians and Hittites in Syria). Prior to this battle, however, the Scythians and Kabardins were not on bad terms, particularly because their tombs were both located in the Caucasus. Because their tombs were based on the position of the stars (and meant to reproduce the image of heaven on earth), it is likely that the two groups cooperated and were both descendants of Aryans. Tangentially, I once asked an archeologist in Rostov-Don about the position of the stars, and he indicated that the stars in the time of the Scythians and the stars today are in slightly different positions (see note 1).

The vehicles used by the Scythians in the Battle of Kadesh had axles made of iron, but it is likely these were cast iron. Steel is hammered into shape, while cast iron already has high carbon and can be shaped simply by putting the iron into a mold. Another possibility is that the Scythians used metal from meteorites.

第１表　アラジャ・ホユック発掘鉄製品の成分
（HAMİT ZÜBEYR KOŞAY, ALACA HÖYÜK HAFRİYATI 1938 による）

	Fe_2O_3	NiO	CaO	Al_2O_3	Total	Fe	Ni
ピ　ン	72.20	3.44	4.69	—	80.33	94.92	5.08
飾　板	76.30	3.06	0.99	2.65	83.00	95.7	4.3

diagram 16. Analytical values for iron products containing nickel.

Notably, the elemental breakdown of the Turkish Alaca Hoyuk contains 4-5% nickel, so one might deduce from the nickel content that the Turks also used metal from meteorites rather than smelting iron. Nickel makes the material less fragile than through the cast iron method. But metal from meteorites is limited, so it is possible that the development of iron tools and weapons emerged by applying methods used to create bronze swords. For example, iron ore could be melted in ceramic pots and then cast into shape. An example of using ceramic pots in metal making is demonstrated in Yuri Pete's study of Estonian dig sites (see note 7).

The Scythians first diminished in Europe before they eventually lost influence in Central Asia. One reason for their downfall may be their battle with the Tatar. The Tatar forced the Turkic people to forge weapons for them and eventually inter-married and assimilated with the people they conquered. This process likely resulted in the end of the Scythian culture.

diagram 17. Scythian gold medal. (Picture at Merida Museum)

The Turkic people who fled the Tatar relocated to current-day Yakut in the northwest of Russia, where their descendants continue to live. Based on this data point, it is quite possible that the Turkic people and Scythians might also have fled further east into Japan. Interestingly, some Scythian symbols

appear strikingly similar to characteristically Japanese symbols, such as the chrysanthemum crest (see diagram 17) and the legendary eight-headed and eight-tailed dragon from Japanese myth. The Scythians could have passed through Japan or may have entered Japan through the main island (Honshu) and then migrated to northern Japan, where they settled during the middle Jomon period (~5,000 B.C.E.).

II. Acinaces by era, style, and type

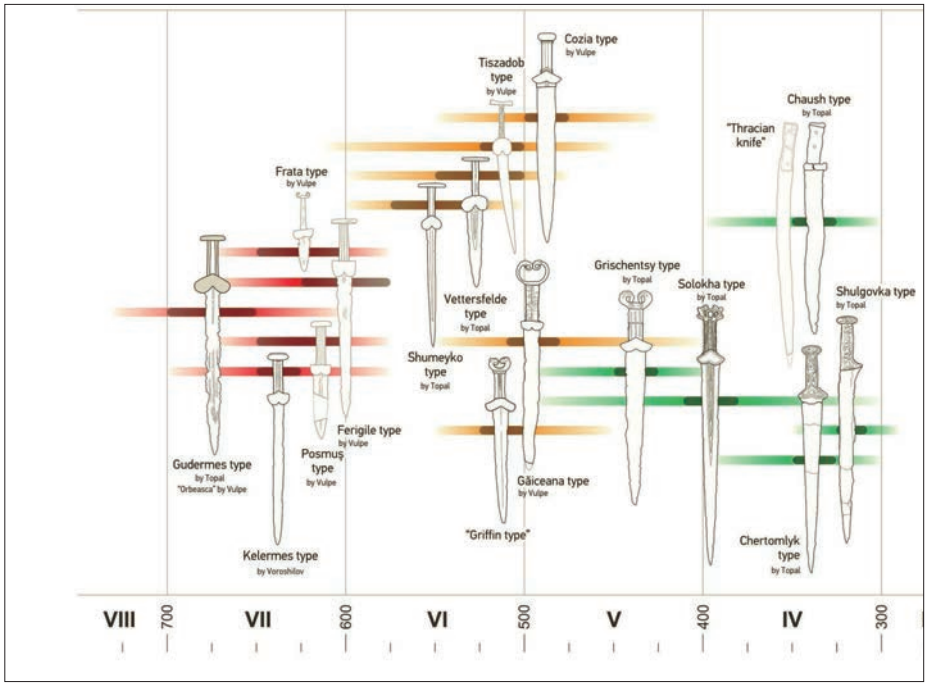


diagram 18. Acinaces era, style and type：From "Akinakai: Scythian swords and daggers" (Communication for Eurasian Department of German Archaeological Institute, May 25, 2016)

According to the German Archaeological Institute's website, the Acinaces can be identified by era, style, and type. The following are the different Acinaces through history, with my additional observations about their characteristics.

Acinances by era and type

① **Oval, Bone Group**. This group dates from 675-600 B.C.E., and includes the Kelermes, Gudermes, Posmus, Frata, and Ferigile types (see diagram 19).

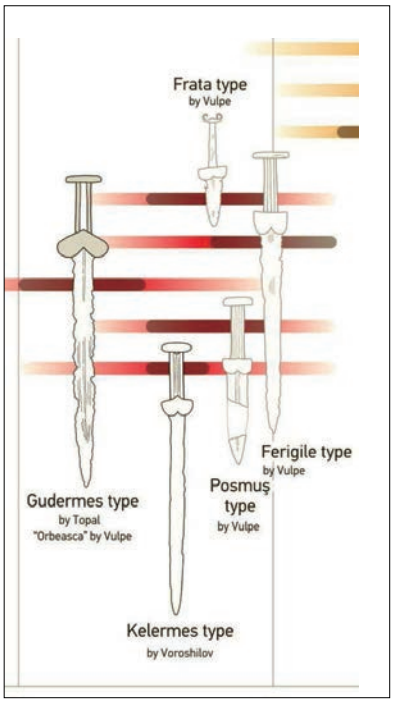


diagram 19. From the German Archaeological Institute's website.

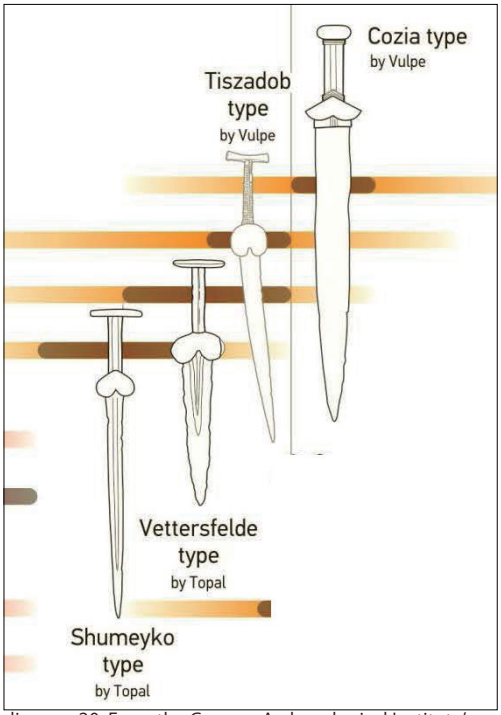


diagram 20. From the German Archaeological Institute's website.

② **T-Shaped Group.** This group dates from 550-475 B.C.E., and includes the Cozia, Tiszadob, Vettersfelde, and Shumekyo types (see diagram 20).

③ **Ringhead Horn and Goat Ringhead Horn Group**. This group dates from 425-350 B.C.E., and includes the Solokha, Grischentsy, Gaiceana, and Griffin types (see diagram 21).

④ **Goat Horn Group.** This group also dates from 425-350 B.C.E. and includes the same

① Oval, Bone Group	② Elliptic, T-Shaped Group

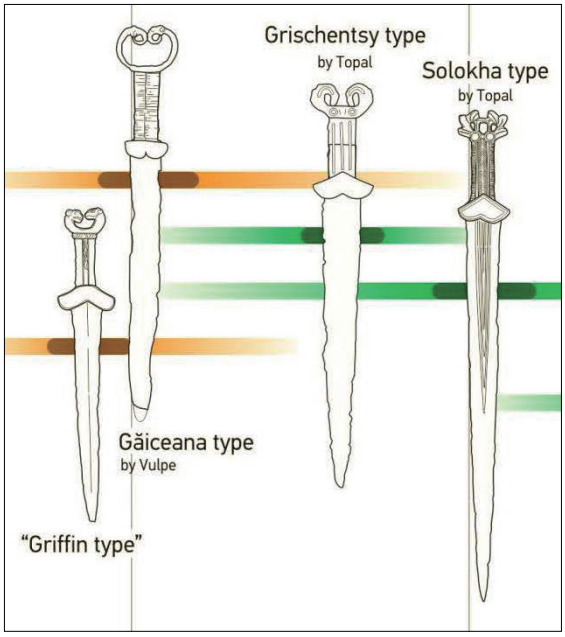


diagram 21. From the German Archaeological Institute's website.

③ Ringhead Horn and Goat Ringhead Horn Group

④ Goat Horn Group

types as the Ringhead Horn Group (see diagram 21).

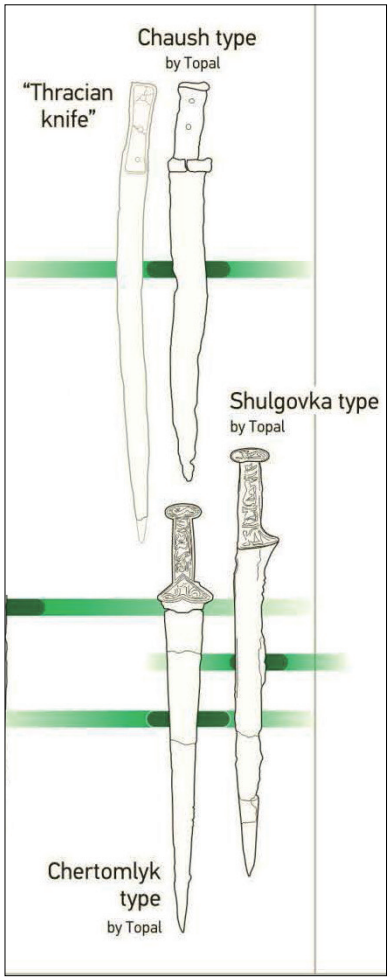


diagram 22.From the German Archaeological Institute's website.

(5)The Tang (nakago) Group

(6)The Egg Shape Group

⑤ **The Tang (nakago) Group.** This group dates from 375-325 B.C.E., and includes the Chaush, Shulgovka, and Chertomlyk types (see diagram 22).

⑥ **The Egg Shape Group.** This group also dates from 375-325 B.C.E. and includes the same types as the Tang Group (see diagram 22).

Acinaces by style

The Butt-End (pommel)

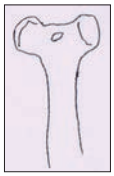


diagram23. Bone type

① Bone type (the original T-shaped butt-end). (diagram 23)

② Ringhead Horn and Goat Ringhead Horn types (circular butt-end).

③ Goat Horn type (butt-end with two spirals toward each other).

④ Elliptic type (T-Shaped with rounded corners, a kind of T type)

⑤ T-Shaped type (butt-end with greater angular emphasis on the T shape).

⑥ Egg Shape type (butt-end looks similar to the Oval and T Shape groups but with greater thickness; butt-end looks like an egg).

diagram 24. The Butt-End (pommel) from left 1. 2. 3. 4. 5. 6. (scythian_akinakes_1_small.jpg)

The Handle

① Carved handle: A style of handle that has empty spaces. (”Kenuki-gata” in Japanese)

② Carved handle : A style of handle that does not have empty spaces but is still partially carved out. ("Kenuki-jo" in Japanese)

③ Carved handle with file markings: A style of handle that is only partially carved out and also has horizontal markings. ("Kenuki-jo-Yasurime" in Japanese)

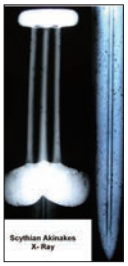


diagram 25.
X-lay picture
of ① Kenuki

The Guard

① Sword style (sharp feature on top of guard) (”Kengyo” in Japanese). ("Kengyo" means both-side blade sword top).

② Heart style (similar to sword style but with larger features, creating a heart-shaped guard).

③ Circle style (sharp feature on bottom of guard).

④ W style (top of the guard is flat).

Examples of Acinaces

(1) Kelermes Type Group

① Illustration of Gudermes type by Topal (see diagram 26). T-shaped butt-end, carved handle, sword style guard, longsword with “hi” carving.

② Illustration of Kelermes type by Voroshilov (see diagram 27). T-shaped butt-end, handle with vertical lines, sword style guard, longsword with no “hi” carving. ("hi" means gutter)

③ Illustration of Postmus type by Vulpe (see diagram 28). T-shaped butt-end, handle with vertical lines, W style guard, short sword with “hi” carving.

④ Illustration of Fergile type by Vulpe (see diagram 29). T-shaped butt-end, handle with vertical lines, W style guard, longsword.

⑤ Illustration of Frata type by Vulpe (see diagram 30). Small Goat Horn butt-end, thin handle, W style guard, shortsword.

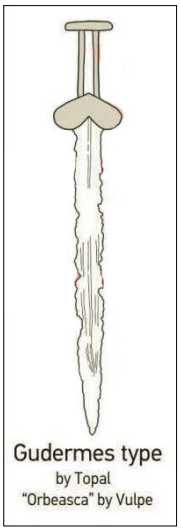


diagram 26.

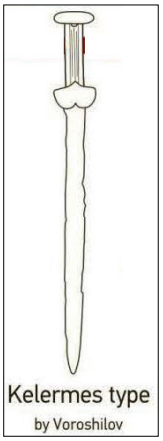


diagram 27

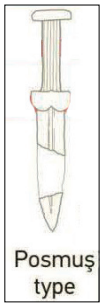


diagram 28

diagram 29

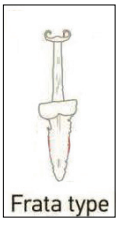


diagram 30

(2) Vettersfelde Type Group

diagram 31

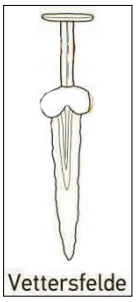


diagram 32

① Illustration of Shumeyko type by Topal (see diagram 31). T-shaped butt-end, handle with large “hi” carving, heart style guard, longsword with “hi” carving.

② Illustration of Vettersfelde type by Topal (see diagram 32). T-shaped butt-end, sword style guard, shortsword with partial “hi” carving to the middle of the blade.

③ Illustration of Tiszadob type by Vulpe (see diagram 33). Bone type butt-end, thin handle, circle style guard, curved blade.

diagram 33

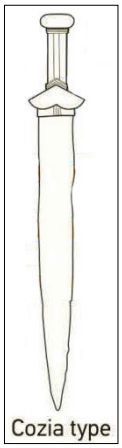


diagram 34

④ Illustration of Cozia type by Vulpe (see diagram 34). Oval type butt-end, handle with “hi” carving, sword style guard, wide longsword with no “hi” carving.

(3) Solokha Type (1) Goat Horn Group

① Illustration of Griffin type (see diagram 35). Goat Ringhead Horn type butt-end, handle with “hi” carving, sword style guard, longsword with no “hi” carving.

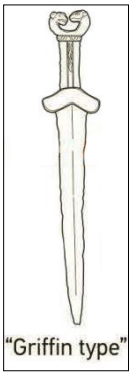


diagram 35

(3) Solokha Type (2) Goat Ringhead Horn Group

② Illustration of Gaiceana type by Vulpe (see diagram 36). Goat Ringhead Horn type butt-end, handle file markings (horizontal lines), W style guard, longsword.

③ Illustration of Grischentsy type (see diagram 37). Goat Horn style butt-end, handle with wide “hi” carving, sword style guard, longsword with no “hi” carving.

④ Illustration of Solokha type by Topal (see diagram 38). Goat Horn style butt-end with leaves, handle with wide “hi” carving, sword style guard, longsword with wide “hi” carving to middle of blade.

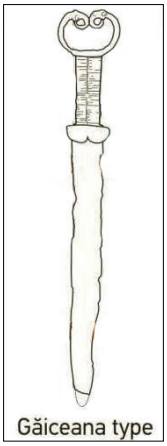


diagram 36

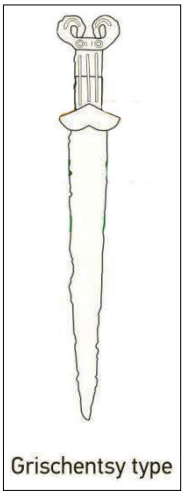


diagram 37

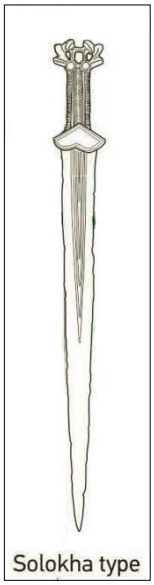


diagram 38

(4) Chertomlyk Type Group

① Illustration of Chertomlyk type (see diagram 39). Oval style

butt-end, handle with pattern carvings, sword style guard with pattern carvings, longsword with no “hi” carving.

② Illustration of Shulgovka type by Topal (see diagram 40). Oval style butt-end, handle with pattern carvings, half-mountain style guard, longsword.

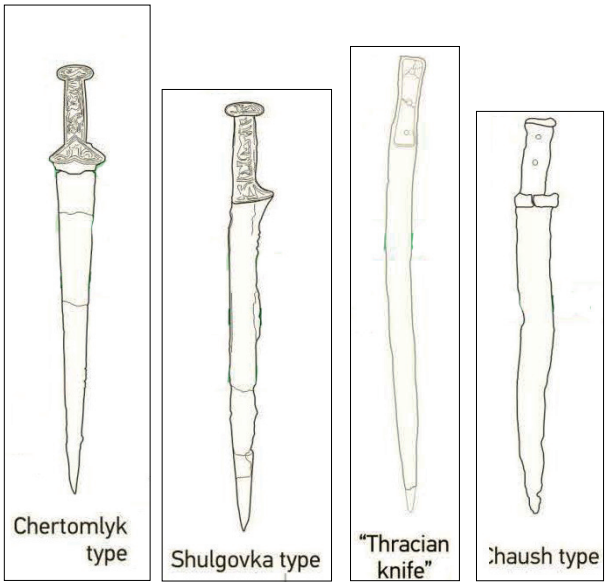


diagram 39 diagram 40 diagram 41 diagram 42

(5) Nakago-Tachi Style Group

⑤ Illustration of Thracian knife (see diagram 41). Cut-style nakago with three holes, curved sword with no indentation between the blade and nakago.

⑥ Illustration of Chaush type by Topal (see diagram 42). Cut-style nakago with two holds, wide longsword with indentation between the blade and nakago.

III. Acinaces and Shamanistic Symbols

The zig zag pattern appears to be a common Scythian symbol, but the Scythians also used “▲” and “X” symbols as well (see diagram 43). A closer look at the handle of the Acinaces shows that it contains a zig zag pattern, and this pattern can also be seen in a Balkar gravestone that was found in the same area as a Scythian grave (see diagram 47).


diagram 43. Zig zag pattern at the Scythian's headband, X at the chest, ▲ at the arms. (from The Scythians 700-300BC.)


diagram 47. the Land God pattern?

Diagram 47 is a picture taken in 2005 at an archeological research institute in the Caucasus, but the exact meaning of the gravestone is still unknown. The zig zag pattern, however, looks similar to the Ainu Land God (bear, symbolized by “X”), and also seems to be etched into the handle of the Acinaces (see diagram 45-46). The “X” may have been borne from the zig zag pattern, and the connection between the Ainu symbol and the Scythian symbol seems more than coincidence. Moreover, if the

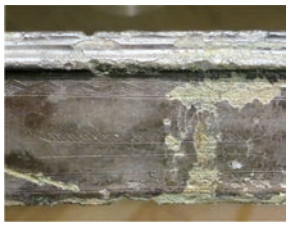


diagram 44. Zig zag patarn on a bronze sword.

diagram 46. Bronze Acinaces sword with zig zag pattern.

diagram 45. Acinaces iron sword.

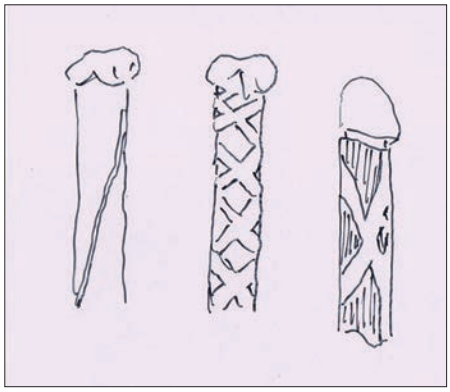
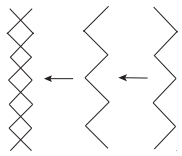


diagram 48. X mark that appears on the handle of the bone sword (Drawing by Nakov Felix, Researcher, Nalchik National Museum)

diagram4 9. Nakov Felix explains that X has a deep meaning (Nalchik National Mueum, Russia)

diagram 50. Japanese sword also has X.



Scythian zig zag pattern is indeed connected to the Ainu "X" symbol, then they both symbolize the Land God. Tangentically, carving the Land God into a sword handle would make sense, given that the weapon was used to conquer lands and possibly with the hope of bringing tranquility to them. Notably, the Acinaces may include other Shamanistic symbols besides the zig zag pattern.

Furthermore, the zig zag pattern can be seen not only in Scythian and Balkar cultures, but the pattern also is apparent in the handle of the Nihonto (see diagram 50). In short, it appears the Shamanistic symbol shared by the Scythians and Balkars may have a connection with the Ainu symbols for the gods, and the pottery from the Jomon Period depicting these symbols suggest a greater presence of Ainu in Japanese history than previously thought. Further research should be conducted to examine the possible link between these cultures.

IV. Changes in Style to the Acinaces

Generally, the Acinaces could be divided into three changes in styles: (1) the change from bone swords with a T shape to bronze swords with a "Y" shape; (2) the change from a spiral goat horn butt-end to a ringhead butt-end; and (3) the change from a goat horn ringhead butt-end to a goat horn butt-end.

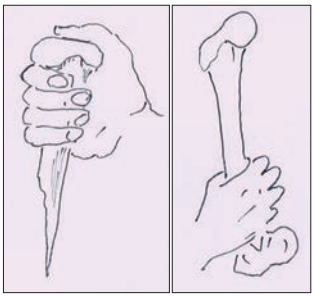


diagram 51.An example of how to use a bone sword。

Bone, T-shape, and Oval Acinaces changed to the Egg type, which eventually developed into the nakago style sword seen in the Thracian blade. These changes may be explained by the development of the martial skill and strategy of the weapon's users, as function would appear to dictate the direction of technology.

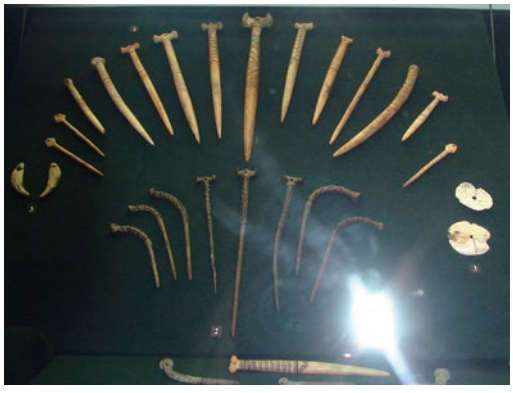


diagram 52. Bone sword and bronze sword(Nasledye, Russia)

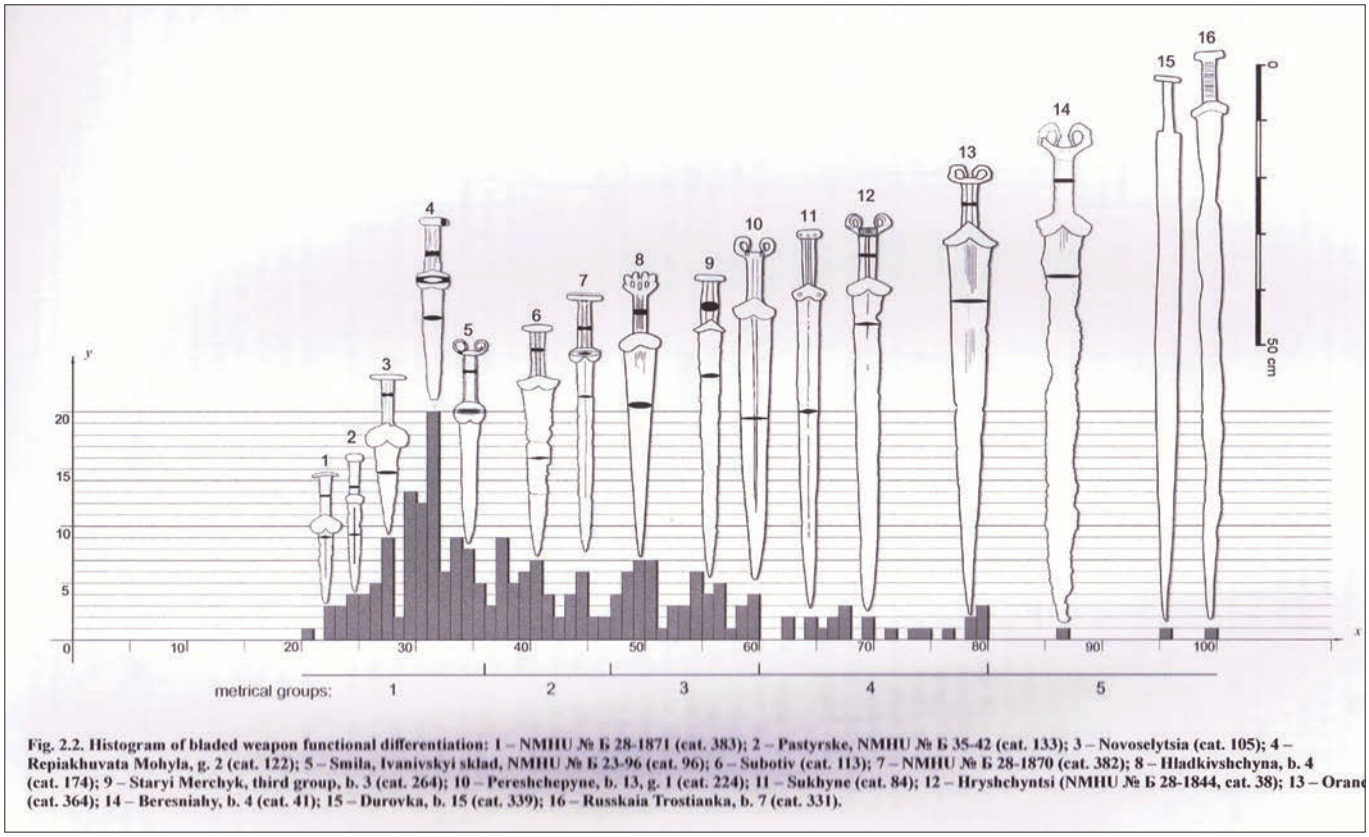


Fig. 2.2. Histogram of bladed weapon functional differentiation: 1 – NMHU № Б 28-1871 (cat. 383); 2 – Pastyrske, NMHU № Б 35-42 (cat. 133); 3 – Novoselytsia (cat. 105); 4 – Repiakhuvata Mohyla, g. 2 (cat. 122); 5 – Smila, Ivanivskyi sklad, NMHU № Б 23-96 (cat. 96); 6 – Subotiv (cat. 113); 7 – NMHU № Б 28-1870 (cat. 382); 8 – Hladkivshchyna, b. 4 (cat. 174); 9 – Staryi Merchyk, third group, b. 3 (cat. 264); 10 – Pereshchepyne, b. 13, g. 1 (cat. 224); 11 – Sukhyne (cat. 84); 12 – Hryshchyntsi (NMHU № Б 28-1844, cat. 38); 13 – Orane (cat. 364); 14 – Beresniahy, b. 4 (cat. 41); 15 – Durovka, b. 15 (cat. 339); 16 – Russkaia Trostianka, b. 7 (cat. 331).

diagram 53. Histgram of weapons functional differentiation.
(Swords and Daggers of the Scythian Forest-Steppe, 2020. p.33)

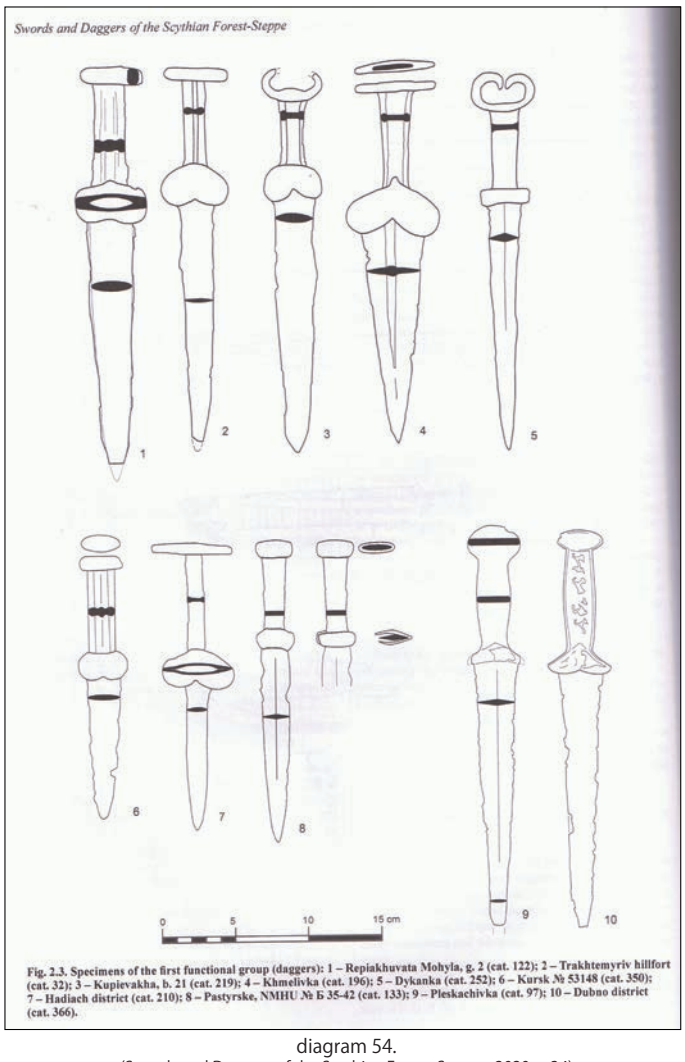


Fig. 2.3. Specimens of the first functional group (daggers): 1 – Repiakhuvata Mohyla, g. 2 (cat. 122); 2 – Trakhtemyriv hillfort (cat. 32); 3 – Kupievakha, b. 21 (cat. 219); 4 – Khmelivka (cat. 196); 5 – Dykanka (cat. 252); 6 – Kursk № 53148 (cat. 350); 7 – Hadiach district (cat. 210); 8 – Pastyrske, NMHU № Б 35-42 (cat. 133); 9 – Pleskachivka (cat. 97); 10 – Dubno district (cat. 366).

diagram 54.
(Swords and Daggers of the Scythian Forest-Steppe, 2020. p.34)

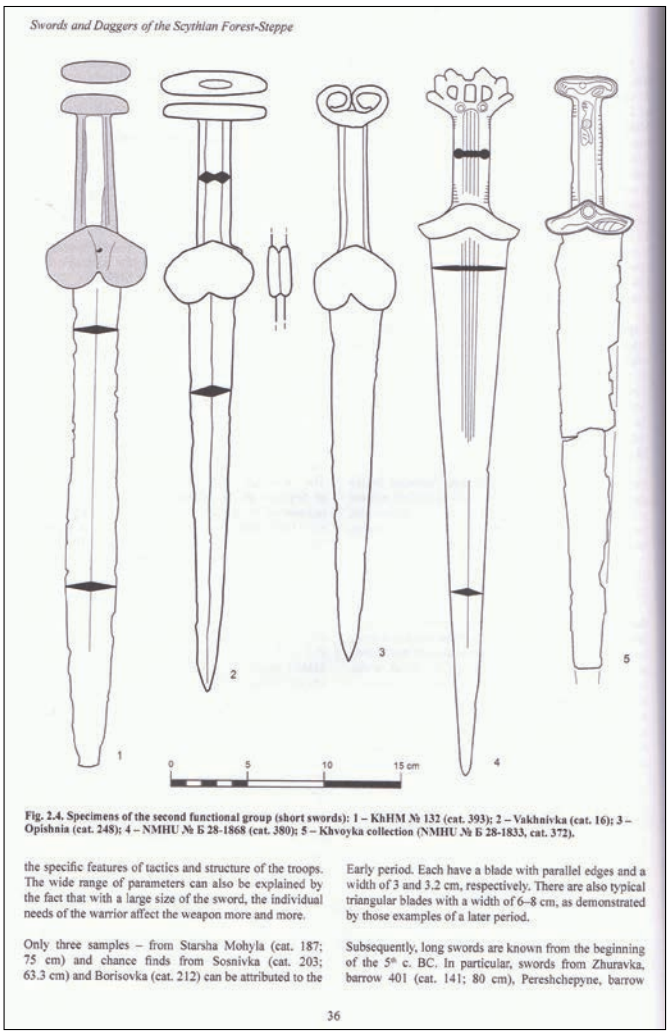


Fig. 2.4. Specimens of the second functional group (short swords): 1 – KhHM № 132 (cat. 393); 2 – Vakhnivka (cat. 16); 3 – Opishnia (cat. 248); 4 – NMHU № Б 28-1868 (cat. 380); 5 – Khvoyka collection (NMHU № Б 28-1833, cat. 372).

the specific features of tactics and structure of the troops. The wide range of parameters can also be explained by the fact that with a large size of the sword, the individual needs of the warrior affect the weapon more and more.

Only three samples – from Starsha Mohyla (cat. 187; 75 cm) and chance finds from Sosnivka (cat. 203; 63.3 cm) and Borisovka (cat. 212) can be attributed to the Early period. Each have a blade with parallel edges and a width of 3 and 3.2 cm, respectively. There are also typical triangular blades with a width of 6–8 cm, as demonstrated by those examples of a later period.

Subsequently, long swords are known from the beginning of the 5th c. BC. In particular, swords from Zhuravka, barrow 401 (cat. 141; 80 cm), Pereshchepyne, barrow

36

diagram 55.Daggers of the Scythian Forest-Steppe, 2020. p.36)

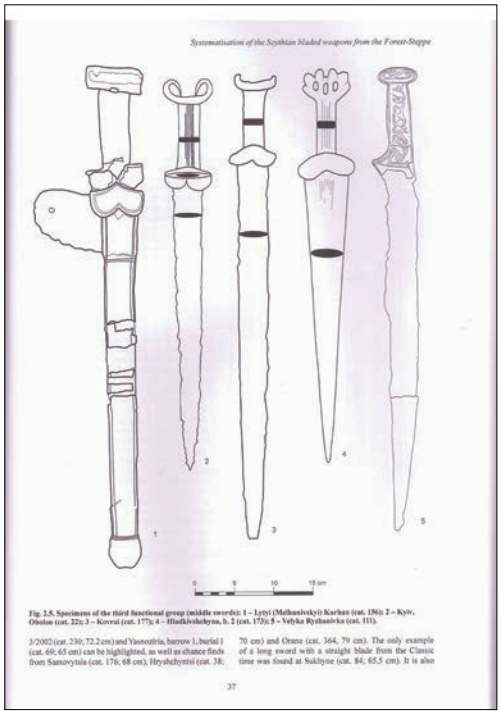


diagram 56. Acinaces Group Transformation 3. (Swords and Daggers of the Scythian Forest-Steppe, 2020. p.37)

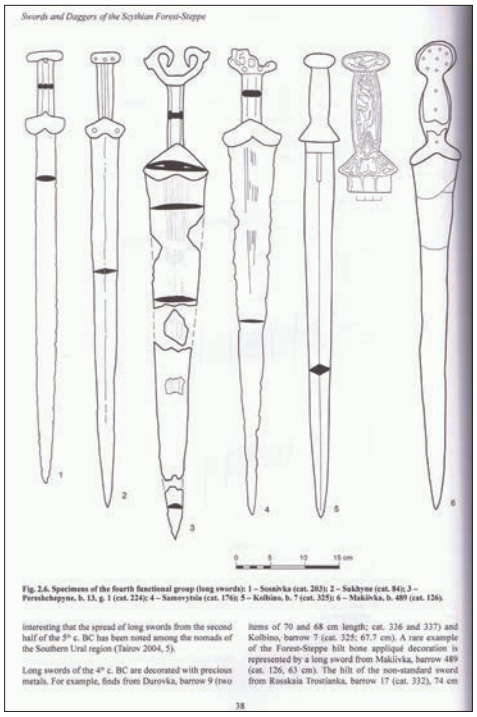


diagram 57. Acinaces Group Transformation 4
(Swords and Daggers of the Scythian Forest-Steppe, 2020. p.38)

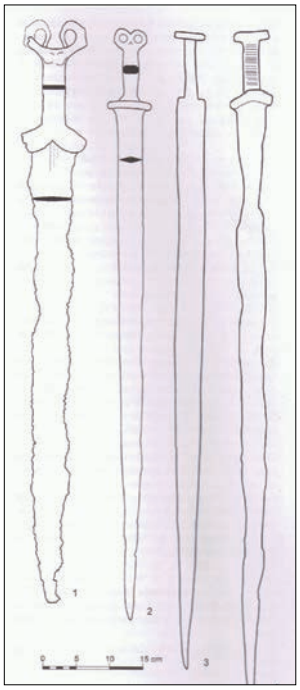


diagram 58. Acinaces Group Transformation 5
(Swords and Daggers of the Scythian Forest-Steppe, 2020. p.38)

The evolution of the Acinaces has been researched and summarized by Oleksandr Shelekhan (see note 4) and is presented in the following pages (see Part V., diagrams 59-64). Diagram 59 shows the periods and areas of influence of the Scythians. Diagram 63 shows their spread into Central Asia. Diagram 64 shows my hypothesis of where the Scythian routes may have continued to spread.

V. Scythian Periods and Areas of Influence (Diagrams 59-64)

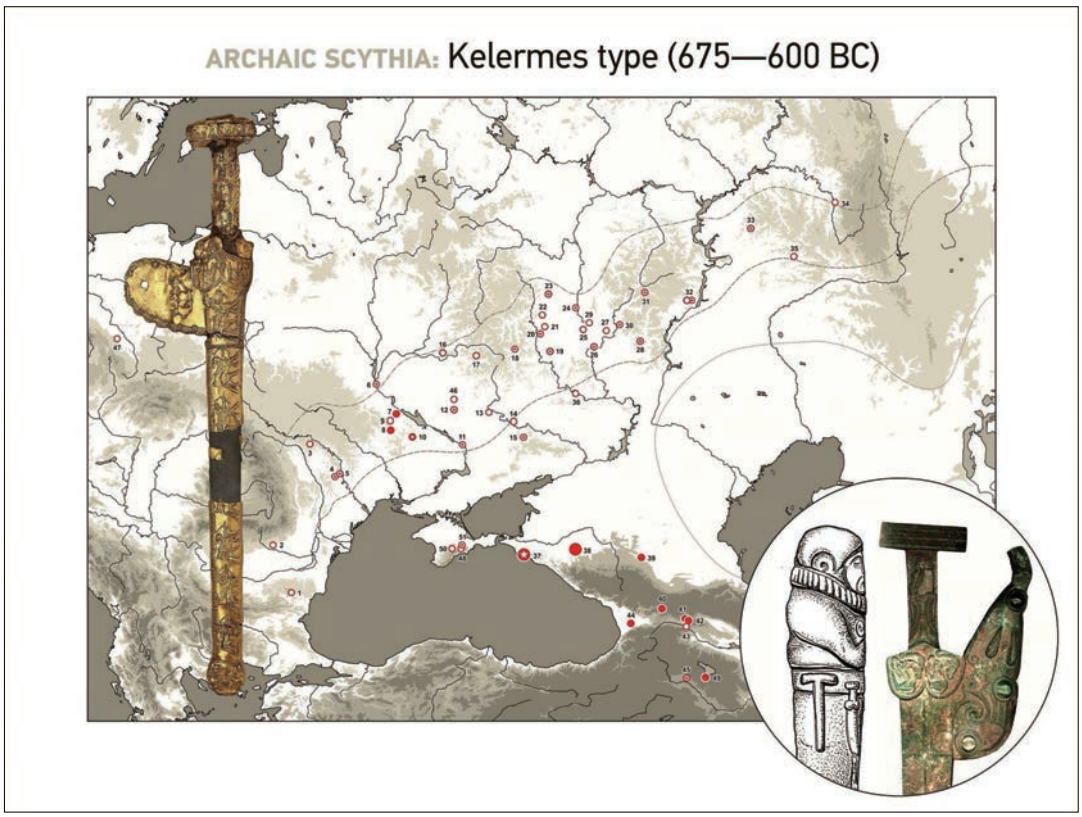


diagram 59.
Kelermes type (675-600 BC)

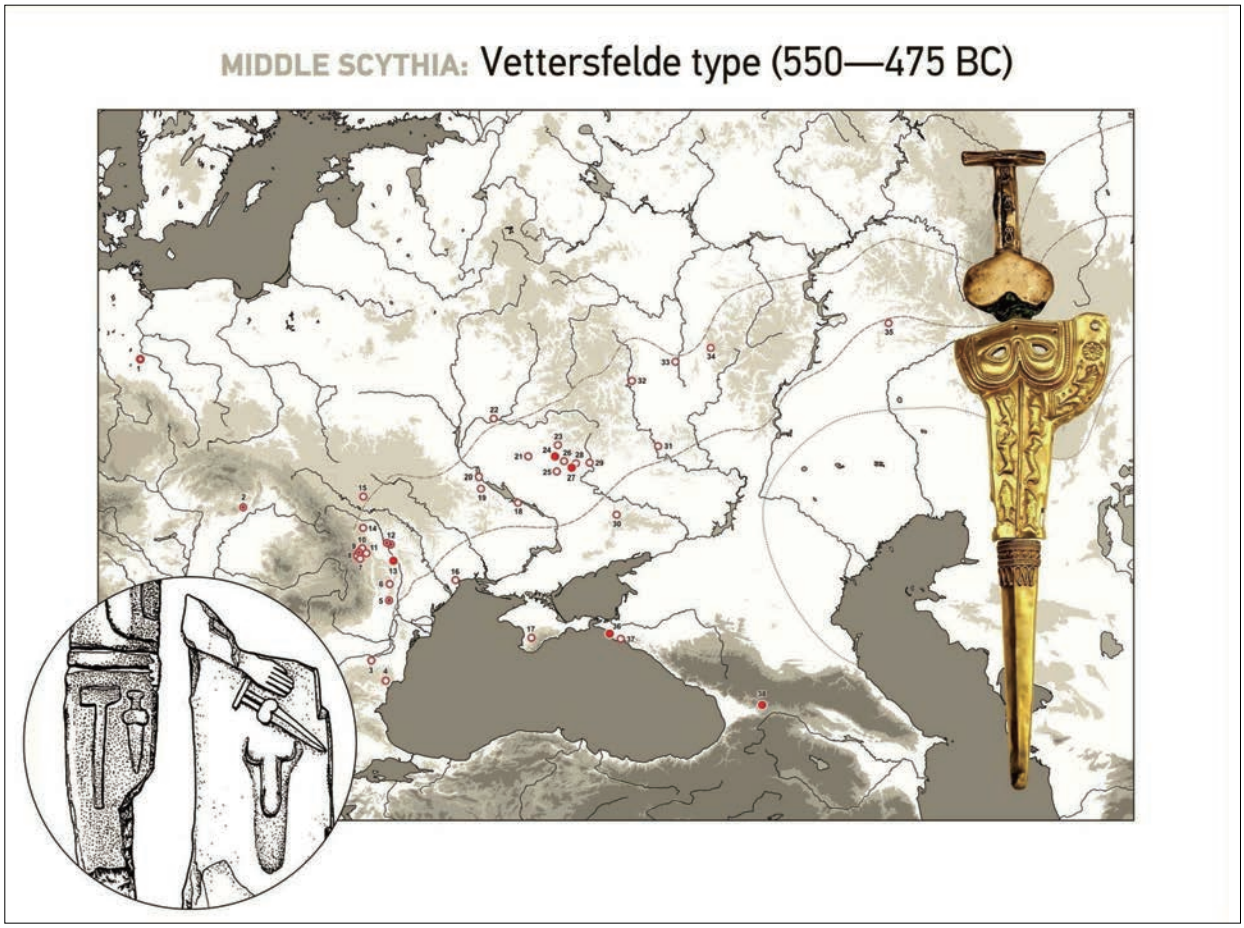


diagram 60. **Vettersfelde type (550-475 BC)**

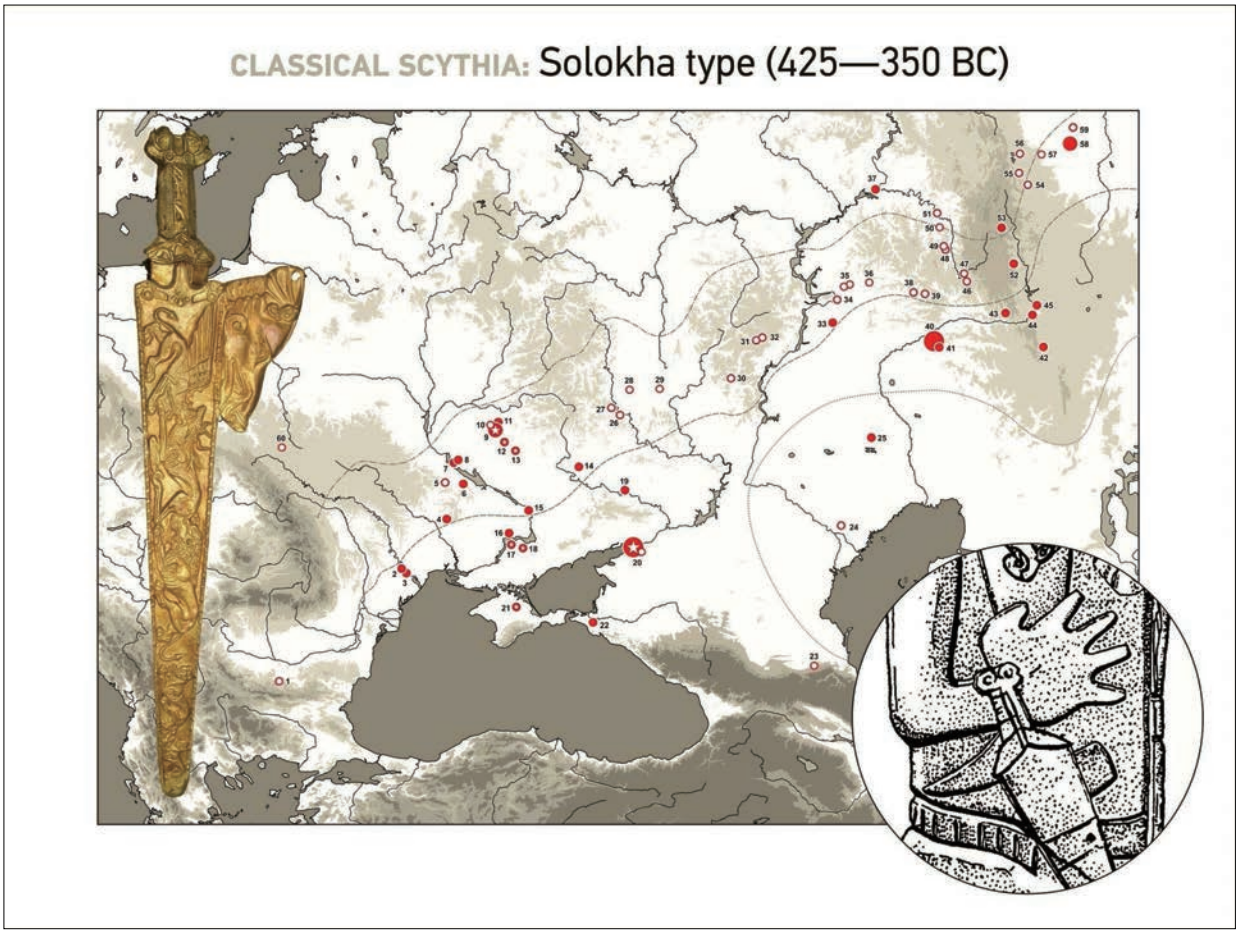


diagram 61. **Solokha Type (425-350 BC)**

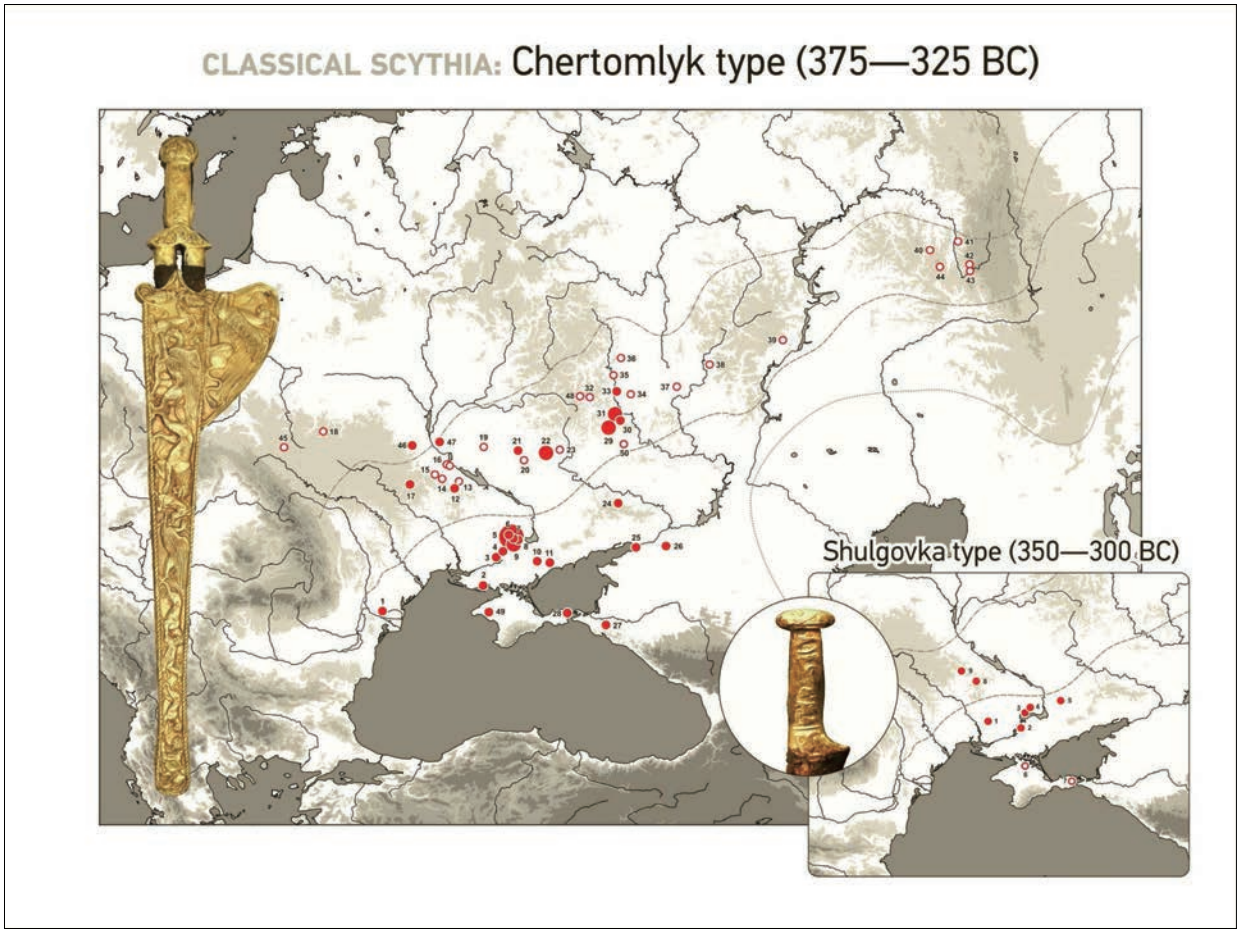


diagram 62. **Chertomlyk type (375-325 BC)**

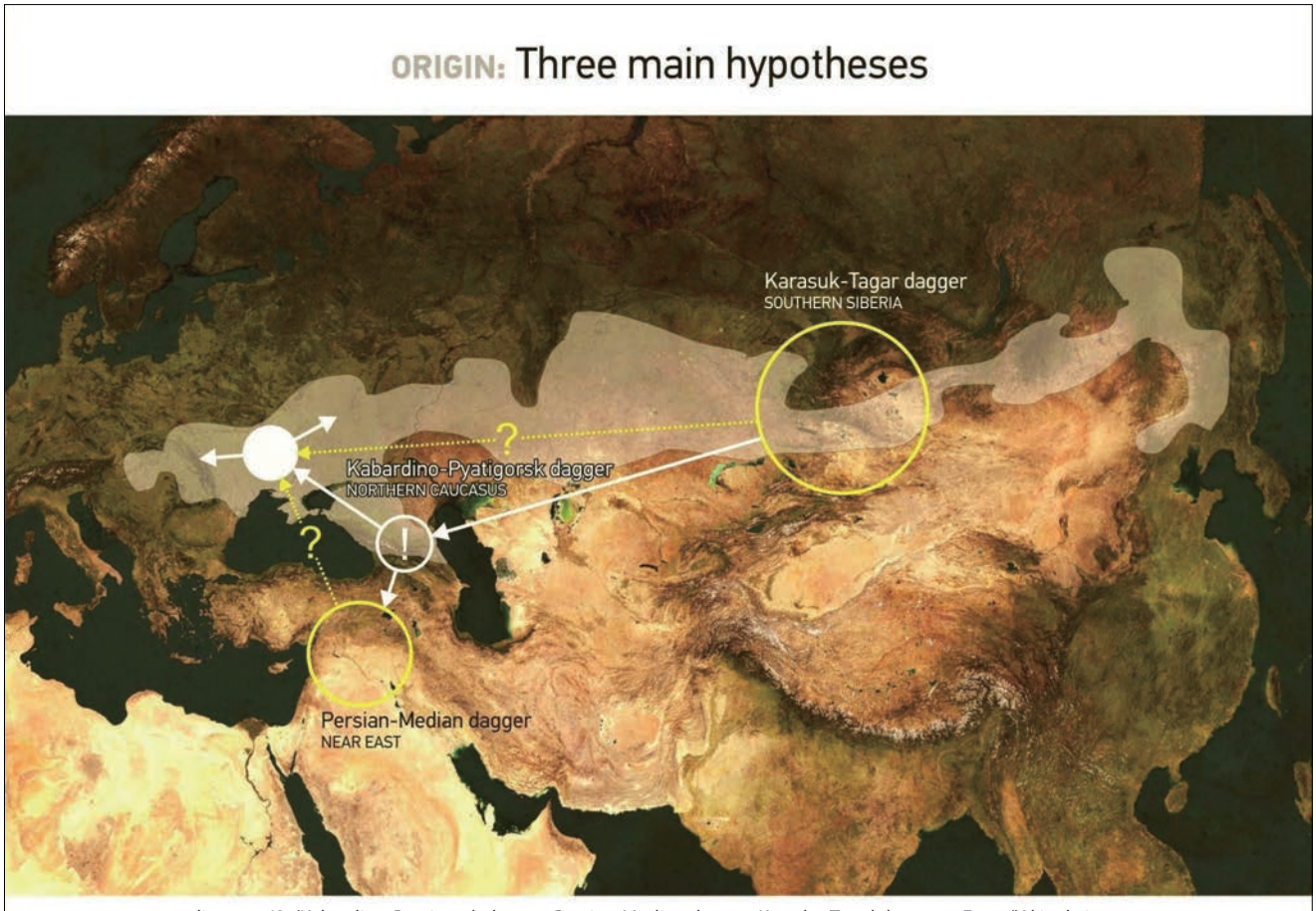


diagram 63. (Kabardino-Pyatigorsk dagger, Persian-Median dagger, Karasku-Tagal dagger. From "Akinakai: Scythian swords and daggers" (Communication for Eurasian Department of German Archaeological Institute, May 25, 2016)

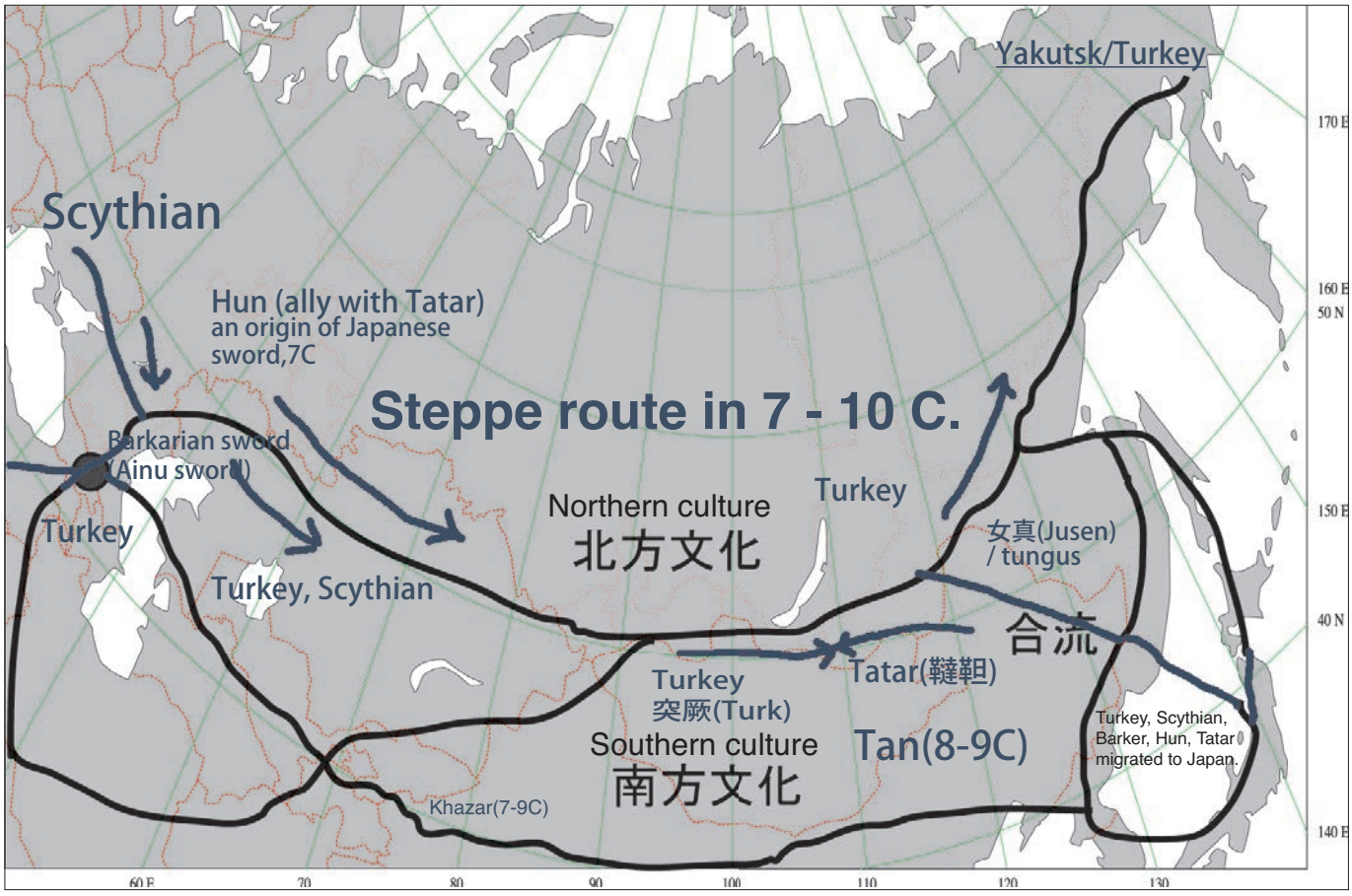


diagram 64. Scythian's travel route in 7-10 C. AD (by author)

VI. Siberia: Change from Ringhead Acinaces to a Warabi (Bracken) Style Blade

Iron Manufacturing Archeological Sites and Iron Goods

According to B.B. Gladilin, a graduate student in Krasnoyarsk University, pottery was used in the smelting process. Others have rejected this theory, claiming that the evidence actually shows the use of sintered clay in the smelting process. In any event, Gladilin touched on how the Ringhead Acinaces developed into the Warabi Style blade based on the pottery smelting process. Below is an excerpt of an archeological report of an area in Novosibirsk, Siberia. By B.B. Gladilin (Published by Nauka, 1985).

Metals found in Central Angara (Siberia)

In addition to hunting and fishing, one of the primary activities that ancient peoples in Central Angara engaged in was metallurgical production. In their historical record, one can find blowing pipes, iron chutes, and iron slags. In one locality, several tens of kilograms of iron slags and chutes were collected.

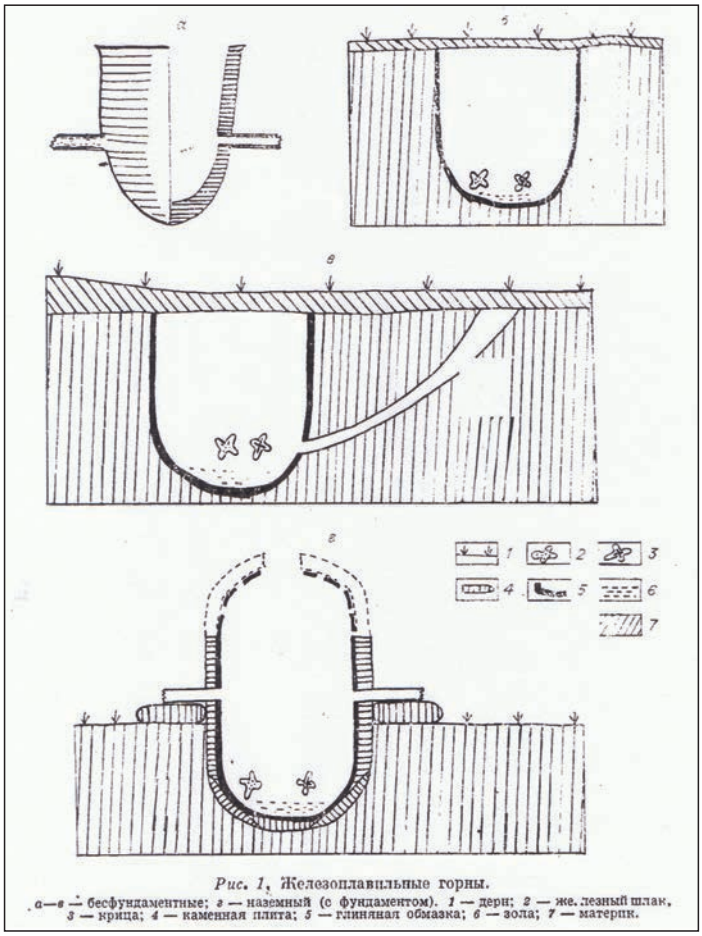


Рис. 1. Железоплавильные горны.
а—в — бесфундаментные; г — наземный (с фундаментом). 1 — дерн; 2 — же.лезный шлак, 3 — крица; 4 — каменная плита; 5 — глинянал обмазка; 6 — зола; 7 — материк.

diagram 65. Furnaces excavated in Siberia.

With respect to data on production material and ore involved in iron smelting, the following has been confirmed by a geological exploration and research group in Srednekolymsk based on archeological material and spectral analysis. Ore used for smelting is mined from unknown small deposits. There are no known deposits where iron slags and iron ore can be found together. It is likely that the iron ore used were mined from areas that show geological weathering, iron hydroxide being representative. Notably, the ore slag here is similar to the anomalous 10 goethite-hydrogateite ore, which can be found in the Tagar region. Similar ore deposits are found in Vorobevo, Zudchanka, Ilimsk, Ust-kova and Pasino. Chadobets produces very strong iron ore, sufficient for the advanced development of ancient metallurgy.

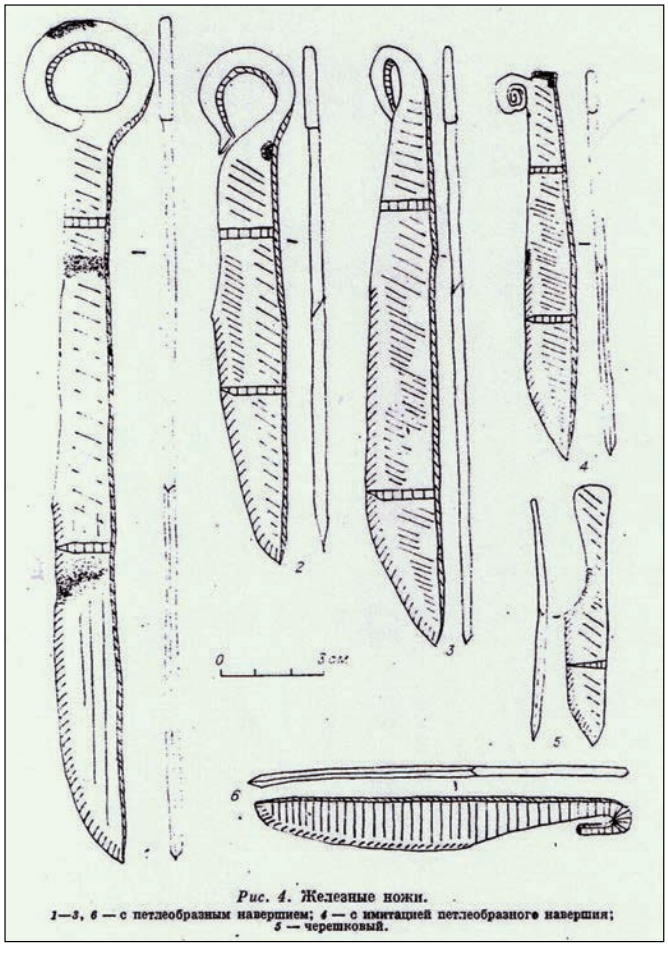


Рис. 4. Железные ножи.
1—3, 6 — с петлеобразным навершием; 4 — с имитацией петлеобразного навершия; 5 — черешковый.

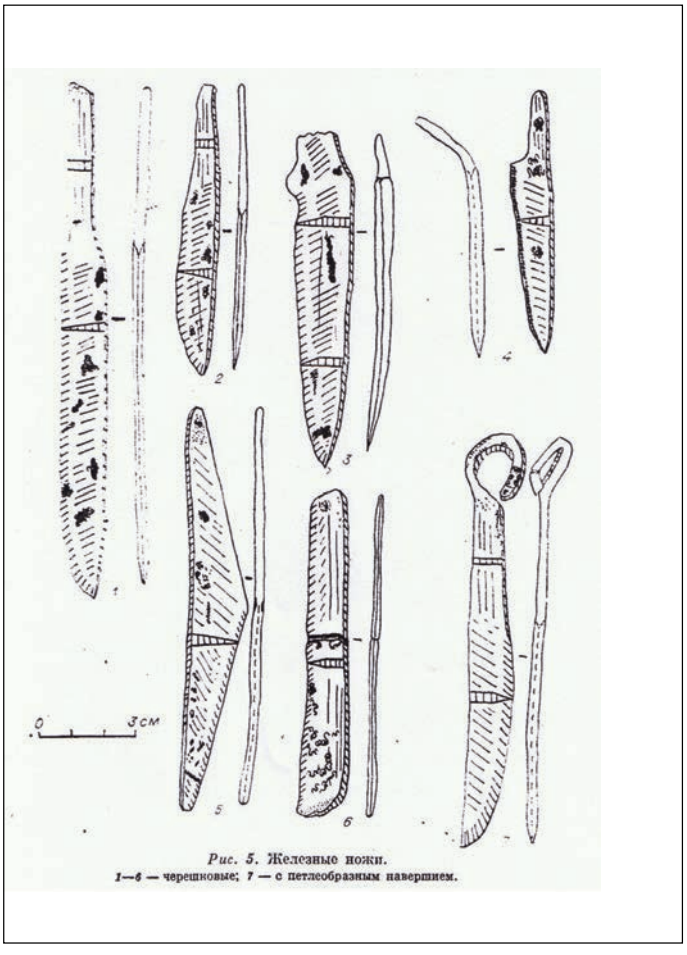


Рис. 5. Железные ножи.
1—6 — черешковые; 7 — с петлеобразным навершием.

diagram 66. Variation from Ringhead to Goat horn style.

While digging in Central Angara, two types of melting furnaces were discovered: one without a foundation and one with a foundation, i.e., where the melting furnace is built into the ground. The foundationless melting furnace can be separated into two types. As relevant here, the first belongs to a container-like furnace into which ore and coal are poured and air can be added through a nozzle. Evidence of this type of furnace has been discovered in every locality, and two well-preserved samples were unearthed in Chadobets in 1967. According to carbon dating, this furnace at the Chadobets site was in use around BC400-300. ZBZ Petri described the process of melting in a crucible container as follows: Two holes are drilled into a large, thick-walled pot with an oval bottom. Ore and charcoal are added and ignited, and, through a nozzle connecting the two holes, air can be blown into the furnace. Once the ore melts, it can be retrieved by breaking the furnace. Metals created through the above process have excellent quality, are surprisingly pure, and are not inferior to modern metals.

One important takeaway from this report is the crucible iron manufacturing method (Wootz), which can be inferred from the reference to the process of melting through a crucible container. Another fascinating point (not reproduced above) is that the artifacts in the report show how the ringhead butt-end develops over time into a Warabi-style spiral butt-end. This evolution toward the Warabi-style spiral butt-end indicates the possibility that these Siberian artifacts may have some connection to the Warabi style swords found later in Japan.

diagram 67. Excavated items from the Kurgan excavated from the Republic of Khakassia in the eastern part of Altai (photographed by the author at the National Museum of the Republic of Khakassia)

Diagram 67 is a photograph of Scythian artifacts discovered at the Kurgan excavation site in in the Republic of Khakassia. Here one can observe the ringhead, egg shape, and drum shape Acinaces. The pottery on the right is similar to Okhotsk type pottery.

VII. On Crucible Smelting

The smelting method in ancient Turkey uses a kiln with holes, much like the sintered clay furnace found in Novosibirsk. In the kiln, sealed crucibles — each containing iron ore and leaves — are placed together in large quantities and then heated. The leaves serve to add carbon to the smelting process, which results in the creation of steel. Because the iron ore is separated from the fire, the kiln may be heated by any fuel source, e.g., charcoal, so long as it can heat the kiln to a sufficiently high temperature. According to

Turkish researcher Kayahan Holoz, the kiln must reach 1600 degrees. After the process is complete, the crucibles are taken out of the kiln and destroyed to collect the finished product inside.

Tangentially, J. Mark Kenoyer, a professor at the University of Wisconsin, was involved in an excavation in India. There, he recovered a crucible, which is shown in diagram 68.

diagram 68. A crucible exacabated in India, made by J. Mark Kenoyer, a professor at the University of Wisconsin.

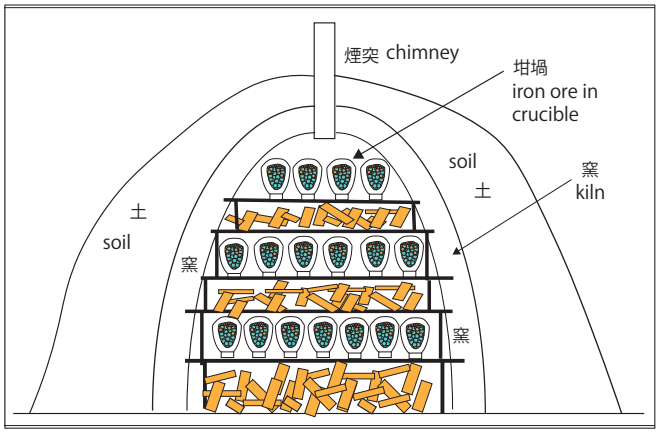


diagram 69. Image of the Crucible iron smelting using a pit firing（image by Mr.Kayahan HOROZ）

The crucible smelting method can find its origins from Bronze Age technology. Indeed, archeologist Anna Feuerback, through her research, concluded that this method has been in existence in ancient Turkey since 500 B.C. According to a YouTube video in which Dr. Feuerback discusses ancient metals (https://www.youtube.com/watch?v=GBSh_FFXpgA), she asserted that a Turkish Yatagan (a type of sword), which was made from steel smelted through the crucible method, could be bent 90 degrees without breaking and return to its original shape. She also asserted that the technology for creating such excellent steel also spread to India and China.

As I had written in a previous article:
From 600 B.C., current day Merv, Turkmenistan, began to prosper as an oasis city on the Silk Road. Technology from Aryans, Scythians, and Balkars were transmitted to China and then the Korean Peninsula. The Silk Road continued to Japan, and, thus, there is a possibility that technology from far-away lands may have laid the foundation for the creation and development of the Nihonto, the Japanese sword. (see note 10).

VIII. Steelmaking in Hokkaido, Japan

In recent years, Okhotsk-type pottery used for forging was excavated at the Motochi ruins (dated around the 10th century during the Satsumon Period) on Rebun Island, which is in Northern Hokkaido. This appears to confirm that pottery was used in steel manufacturing in Hokkaido around the 10th century. Despite the evidence, however, the possibility that these artifacts show evidence of steelmaking is denied. This could be because, in the main Honshu island of Japan, the benchmark for steelmaking is the “Tatara Method.” When considering steelmaking from the Tatara Method, theorists cannot help but discuss

diagram 70. The slag extending to the left was exfoliated with almost no iron content. It seems that the pottery was turned sideways and the slag was poured out. Primary smelting has been denied. (Photo courtesy of Hokkaido University)

primary and secondary refining. Primary refining is designed to remove carbon, and secondary refining removes impurities and adjusts elements. And, under this paradigm, evidence of pottery associated with steel apparently is insufficient to prove that pottery was used in the manufacture of the steel.

At Hokkaido University, I took a photograph of pottery with what appeared to be slag from primary refining. When Hokke Saburo Nobumasa, a Japanese swordsmith, viewed the picture, he thought: (1) that the pottery was likely placed on the ground; (2) the internal temperature of the pottery must have been at least 1,200 degrees based on the foaming patterns left in the inside; and (3) if the pottery were used for iron processing, then the slag would inextricably stick to the pottery.

But is 1,200 degrees necessary for iron processing? A temperature under 1,000 degrees would be sufficient to process iron, and 1,200 degrees would be too hot and cause the clay lining of the pottery to melt. Perhaps the purpose of raising the temperature that high is simply to melt the raw material without regard to whether the pottery melted. In any event, there is some similarity between the Hokkaido pottery and the crucible steel making (Wootz) in Novosibirsk. Both use high temperatures for smelting.

Notably, among the materials I viewed from Hokkaido University relating to the pottery, there was a diagram written in the Korean language (see diagram 71). This diagram appears to describe the crucible

diagram 71. Is it the crucible method considered in Korea?
This diagram is misused. The crucible loaded inside is not sealed.

smelting method (Wootz), but the crucible is not sealed and there is white smoke emanating from the middle. Thus, inasmuch as the diagram might be attempting to describe the crucible smelting method, it is probably incorrect.

In Hokkaido, it is said that the Tatara method of steelmaking began around the 10th century, which is about a hundred years after confirmed evidence of the method in northeast Japan in the 9th century. Moreover, it even is said that the steelmaking in Hokkaido involved the refinement of metals brought from the Asian mainland by the Okhotsk people. My hypothesis, however, is that the crucible method existed in Hokkaido even before the 9th century and that the Tatara method simply was later selected as the preferred method. It cannot be that the smelting method that existed in northeast Japan was somehow unknown to Hokkaido for 100 years. Travel in the waters of Hokkaido was well developed as early as the 7th century. Warriors from northeast Japan also fought in the Battle of Hakusukinoe (or Hakusonko) in Korea. The round-head sword found in Fugoppe Cave in Yoichi, Hokkaido, is said to be of Korean origin (see diagram 72). Diagram 73 is a photograph of a Korean round-head sword (or ento-dachi). Clearly, the people in Hokkaido were well traveled and would have been familiar with steel making methods of northeast Japan much sooner.

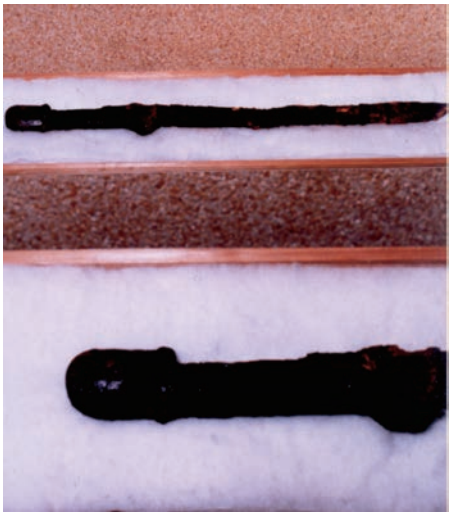


diagram 72. a sword excavated at Fugoppe Cave in Yoichi, Hokkaido.

diagram 73. Ento-dachi in Korea.

IX. Steel-and Sword-Making in Honshu, Japan

In Akita Prefecture, which is located in northern Honshu, Japan, the Tatara method using a vertical furnace existed around the 9th century. (see diagram 74). I observed this method in person and learned that the steel was made from iron sand, which was then smelted using charcoal. It is said that this method arrived in northern Japan from the south, where the Tatara method was already in use. But other methods existed, such as melting iron rock (at more than 1,500 degrees) for use in casting.

diagram 74. A furnace excavated at the Kanninzawa Ruin in Akita Prefecture, Japan.

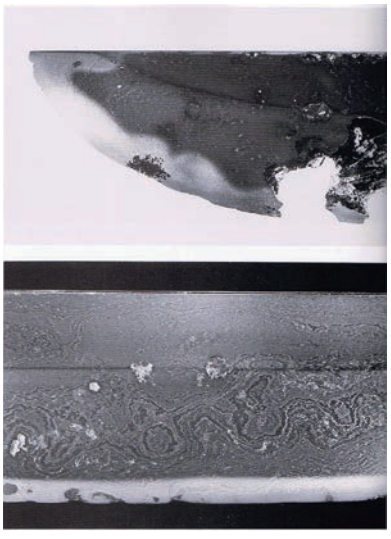


diagram 75.Gunma Prefecture Futakoyama Ancient Tomb Sword (late 6th century)

As a point of discussion, let us consider the characteristics of the metal of the Gunma Futagoyama Kofun Sword, which was made in the latter part of the 6th century. The blade, which is shinogi-style, has a wood-grain pattern, as well as large and small "nie" and zig-zag patterns in spiral shapes that appear on the surface. I believe that the patterns on this sword indicate that it was not made from steel smelted through the Tatara method. The spiral shapes are not intentionally drawn but rather the result of creating a sword from an iron lump composed of many smaller parts. And the smaller parts, I believe, are made using the crucible smelting method. The characteristic metal found in ancient Japanese swords (pre-Nara period) may be explained by the crucible smelting method, which I believe existed during the Kofun Period.

Under current, accepted theory, it is said that the Tatara method arrived in Japan through the Korean peninsula. But the Tatara method at the time used a very small furnace and, thus, would have created only small bits. That is, the ancient Tatara method, much like the crucible smelting method, might have been a method to create the small parts that, together, compose the iron lump that would eventually be used to forge the blade (or other metal items such as Buddhist symbols).

The modern boxed-shape furnace used in places like Shimane Prefecture, Japan, or even the 9th century vertical furnace found in Akita Prefecture, Japan, are likely larger versions of the original Tatara method. During the much older Kofun Period, metal must have been made from smaller hand-blown Tatara furnaces or the crucible smelting method. And, in northern Japan, the artifacts indicate that swords continued to be made from iron lumps (composed of smaller parts) well after the Kofun Period.

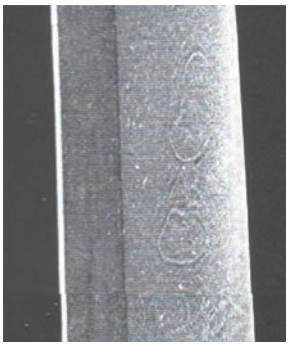


diagram 76. Hoju made.

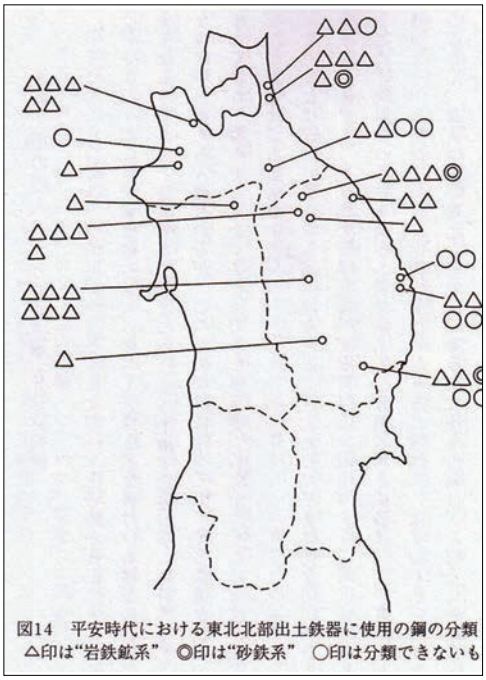


diagram 77. △ Rock iron ore, ◎ iron sand, ○ not clear. from the book "Ancient Swords and Iron Science" P.214

According to the "Deconstruction of Steel Used in Metal Products Created During the Heian Period" (see note 16), iron ore (△) was abundant in northern Japan (see diagram 77). This may have provided a favorable condition for the crucible smelting method to continue in that area.

X. The Japanese-Style Sword

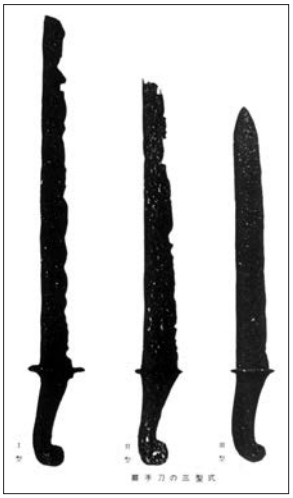


diagram 78. Warabiteto 3 styles, by Masakuni Ishii

diagram 79. kenukigata-warabiteto

It is said that the Japanese-style sword, known as the Nihonto, was fully developed by the middle of the Heian Period. This conclusion is based on examining the shapes of the Warabite sword of the late 7th century; the Kenukigata sword of the late 8th century, the Kenukigata tachi of the early 10th century, the Kodaito of the 11th century; the straight swords of the early 4th century; and the development of the shinogi-style between the 4th and the 8th century (see diagram 81).

Furthermore, the changes from Warabite sword, Ryukozuka sword (late 9th century), to the Ezo sword (11th century), and the changes

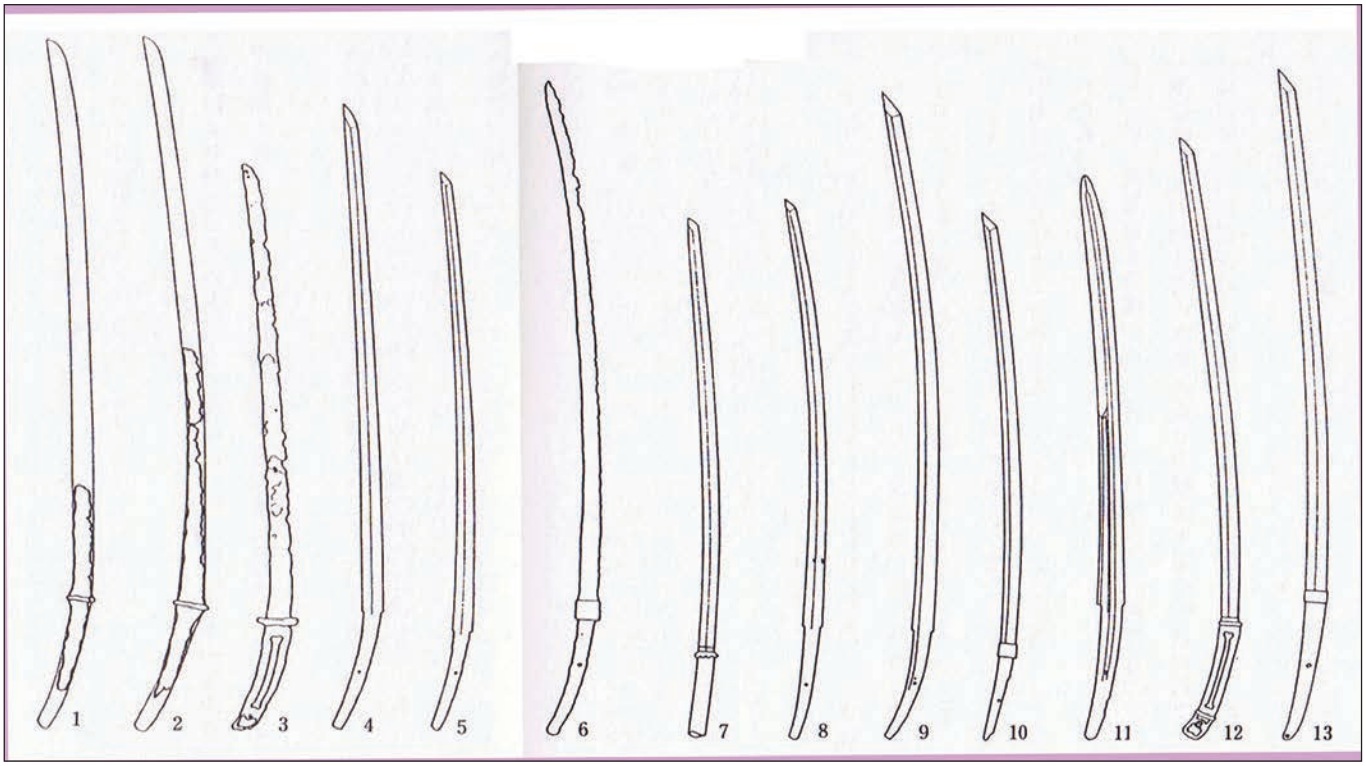


diagram 80. Kodachi, from the book "Ancient Swords and Iron Science"

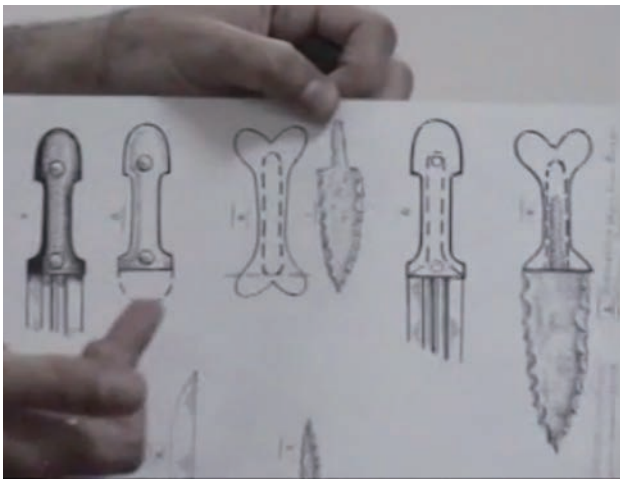


diagram 82. Nakov Felix expains about bone made handle sword (Nalchik National Museum in Caucasus) which is similar to the Ryuko-zuka.

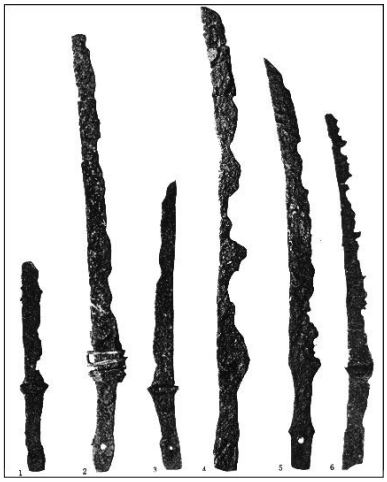


diagram 82. Ryukozuka style

in the straight flat sword (through the middle 11th century) suggest that the development of the curved and straight swords influenced each other.

A rough summary of the evolution of Japanese straight swords is as

Straight sword:

Tsukuri-komi
1. Hirazukurti,
2. Seppa-zukuri,
3.Kissaki-ryoba-zukuri,
4. Shinogi-zukuri

Straight Sword:

Tsurugi : both-sides blade straight sword
Tousu : Secret small knife for defense
Hirazukuri Chokuto
Hirohaba Hirazukuri Chokuto
Seppa-zukuri chokuto
Shinogizukuri-you Chokuto

Curved sword:

Zaimei Shinogizukuri Wakizashi
Zaimei Shinogizukuri Uchigatana
Zaimei Shinogizukuri Wakizashi
Zaimei Tachi
Kodachi
Warabite-to
Kenukigata Tachi
Kenukigata-to
Ryukoduka-to
Zaimei Hirazukuri Kowakizashi
Hirazukuri-to
Emishi-to
Zaimei: with signture
Tachi: Sable
Uchigatana:Shashuka

Sword type trendy list

by Masakuni Ishii

↓ Azuchi-Momoyama

Period

Yayoi period (Early. Middle Late) | Kofun period (Early. Middle, Late) | Nara period | Heian period (Early. Middle, Late) | Kamakura (Early Late) | Yoshino | Muromachi period (Early Late) | Edo period (Early Late)

Straight sword

Tsurugi
Tousu
Hirazukuri Chokuto
Zaimei koshigatana(tanto)
Hirohaba Hirazukuri Chokuto
Seppa-zukuri chokuto
Kissaki-ryoba chokuto Hirazukuri Chokuto
Kissaki-ryoba chokuto Seppazukuri Chokuto
Shinogizukuri-you Chokuto

Curved sword

Zaimei Shinogizukuri Wakizashi
Zaimei Shinogizukuri Uchigatana
Kodachi
Zaimei Tachi
Kenuki-gata Tachi
Kenukigata-to
Warabite-to
Emishi-to
Ryukoduka-to
Zaimei Hirazukuri Kowakizashi
Hirazukuri-to

Century

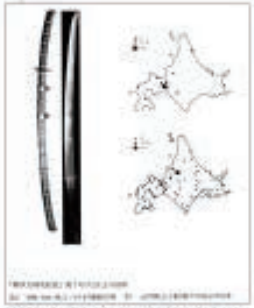
BC/AC 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19

Warabiteto tsurikomi styles

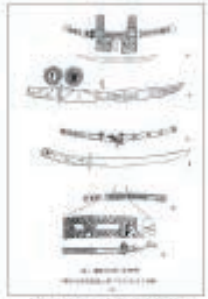
Tsuka(or zuka) : Hilt Ryukozuka warabiteto styles

Kenukigata-to variation to Tachi

Tachi swords (8C-12C)



Shirogane-zukuri Emishi-to



3 styles of Emishi (sword) of Ainu

diagram 81. Sword Style Trendy List.

follows: (1) flat straight sword (early 4th century); (2) wide flat straight sword (7th century); (3) seppa(or kiriha)-style flat sword (8th century); (4) double-edged straight sword (8th century); (5) double-edged seppa-style straight sword (late 8th century); and (6) the shinogi-style straight sword (late 8th century).

A rough summary of the evolution of Japanese curved swords is as follows: (1) Warabite sword (late 7th century); (2) Kenukigata sword (late 8th century); (3) Kenukigata tachi (early 11th century); and (4) Kotachi (11th century).

Another line of evolution of the Warabite sword is the Ryugozuka sword (late 9th century), the Ezo sword (late 10th century), and the flat sword (mid-11th century).

These lineages are based on the different styles of curved swords, their handle, and geometry, but it is unlikely that these varied styles developed at once throughout all of Japan. As a reason for this, and looking at the Warabite sword as an example, the Warabite sword has striking similarity with the goat-horn style sword from the Asian mainland, namely, from the area of Siberia.

The bone sword served as the basis for the goat-horn style (or Warabite) sword's handle, and that shape continued into the bronze age and then the iron age. It is likely that these swords found their way into Japan at some point. Moreover, it can be said that the Kenukigata style sword with the hollowed handle looks similar to the Acinaces. The handles of the Ryugozuka sword and the Square sword look dissimilar to the goat-horn style swords, but they likely were influenced by the shape of the bone sword (see diagram 82). It may be that the ancient swords of the pre-Nara period were, in fact, influenced by the Acinaces.

XI. Ainu Sword: The Ezo (Emishi) Sword

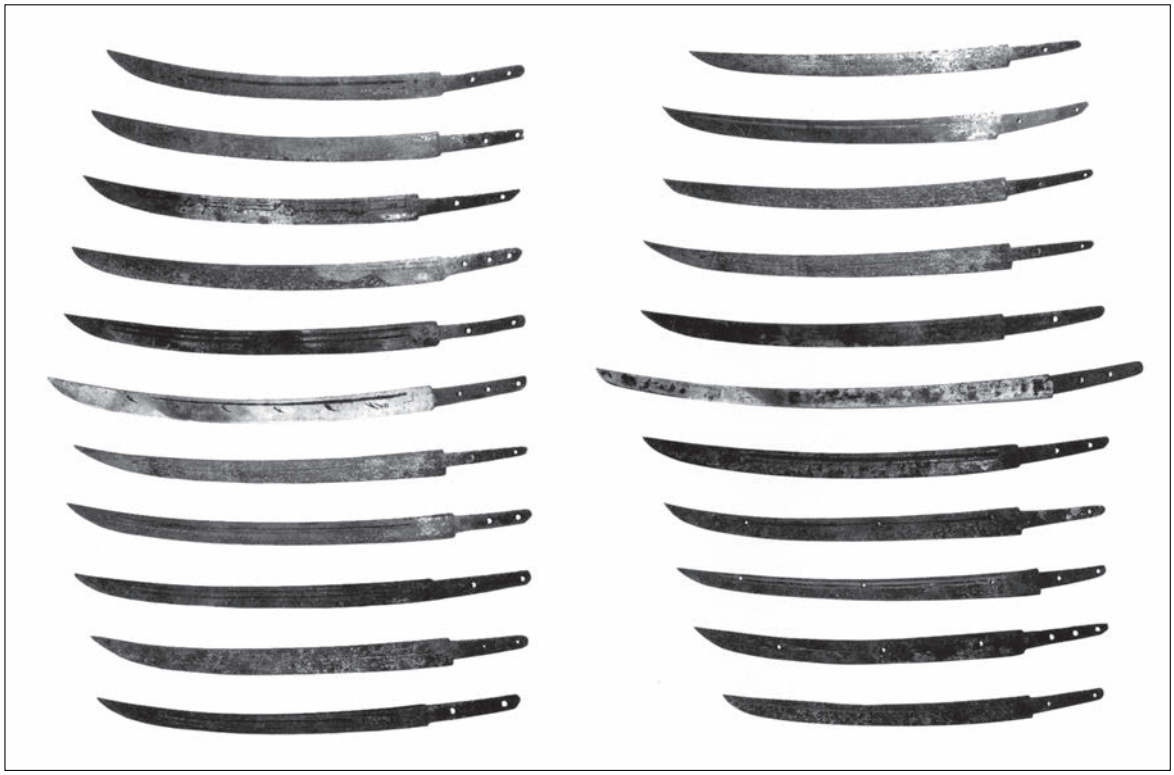


diagram 83. Ainu sword dedicated to Shiogama Shrine (Shiogama Shrine Museum "Beauty of Japanese Swords and Swords of the World" p.17).

The Ainu swords that are generally known and found in Hokkaido or preserved at the Shiogama Shrine (located in northeast Miyagi Prefecture, Japan) are

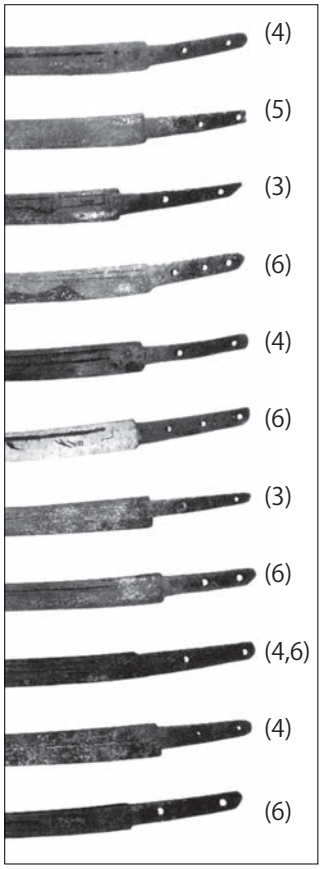


diagram 84. Ainu sword's end of the Nakago.

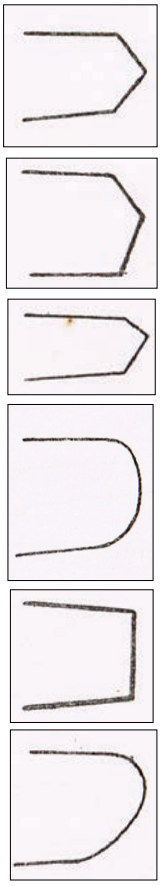


diagram 85. Nakago styles by Kan'ichi (Kanzan) Sato

likely ceremonial items. Notably, the symbol of the Ainu clan that dedicated the sword appears on the end of the nakago.

The nakago style of the Ainu swords are consistent with how nakago are cut by modern Japanese swordsmiths, but it is interesting that the number of nakago styles are the same as the nakago styles found in Scythian swords.

The nakago styles used in Japanese swords are: (1) sword shape; (2) stupa shape; (3) half mountain shape; (4) flat mountain shape; (5) straight cut; and (6) chestnut rising blade shape.

XII. Ainu Sword: Combining the Characteristics of the Straight and Curved Swords

In examining the Ainu sword, it is important to note that the Ainu produced both curved and straight swords. Of note, a straight sword was excavated from the Kan Kan site located in Nibutani in Biratori, an area inhabited by the Sarunkur (Ainu of the Saru River Basin) (see diagram 86). A significantly similar straight sword was excavated from Kuno Number 2 Mound in Samukawa Shrine, Samukawa-cho, Koza Gun, in Kanagawa Prefecture (located adjacent to Sagamihara city in Kanagawa Prefecture, where there have been prior excavations of Katsusaka-style Jomon Period pottery) (see diagram 87). While this similarity may be entirely coincidence, it is hard to say the

diagram 86. swords excavated at the Kan Kan 2 ruin in Biratori Town, Hokkaido.

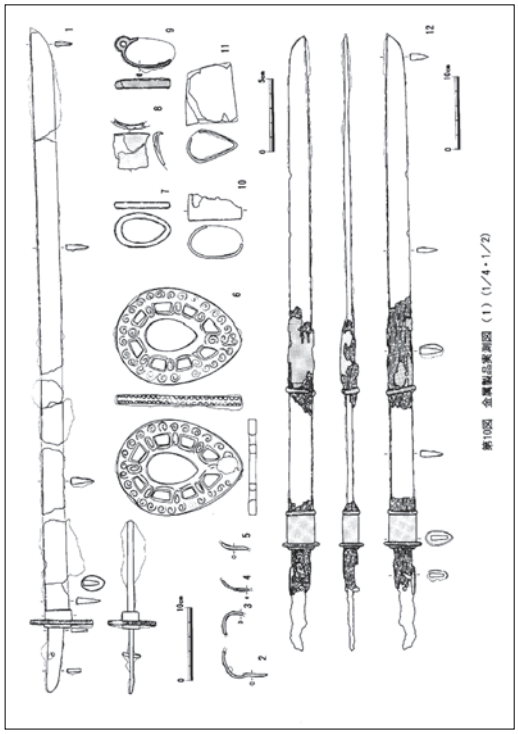


diagram 87. swords excavated from No. 2 Kuno Tomb.

two swords are not both Ainu swords. But to state what appears obvious is taboo, where it is accepted knowledge that Ainu swords were developed after the Muromachi Period (1336-1573).

XIII. Ainu Tomb (the butt-end, handle, and guard)

Ainu tombs have 6 styles, and these styles coincidentally correspond to the 6 styles of the Acinaces. The male and female tombstones of the Ainu appear to follow the pattern of the butt-end and guard of the Acinaces, as well as the nakago style of Japanese swords.

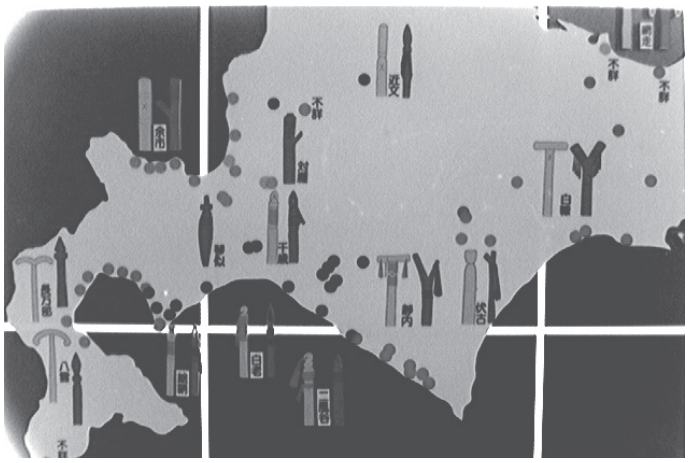


diagram 88. Ainu Tombstone (photographed by the author at the Ainu Association of Hokkaido)

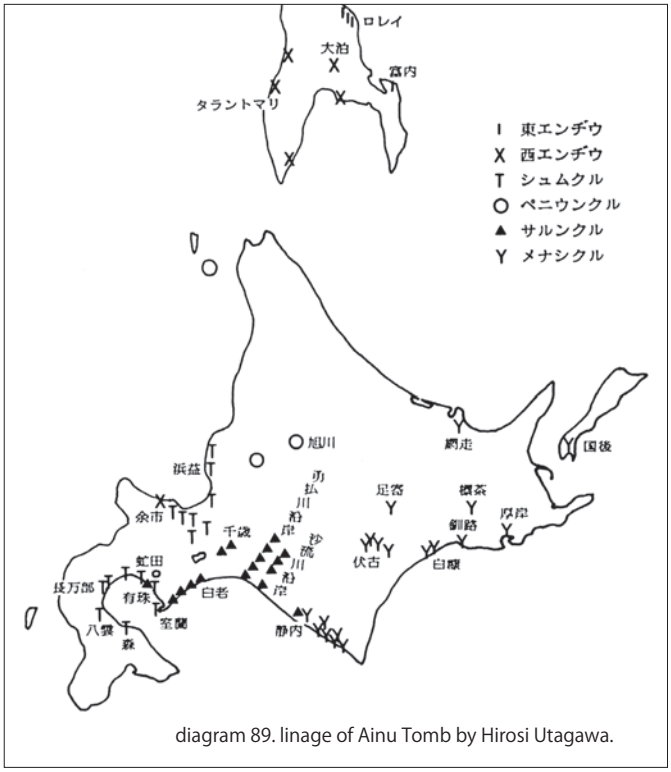


diagram 89. linage of Ainu Tomb by Hirosi Utagawa.

Diagram 88 is a picture taken from an exhibit presented by the Hokkaido Ainu Association. It is an illustration of the salient types of Ainu tombstones and is not meant to be exhaustive.

The styles of Ainu tombstones in Hokkaido are (see diagram 89): (I) East Enciw; (X) West Enciw; (T) Sumunkur; (o) Peniunkur; (▲) Sarunkur; and (Y) Menashikur.

diagram90

Sarunkur-style Ainu Tombstones

(1) Diagram 90: Nibutani Ainu Tombstone showing similarity with the Acinaces goat-horn ringhead butt-end and sword-style guard.

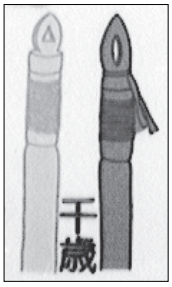


diagram91

(2) Diagram 91: Chitose Ainu Tombstone showing similarity with the Acinaces goat-horn ringhead butt-end and sword-style guard.

diagram 92

(3) Diagram 92: Shiraoi Ainu Tombstone showing similarity with the Acinaces goat-horn ringhead butt-end and sword-style guard.

Menashikur-style Ainu Tombstones

diagram 93

(4)Diagram 93: Shiranuka Ainu Tombstone showing similarity with Acinaces T-style butt-end and sword-style guard.


diagram 94

(5)Diagram 94: Shizunai Ainu Tombstone showing similarity with Acinaces T-shaped butt-end and sword-style guard.


diagram 95

(6)Diagram 95: Fushiko Ainu Tombstone showing similarity with Acinaces Egg-shape butt-end and sword-style guard.

diagram 96

(7)Diagram 96: Abashiri Ainu Tombstone showing similarity with Acinaces T-shaped butt-end and sword-style guard.

Sumunkur-style Ainu Tombstones

diagram 97

(8)Diagram 97: Oshamambe Ainu Tombstone showing similarity with Acinaces goat-horn butt-end and sword-style guard.

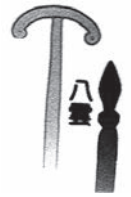
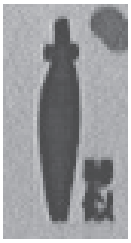


diagram 98

(9)Diagram 98: Yakumo Ainu Tombstone showing similarity with Acinaces goat-horn ringhead butt-end and sword-style guard.

Non-categorized Ainu Tombstone (unknown)



(10)Diagram 99: Kotoni Ainu Tombstone showing similarity with nakago-style Acinaces (Thracian). (No experience of Goat ringhead horn, warabite and kenuki.)

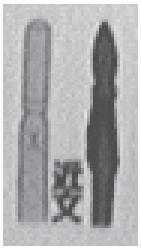
diagram 99

West Enciw

(11) Diagram 100: Yoichi Ainu Tombstone showing similarity with Acinaces circular butt-end and egg-shaped guard.

diagram 100

Peniunkur



(12) Diagram 101: Chikabumi Ainu Tombstone showing similarity with Acinaces circular butt-end and egg-shaped guard.

diagram 101

East Enciw

(13)Diagram 102: Karafuto Naibuchi Ainu Tombstone showing similarity with Acinaces I-shape, sword-style guard, and X.

diagram 102

XIII. Comparing the Ainu Tombstone to the Salient Characteristics of a Scythian Acinaces Group

I compared the Scythian group Acinaces and Ainu tombstone in the following manner. First, I selected a Scythian blade according to the appropriate Acinaces group. Second, I examined the characteristics of the blade, namely, the butt-end, handle, and guard, and chose an Ainu tombstone that appeared to

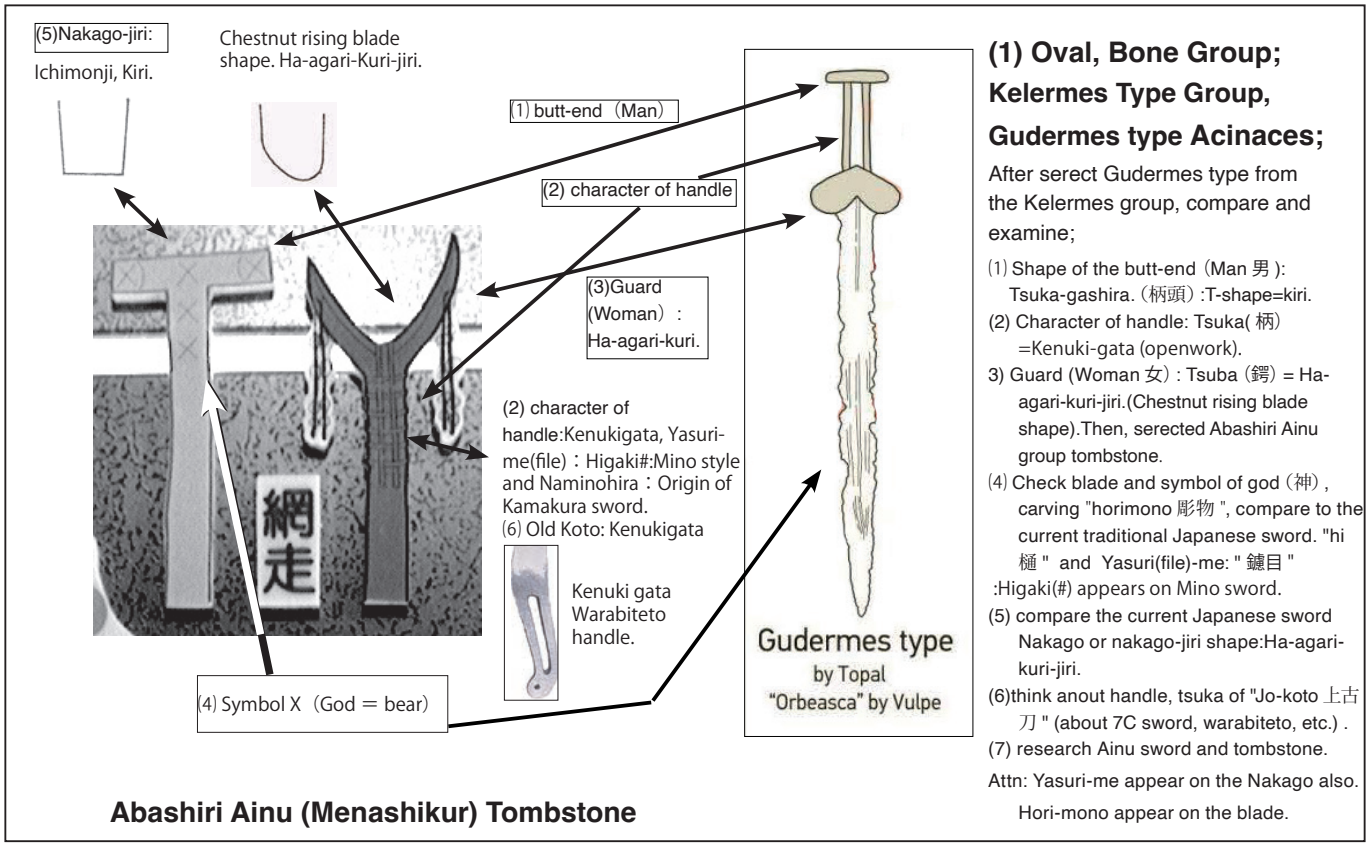


Diagram 103. Comparing the Kelermes group , Gudermes type Acinaces with the Abashiri Ainu Tombstone.

show consistency with the characteristics of the blade. Third, I examined the blade and the tombstone, noting any similar symbols shared between the two. Fourth, I took the shape of the Ainu tombstone and considered the relationship between the shape and a known style of sword-making. Finally, based on my consideration of the Acinaces' handle, I inferred further the appropriate style of handle used in ancient

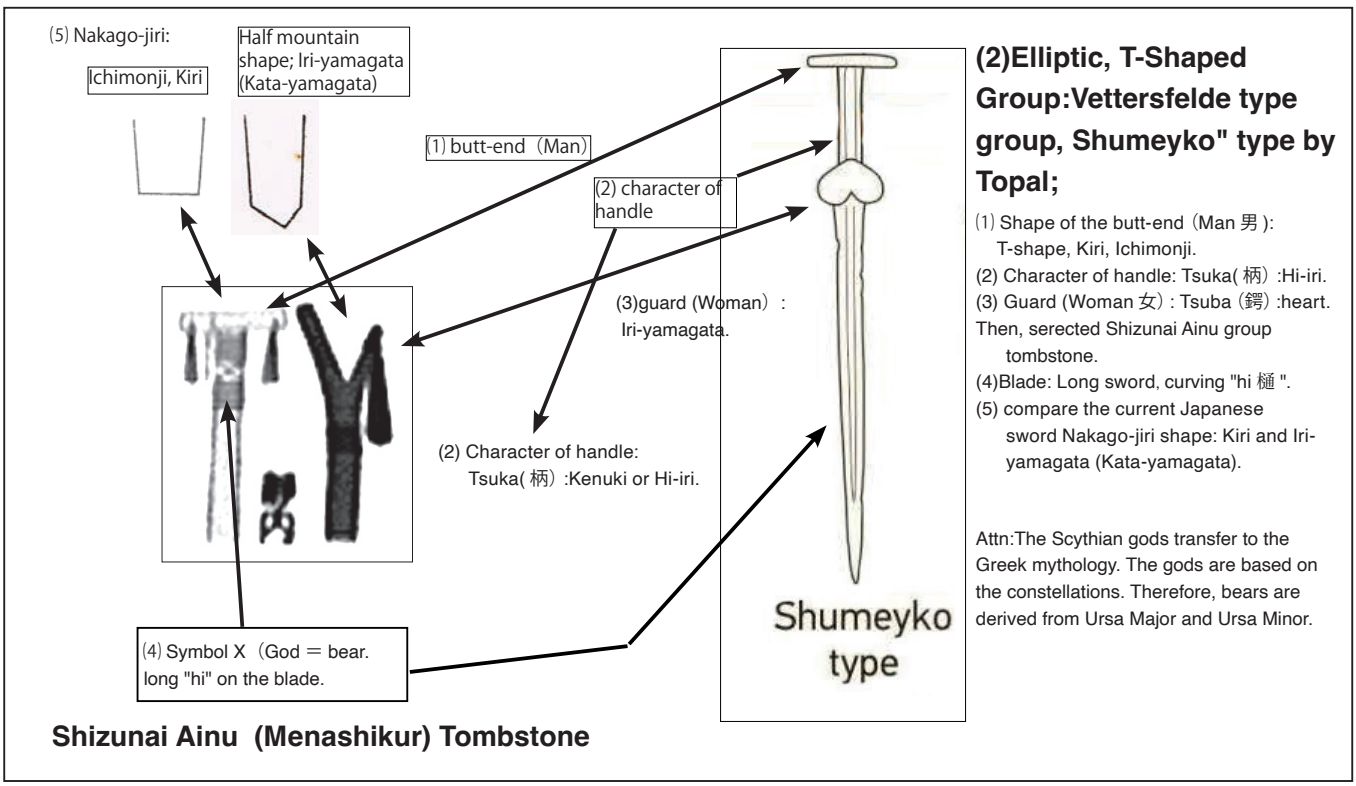


diagram104. Comparing the Vettersfelde group, Shumeyko type Acinaces with the Shizunai Ainu Tombstone.

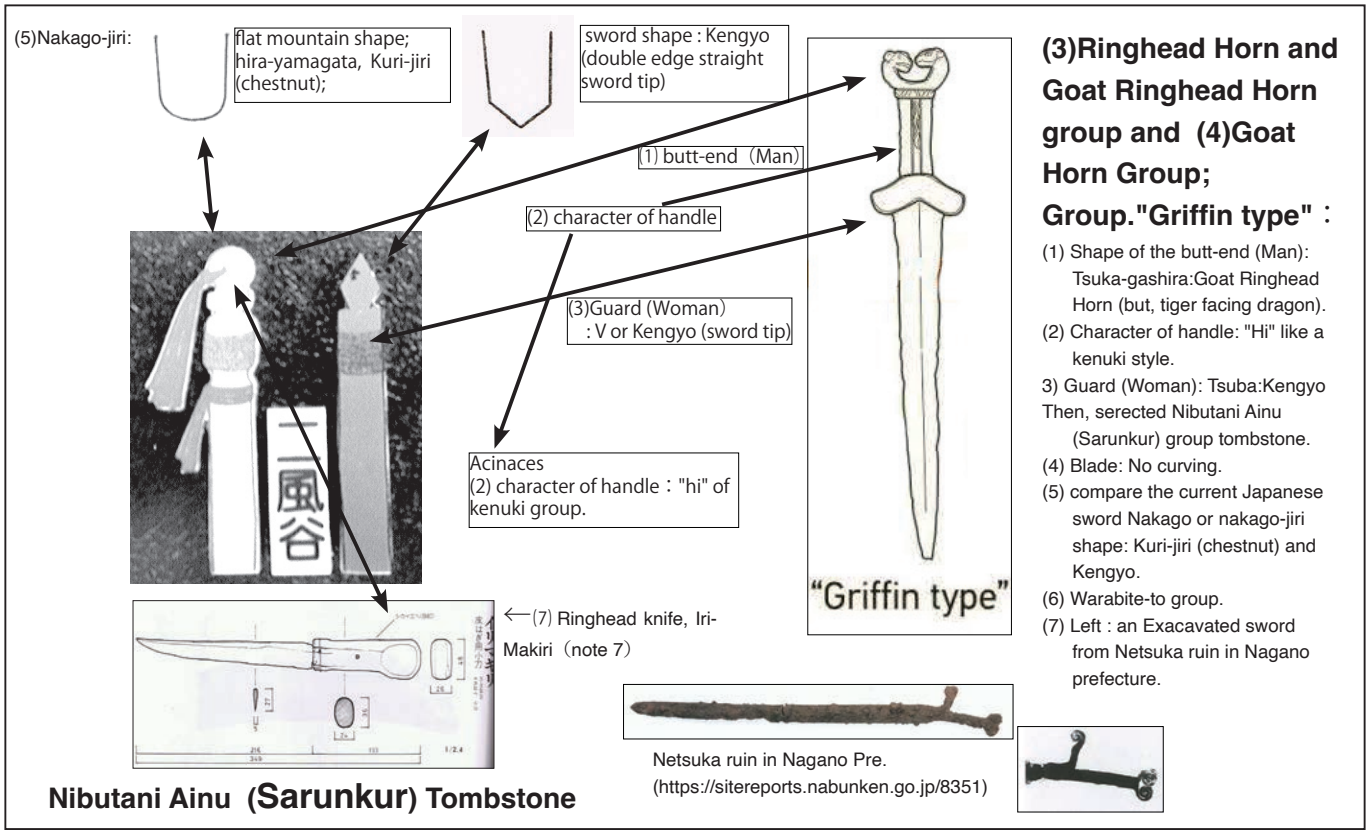


Diagram 105. Comparing the Solokha group, Griffin type Acinaces with the Nibutani Ainu Tombstone.

Japanese swords. See Diagram 103 (comparing the Kelermes group, Gudermes type Acinaces with the Abashiri Ainu Tombstone); Diagram 104 (comparing the Vettersfelde group, Shumeyko type Acinaces with the Shizunai Ainu Tombstone); Diagram 105 (comparing the Solokha group, Griffin type Acinaces with the Nibutani Ainu Tombstone); Diagram 106 (comparing the Chertomlyk group, Chertomlyk type Acinaces with the Naibuchi Ainu Tombstone); Diagram 107 (comparing the Chertomlyk group, Shulgovka type Acinaces with the Yakumo Ainu Tombstone); Diagram 108 (comparing the nakago group, Thracian knife and Chaush type Acinaces with the Kotoni Ainu Tombstone).

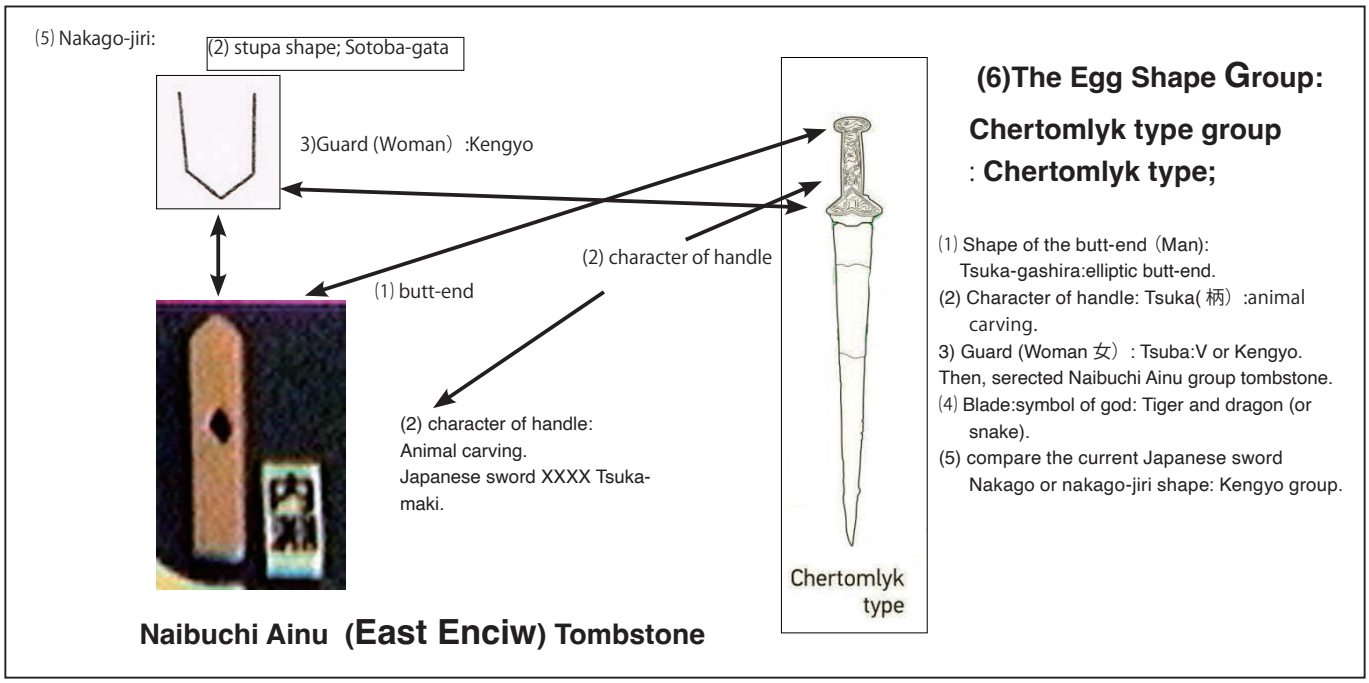
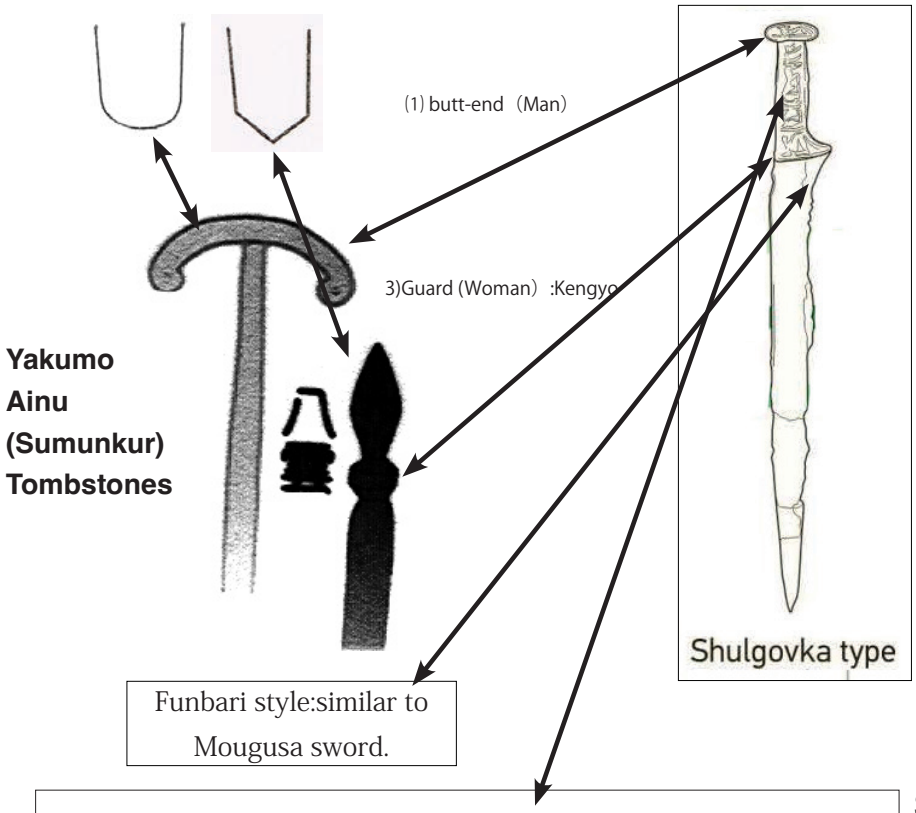


diagram106. Comparing the Chertomlyk group, Chertomlyk type Acinaces with the Naibuchi Ainu Tombstone.

(5) Nakago-jiri: Kuri-jiri, Kengyo or iriyamagata

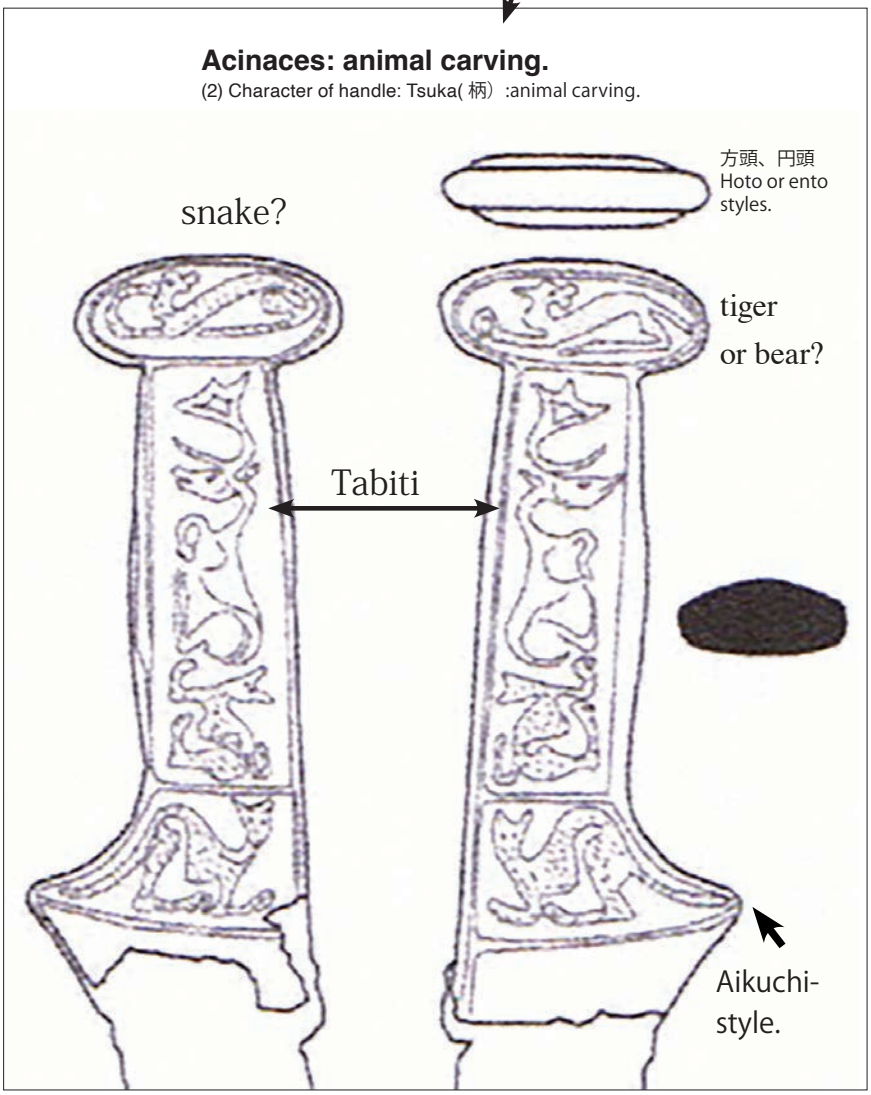


(6)The Egg Shape Group, Chertomlyk type."Shulgovka" type by Topal;

(1) Shape of the butt-end（Man 男):
Tsuka-gashira:elliptic butt-end. 円頭様式
Ento-dachi style.

(See diagram 72 and 73)

(2) Character of handle: Tsuka(柄）:animal carving.
(3) Guard (Woman 女）: Tsuba:V or Kengyo.
Then, serected Naibuchi Ainu group tombstone.
(4) Blade:symbol of god: Tiger and dragon (or snake).
(5) compare the current Japanese sword Nakago or nakago-jiri shape: Kengyo or Iriyamagata group.



Scythian gods are derived from the constellation.

Tabiti：Deer

Api：?

Thagimasidas：Poseidon

In Greek mythology, there is the one-eye god who strikes with an aizuchi (blacksmith's partner) when forging a sword. This is the root of the Japanese blacksmith god "Ame-no-me-hitotsu-no-kami"(one eye god).

Diagram 107. Comparing the Chertomlyk group, Shulgovka type Acinaces with the Yakumo Ainu Tombstone.

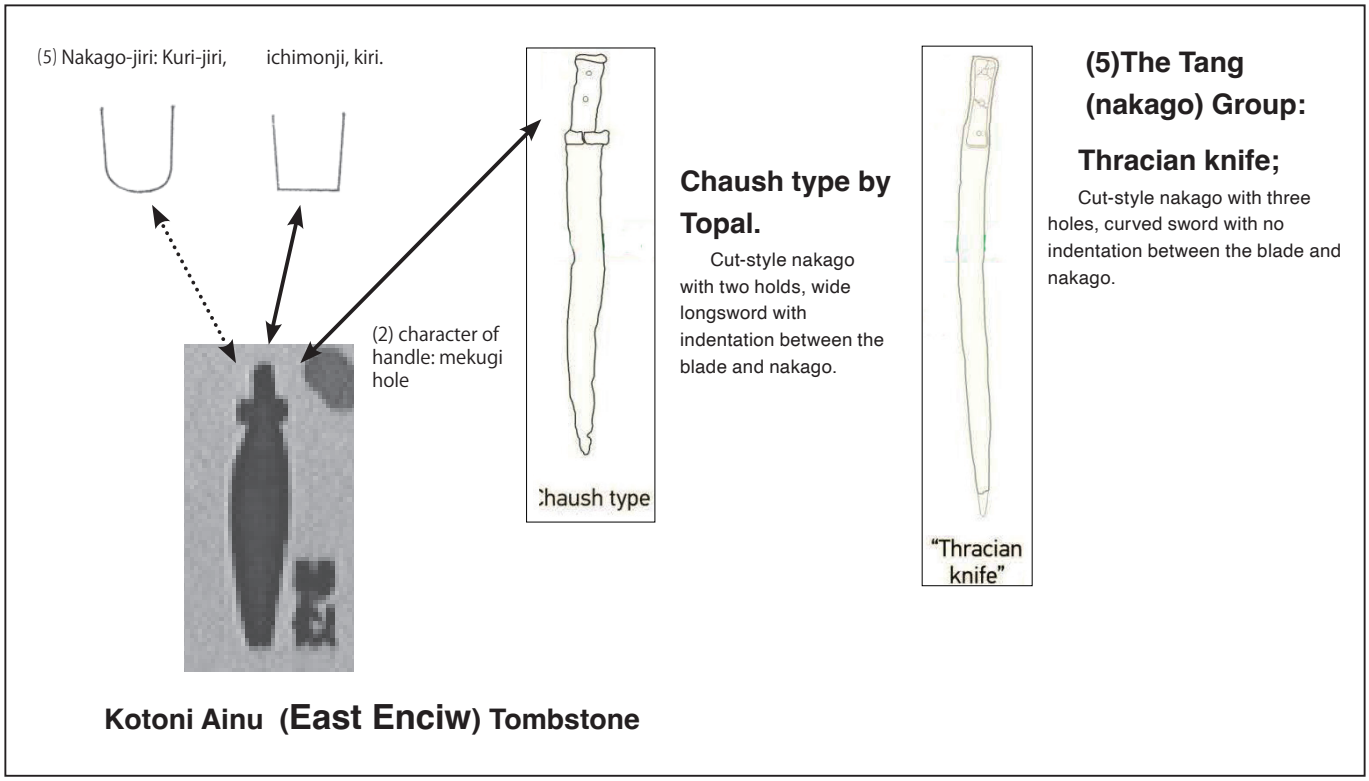


Diagram 108. Comparing the nakago group, Thracian knife and Chaush type Acinaces with the Kotoni Ainu Tombstone.

Ainu tombstones have distinctive markings that separate male and female. There is some possibility that the shape of the Acinaces's butt-end may represent male, while the shape of the Acinaces's guard represents female. It seems the heart-shaped guard, in particular, represents the feminine characteristics.

Tangentially, the Abashiri Ainu Tombstone is Y shaped and depicts a zig-zag pattern. This zig-zag pattern is strikingly like the file markings on the nakago of swords made by Japanese smiths of the Mino tradition, such as Nagamitsu and Naminohira. One might inquire about the relationship between the Ainu and the Mino tradition, especially upon consideration of Sato Kanzan's treatise on Japanese swords, in which he provides his opinion regarding the file markings on the nakago (see note 13).

XIV.Concluding thoughts

One might conclude, as I have, that there are more than coincidental similarities between the Ainu tombstones and the Acinaces. There is the religious connection, as seen in the Shamanistic symbols of Jomon Period pottery; there is a sword connection that can be traced by examining the shape of the nakago; and there is a metal connection if the crucible smelting method were used by the Ainu people. There is also the matter of age and time period, and further examination of the periods of development of the Acinaces and the progression of sword production in Japan from the Jomon Period through the pre-Nara era is necessary. My hope is that others will be interested in pursuing these leads. The following are

my hypotheses presented to build up to important questions for consideration by future researchers.

(1)Okhotsk-type pottery and Kokuyo (or Kurogama;Black Kiln) are related

There is a type of pottery made on Jeju Island, South Korea, known as the Black Kiln. The name "Black Kiln" comes from the fact that the pottery is naturally blackened through the heating process rather than colored with glaze. The shape of the Black Kiln resembles Okhotsk-type pottery, which, according to Professor Tetsuya Amano of the Hokkaido University, is distinguished by a multi-layered style. Professor Amano believes that, because the Black Kiln is also a multi-layered style, there is perhaps a close or direct connection between the Black Kiln and Okhotsk-type pottery.

Several years ago, I met and recorded a craftsman on Jeju Island who specialized in producing the Black Kiln. At the outset, he told me that "the method for making the Black Kiln is the same as the method for making a Japanese sword." He kneaded the clay well and allowed it to sit afterwards. Next, as if hitting and shaping hot iron, he took a hemispherical plate and struck the clay to lengthen and then fold it. He was careful not to let any air in the clay; otherwise, during the heating process, the kiln would crack. Notably, when making the Black Kiln, he added no water during the process. He took the folded clay and broke it into three pieces: (1) the bottom; (2) the top; and (3) the body.

The craftsman took the bottom section and, using his hands, shaped it into a circle. For the body section, he rounded the bottom and connected it with the bottom section. Only at this time did he use a little water to connect the two pieces. He then took a rounded object and placed it inside the pottery as he struck the outside with a patterned plate. Through this process, the shape of the pottery became evenly round. Finally, the craftsman attached the top section of the pottery. (According to Tadashi Ozawa, who is President of a pottery company called Shinryu, this craftsman's method is similar to the old "karatsu" method of making pottery in Saga Prefecture, Japan).

This craftsman's teacher was a national treasure. I wanted to ask so many questions, but I did not have the opportunity to do so. Why does he not use water, and why does he shape the pottery by striking, stretching, and folding it? My guess is that the process allows for the pottery to endure higher heat treatment. The Jomon Period pottery were made at around 800 degrees; I wonder what temperature the Black Kiln is baked?

(2)Both Okhotsk pottery and Satsumon pottery are baked at high temperatures

It is likely that the reason why the Black Kiln is folded and does not use water during the shaping process is to increase heat resistance, allowing heat treatment of temperatures around 1,200 degrees. Based on this hypothesis, the production of Okhotsk pottery and Satsumon pottery probably were also folded and did not use water during the shaping process, allowing it to be baked in 1,200 degree heat without cracking. Of course, this is simply a guess and particular to the Okhotsk and Satsumon potteries.

diagram 109. Moyoro ruin (Satsumon pottery, etc) (note 8)

But what might be the purpose of having material that can withstand 1,200 degree heat?

diagram 110. Barkarian sword which may be heated treatment (over 300 years before made)

(3)Wootz steel could be made through the crucible smelting method using Satsumon pottery

The crucible smelting method does not use one pottery but rather many small potteries (crucibles) that are sealed and heated. Inside each crucible are the iron ingredients (rock iron ore) and leaves (for carbon) or kaolin (for Indian Wootz, likely salt). These ingredients can be sealed in Satsumon pottery and heated to more than 1,200 degrees. Although the Satsumon pottery and crucible will, at the end, likely break, metal can be created during this process. It is said that swords constructed with steel made from the crucible smelting method can bend 90 degrees and not break (see diagram 110 and note 5).

What is the likelihood that the crucible smelting method was used in Japan?

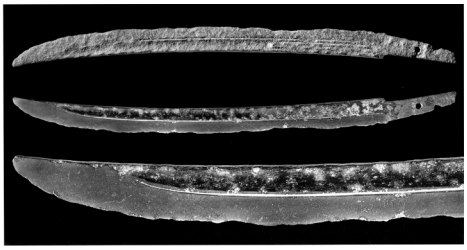
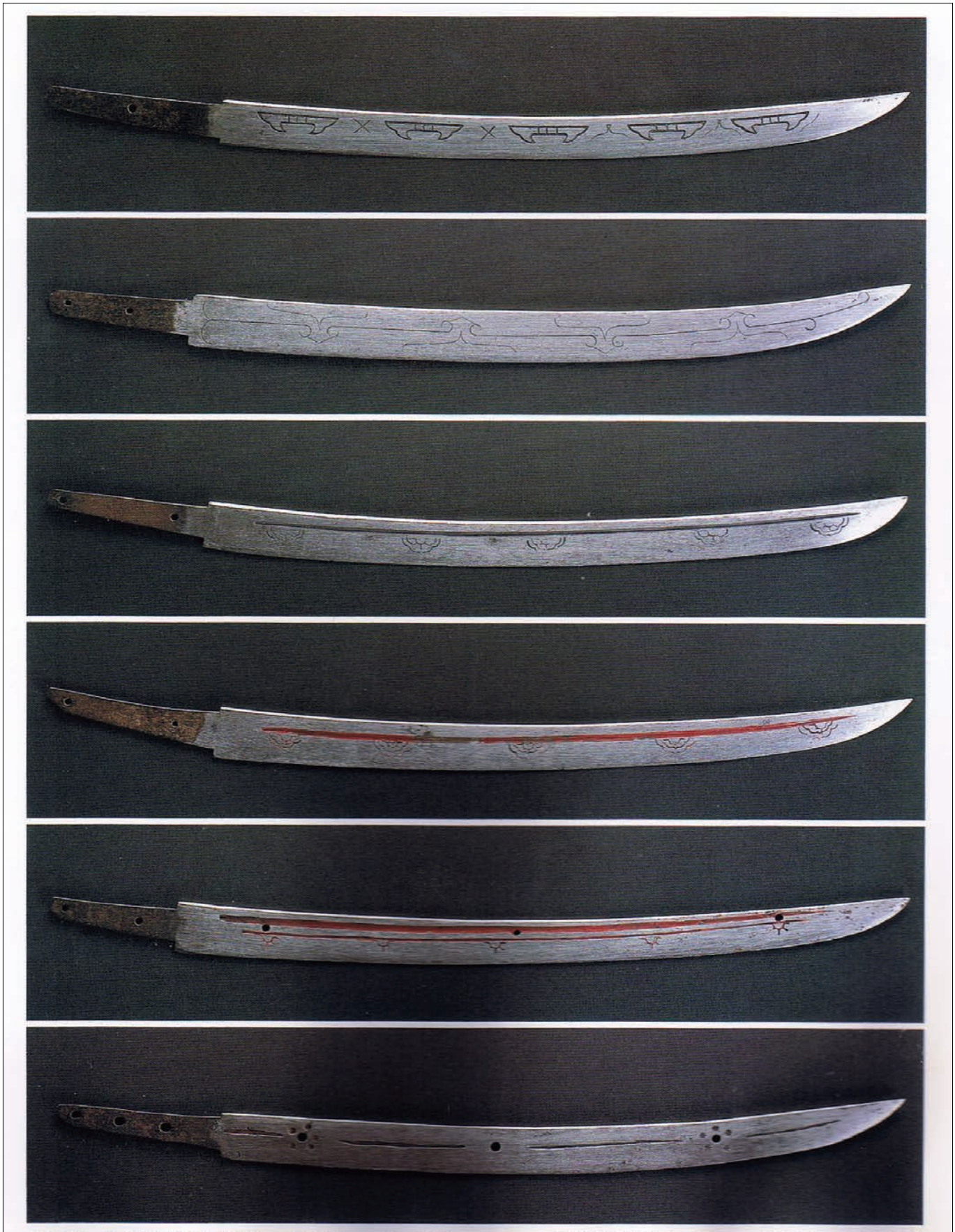


diagram 111. Fujiwara Kiyohira's sword.
This sword shape is the same as Ainu sword.Kiyohira ordered to make sword to Fushu (emishi).

(4)The Ainu combined the characteristics of the curved and straight swords

In terms of swords, I consider the Kiyohira Kanjo-to (on the Kiyohira's coffin sword), which is located in the Chuson Temple in Iwate Prefecture, Japan, as a starting point for examining the relationship between the Ainu and Emishi. The shape of this sword is Ainu-style and the surface of the steel is distinctive. Notably, there are Ainu swords that are forged using the folding method, and these swords are evaluated as so-called Japanese swords (see diagram 112). I wish that there was a way to test



上段から　アイヌ刀（無銘）長50cm・反り1.5cm・目くぎ穴1　　アイヌ刀（無銘）長46.2cm・反り1.4cm・目くぎ穴2
アイヌ刀（無銘）長49cm・反り1.6cm・目くぎ穴2　　アイヌ刀（無銘）長48.5cm・反り1.4cm・目くぎ穴2
アイヌ刀（無銘）長49.7cm・反り1.7cm・目くぎ穴2　最下段　アイヌ刀（無銘）長44.7cm・反り1.5cm・目くぎ穴3

diagram 112. Ainu sword by "Mouri Collection". from upper; Ainu sword (no naming), length-warp-rivet hole at handle.

the durability and strength of these artifacts.

I would also suggest comparing the Kiyohara Hitsuji-jo sword to the Ainu sword that is on exhibit at the Mouri Museum of Art. Because the Kiyohara Hitsuji-jo sword is thought to combine the Ainu culture (specifically, the shape of their Ocean God, whose avatar is the Orca) and the sword-making technology of the Emishi, it may also be worth examining tombstones that may reveal a deeper connection between the two cultures.

The extant artifacts of Ainu swords are all from after the Muromachi Period. This could be because the Ainu have a custom of "Iwakte," which means to send items to the spirit world by burying them in the earth. Thus, because the Ainu tend to bury their items for their return to heaven, preserved Ainu swords are difficult to come by. Inasmuch as Ainu swords are sometimes referred to as second-class to Japanese swords, that might be because the extant Ainu swords were probably for ceremonial purposes only. Also, Ainu swords are forged differently and may have been made from Wootz steel. The Balkar sword shown in diagram 107 is incredibly strong, but the steel is not as visually impressive as Japanese swords. In much the same way, the Ainu sword may appear less attractive, but perhaps they were more practical in terms of strength. If so, the Ainu must have smelted material at high temperatures as discussed above.

(5)The Ainu possessed heat treatment technology

According to Hamzat Bachiev, a swordsmith who makes Damascus blades, ancient Balkars are said to have quenched their swords (after inserting them in animal horns) at 700 to 800 degrees. This heat treatment method for low carbon steel not only created a beautiful surface but also had the effect of preventing rust. Because the steel is of high quality, these blades can be made lighter and thinner (see diagram 110). Unfortunately, the technical and procedural knowledge for making these magnificent blades have been lost.

Another technique that has been lost is the method of combining three types of steel to forge a Damascus blade (according to tradition passed down by the Shirayama Shrine). Modern-day Damascus blades are an alloy of approximately 11 steel plates consisting of, inter alia, high carbon steel (1.3% carbon), low carbon steel (0.3% carbon), chrome (1%), molybdenum (1%), and nickel (1%). In ancient Japan, it would have been difficult to find chrome, molybdenum, and nickel; thus, ancient swordsmiths may have stopped making Damascus blades for lack of proper materials.

(6)The relocated Emishi may be the originator of ancient swords in Japan

I believe that the Emishi (and, perhaps more specifically, the Ainu) are the originators of the Kenukigata Warabite sword, the Warabite sword, the Ryugozaka sword, and the Ezo sword that have been found in northeastern Japan, eastern Japan, and Hokkaido. I hope that further examination of tombstones and grave markers will inspire research into the connection between the Ainu smiths (and, perhaps, Scythian smiths) with the many sword-making lineages that are extant in modern Japan.

(7)The descendants of ancient Aryans who might have come to Japan

The ancient Japanese swords are not the same shape as the Acinaces. But I believe there is a connection between them. The following are questions and my suggested answers.

(a) When did the Japanese sword adopt a curve?

a. I believe that in the 5th century the Tatar might have brought their curved swords to Japan.

(b) When did the characteristics of the Acinaces straight sword appear in curved swords in Japan?

a. It may be that the Acinaces may have arrived in Japan between 150 B.C.E. and 500, after the Tauris/Scythians and ancient Greeks intermingled with each other.

(c) In Siberia, the Kanto (circle pommel with patterns inside the circle) sword evolved into a shape of a goat horn; where did the Sukanto (circle pommel with no patterns or material in the circle) sword found in Kyushu, Japan, come from?

a. It may be that the Sukanto arrived via the Silk Road and the Warabite sword arrived via the direction of Siberia. The goat horn short swords (double edged) prevalent in Siberia at the time probably arrived from the Scythian/Turkic lines. "Turki" might even be the origin of the word "Tsurugi," which means "sword" in Japanese.

b. The Sukanto was made by ancient Greeks, who were very tall. Fujiwara no Kiyohira (of the Heian Period) was also allegedly very tall — what if he were actually Greek? There are commonalities between Japanese and Greek myths, and perhaps Fujiwara no Kiyohira was someone who taught Greek myth to the Japanese.

(d) Why are straight swords found in western and eastern Japan?

a. It may be that Ainu of, say, Greek lineage produced straight swords (Kanto and Thracian-style nakago swords) as they entered through Kyushu in southern Japan and traveled to northern Japan.

(e) Why is the nakago style the main design of ancient Japanese swords?

a. The Tatar probably made Thracian nakago style swords, which evolved from the Acinaces. The nakago style may have been the most convenient, as they are of simple design and handles can be easily attached to them. The nakago-style short and long swords should appear in excavations of ancient

Japanese Kofun (tombs).

(f) Why do handles with empty spaces persist from the Kenukigata Warabite sword to the Kenukigata Tachi?

a. This might simply be evidence that the Emishi permanently settled in Japan.

(g) How come the Ainu in Hokkaido do not have an extant sword-making tradition?

a. Talented Emishi swordsmiths likely did not make it to Hokkaido because they were among the smiths serving the northeastern branch of the Fujiwara house. In addition, depending on the circumstance of the times, the Emishi swordsmiths may have been sent to different parts of Japan to make swords.

b. The Yakumo Ainu, after they migrated to Hokkaido, probably emulated the Emishi's sword-making and created swords for ceremonial purposes. Perhaps the Naibuchi Ainu of Karafuto, who migrated north in more ancient times, maintain the knowledge to make swords appropriate for combat.

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Notes

1. Uchuu "Space" (published by Shogakukan).
2. Jomon Period Pottery (published by Kodansha).
3. Uno Harva, Shamanism and the Altai People's Worldview (translated by Katsuhiko Tanaka) (published by Toyobunko).
4. Emiene Sonnur Ozcan, "The Identity of Scythian and Turk" 2020. p.54.
5. National Archaeological Museum in Athens, Homepage.
6. Ivan Marazov, "Thracian Warrior."
7. Yuri Pete, Research into Ancient Times 12—the Power of Iron (translated by Tetsutaka Sugawara, Mogusato Research Bulletin No. 13), p.38.
8. Oleksandr Shelekhan, "Swords and Daggers of the Scythian Forest-Steppe" (BAR Publishing 2020).
9. From Akinakai: Scythian swords and daggers" (Communication for Eurasian Department of German Archaeological Institute, May 25, 2016).
10. Hiden Magazine (Aug. 2018), p.55. According to anthropologist Anna Feuerbach, the crucible smelting method was prevalent in 5th century Fargona City (Uzbekistan) and Merv City (Turkmenistan).

(Feuerbach A., Griffiths, D.R., and Merkel, J.F. 2003. Crucible Steel Manufacturing at Merv. Mining and Metal Production Through the Ages. P. Craddock and J. Lang (eds.) London: British Museum. 258-266.).

11. The World of Soshichiro Mouri, Exhibition of the Mouri Collection, Ishinomaki Culture Center (1996).

12. Shigeru Kayano, Ainu's Folk Equipment (Suzusawa Bookstore 1978)

13. Kan'ichi Sato, Sword Appraisal Pocket Book (Japan Art Swords Preservation Association Journal 1955).

14. Masakuni Ishii, Warabite Sword: Consideration as the Primordial Nihonto, p.134 (1966).

15. Digital materials on Scythians maintained by German Archaeological Institute.

16. Masakuni Ishii, Minoru Sasaki, Archaeological Selection Book No. 39, Ancient Swords and Iron Science (Published by Yuzankaku).