

## Human Palaeontology and Prehistory

# Initial colonization of the Arctic zone

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#### Abstract

Human colonization of the Arctic zone constitutes one of the most beautiful illustrations of the thesis according which human history, particularly in its early stages, represents a continuum of adaptations. The study of archaeological sites of North Fennoscandia has brought numerous evidences since the Mesolithic period. **To cite this article:** V. Shumkin, C. R. Palevol 5 (2006).  
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#### Résumé

**Première colonisation dans la zone Arctique.** L'histoire de la colonisation de l'Arctique par l'Homme constitue l'un des plus beaux exemples de la thèse selon laquelle l'histoire humaine, en particulier au cours ses premiers stades, présente un continuum d'adaptations. L'étude des sites archéologiques de Fennoscandie du Nord en apporte le témoignage, et ce depuis le Mésolithique. **Pour citer cet article :** V. Shumkin, C. R. Palevol 5 (2006).  
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**Mots clés:** Migration de population; Stratégies de subsistance; Continuum d'adaptation; Environnement périglaciaire; Zone Arctique

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Human history, especially in its early stages, represents a continuum of adaptations. The history of human colonization of the Arctic regions represents one of the best illustrations of this thesis.

Geological and geomorphological explorations of recent decades have shown that, during the last glaciation, the Scandinavian ice sheet did not penetrate into the eastern part of northern Fennoscandia. In the central part of the Kola Peninsula, the Scandinavian glacier collided with the Ponoyan one, which is considered by some geologists to be a part of the immense Barents Sea glacier, which was moving from the east. It is

thought that the presence of the latter caused some climatic aridization and anticyclones, contributing to more intensive retreat of the Scandinavian glacier and to its almost total disappearance about 9000–8000 years ago. At the same time, the Ponoyan glacier was still rather big and retreated very slowly. It disappeared only at the end of the Early Holocene time, and even after this a part of the area it had occupied was barely accessible for animals and humans. The southern shore of the Kola Peninsula also was a region with very severe environmental conditions.

The Early Mesolithic populations of northern Europe (10–9 thousands years ago) had to adapt to very complex and constantly changing environmental conditions of the Late Pre-Boreal and Boreal periods, while the

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Late Mesolithic and Neolithic humans lived under very favourable conditions of the Atlantic and Sub-Boreal times. The second half of the Atlantic period witnessed the onset of a climatic optimum. The climate became warmer and the forest zone moved far to the north. The Sub-Boreal environments also were rather favourable for ancient people. Some deterioration of the climate took place during the Sub-Boreal phases 2 and 3 corresponding to the Early Metal Period, but it did not exert any perceptible influence on local human groups. The subsequent period was characterized by increasing humidity and cooling, and this trend reached its maximum by the middle of the first millennium BC.

The environmental changes that occurred during the Pre-Boreal period (about 11–10 thousands of years ago) caused the crisis of the specialized reindeer hunting economy among the groups belonging to the Arensburgian and Swiderian cultures, which in turn resulted in population movements. The Arensburgian groups mainly moved northward, while the Swiderians preferred to migrate to the east and the northeast. One of the results of these population movements was the formation of the Fosna, Komsa, and Suomusjarvi cultures. The makers of the former two were mainly the descendants of the Arensburgian populations, who penetrated into Fennoscandia through the uplifted land which earlier had been the bottom of the strait between the Ioldy Sea and the ocean. Originally the populations belonging to the Komsa and Fosna cultures lived only in the littoral zone of the southern, western, and southwestern Fennoscandia. Subsequently they started to gradually move northward (along the sea shore), and after that penetrated into the eastern and south-eastern littoral areas. Some inland areas were colonized by the Late Mesolithic time, but it was not earlier than the Late Neolithic that the whole of the region was settled.

The study of archaeological sites of northern Fennoscandia gives abundant and important materials to characterize the process of human adaptation to environmental settings. It can be seen that both the objects of hunting and their ratios changed more than once. This was due to faunal changes and to the development of hunting equipment and strategies. Fishing was originally less important than hunting because of the scarcity of fish in inland periglacial water pools. The main objects of hunting for the ancient inhabitants of the region were elk and reindeer, which had appeared in northern Fennoscandia not later than the Allerød time. Sea mammals like seal and walrus also played a very important role in human subsistence. To be sure small game hunting and gathering were practiced too.

Judging by the geography and topography of Mesolithic sites, the thickness of cultural layers, and the composition of tool assemblages, people who left them should be considered mobile specialized sea gatherers. This type of economy could have been rather stable, since the region under consideration had a very abundant and diverse sea fauna. The subsistence activity of the earliest settlers was mainly concentrated in the littoral zone. The Early Mesolithic people led an extremely mobile way of life, but the hypothesis of the seasonal character of their sites is contradicted by the absence of any evidence of human presence in the inland areas.

During the later stages of the Mesolithic period (8–6000 years ago), after the glacier had disappeared, some human groups started to settle in the inland areas of the region and to search for new food resources. This gave rise to new subsistence strategies. The life of this population depended first of all on hunting forest animals, which was supplemented with gathering and, possibly, with very primitive and casual fishing. The methods of fishing were adapted from the hunting practice. The littoral and inland sites are nearly identical by their tool composition, tool-making technologies, and thickness of cultural layers. This fact may suggest that the Late Mesolithic population was economically uniform and that seasonal migrations to the sea shore (in summer) and back to inland areas (in winter) took place. However, this picture was more characteristic of the South of Scandinavia, while in the North of the region the maritime and inland groups had less in common and their economies were rather different.

During the Early Neolithic time (6000 years ago), the process of formation of specialized maritime and continental economies was continued, and in the Late Neolithic (5000–4500 years ago) this trend led to the formation of two different cultural and economical types. The inhabitants of inland areas became taiga hunters and fishers, while the littoral zone dwellers were engaged in sea hunting, supplemented with forest hunting, gathering and fishing. The latter group can be considered as Arctic sea hunters, though it should be emphasized that this type of economy was still in the making.

During the Early Metal Period (3500 years ago), hunters and fishers of the inland part of the region greatly succeeded in improving their traditional ways of resource procurement. The material culture of maritime populations reflects the peculiar character of their way of life. Their hunting inventory includes huge numbers of arrowheads, spearheads, darts, and harpoons of different types. The faunal assemblages are

dominated by seal and walrus bones, supplemented with rare remains of cetaceans. There are also bones of terrestrial animals (elk, deer, beaver, polar fox, wolf, white bear) and some fish remains (vertebrae of cod and salmon).

The settlements of Early Metal period maritime hunters of northern Fennoscandia are of long-term nature and occupy rather big areas. They are confined to the places with high biological productivity. According to ethnographic data both maritime Lapps and Eskimos exploited a narrow (several kilometre-wide) littoral stripe and a water area of about 5–10 km wide. The most intensively exploited parts of their habitats were situated close to the settlements and their areas barely exceeded 3–10 square kilometres. This explains why some regions (like Varanger fiord) had very high population densities. It is thought that the carrying capacity associated with sea hunting and gathering is on the average 10–15 times as much as that of forest hunting, and two times as that of primitive agriculture. Therefore it is possible to agree with the opinion that the communities of specialized sea hunters could be compared to the communities of early food producers.

The cultural blossoming of the Early Iron Age was followed in our region by a sharp decline. Probably this was due to unfavourable environmental changes. The cooling of the first millennium BC led to a crisis of highly specialized economies of the Arctic sea hunters. In all likelihood, the herds of sea animals went away of the shore and changed their breeding-grounds. It was then that the culture of the Kola maritime hunters went out. On the northern shore of Fennoscandia active sea, hunting existed somewhat longer, but finally it disappeared there, too. The remaining small and sparse groups of survivors had to lead a nomadic way of life in continental tundra.

According to a hypothesis put forward by K. Karpe-  
lan, the Iron Age hunters of this land were involved in trade relations with the food producing groups of the southwest. As a result, the former switched over to fur procurement. In exchange, they could have received various metal objects. This process led to the loss of modification of many traits typical of the traditional culture of northern Fennoscandia. By the middle of the first millennium A.D., local population had probably mastered the skill of reindeer-breeding, and in the Middle Ages the system of cyclical seasonal migrations formed.

A different picture of cultural and economical development can be reconstructed for the Extreme Northeast of Europe, or the Trans-Ural Polar zone. The initial settlement of this region, interrupted by the Last Glacial

Maximum, is dated back to the Palaeolithic. The beginning of the Holocene colonization of the Extreme Northeast of Europe should probably be dated to around 7000–8000 years ago. There are well-known palaeoclimatic and palaeogeographic reconstructions for this period. According to them, the date of 8200 years ago marks the onset of a climatic optimum when the average temperatures in high latitudes were 1.5–2 °C higher than now. This period was also characterized by some increase in humidity. The borders of vegetation zones moved northward, and many animal species, including reindeer, migrated too. The Mesolithic groups that penetrated into the tundra and forest tundra landscapes of the Extreme Northeast of Europe were probably rather small in numbers and very mobile. Their economy was based on reindeer hunting, bird hunting, and fishing. Most sites have yielded standardized sets of tools dominated by ‘post-Swiderian’ points, inserts made of blade fragments, and burins. The environmental changes that took place in the Sub-Boreal and Sub-Atlantic periods did not exert any perceptible influence on human subsistence strategies, or at least did not entail any sharp economic transformations. At the same time, the rise of temperature, the change in hydrological regimes, and the northward expansion of broad-leaved forests might have resulted in inflow of human groups from the south. The North of western Siberia for a long time remained unsettled because of water encroachment. Probably, from time to time, some groups of Mesolithic hunters penetrated far to the north, as is evidenced by the materials of the Korchagi site near Salekhard. However, the intensive peopling of the North of western Siberia started only about 3000–4000 years ago. Both the topography and inventory of archaeological sites are indicative of the existence of mobile reindeer hunting economy, which is quite typical for the Trans-Polar regions. Reindeer hunting was supplemented with fishing, bird hunting, and gathering.

Let us consider now how the aboriginal population exploited sea resources. The most important questions can be formulated as follows:

(1) When did the cultural traits associated with maritime adaptation appear for the first time? (2) What was the role they played in traditional systems of resource procurement? (3) What was the role of ethnical processes in the change of subsistence strategies? The recently obtained data give grounds to think that cultural traits associated with maritime adaptations formed about 3000 years ago.

In the eastern part of the Arctic zone, the period of the Pleistocene–Holocene transition also witnessed

sharp palaeoclimatic changes that exerted rather strong influence on local human populations.

The most severe environmental conditions formed here during the pre-Holocene regression. Due to growing of the North European and Laurentide ice covers the deep (at least 90–100 m, or even 120–140 m according to some authors), drop of sea level took place and vast territories of polar shelf were exposed. In that time the Great Arctic Plain extended from Taimyr Peninsula to the Bering Strait area and up to 76° N including the New Siberian archipelago and the Wrangel Island. The initial colonization of these severe periglacial landscapes was connected to the movements of Upper Palaeolithic hunters belonging to the Dyuktai culture. Their migration northward at least to 71°N is evidenced by the finds from the so-called ‘mammoth cemetery’ of Berelekh.

The global warming of the Late Dryas, accompanied by increasing humidity and thickness of snow cover, turned out to be a kind of catastrophe for the local fauna. The replacement of tundra–steppes by tundra, the development of thermokarst and the beginning of the Holocene transgression led to numerous palaeogeographic changes in the region. At the same time, the northward expansion of forest vegetation (in some areas, it reached the present-day shoreline and the southernmost islands of the Arctic Basin) contributed to the inflow of new human groups. Judging by the data obtained on the sites of the Sumnagin culture, the economy of the Mesolithic inhabitants of Yakutia was based on elk hunting. In addition, they hunted some other large animals like reindeer and brown bear. Bird hunting and fishing were probably of some importance, too. In general, the Mesolithic population of Yakutia was highly mobile. The whole area of the region was settled about 8000 years ago, including Zhokhov Island (76°N – the New Siberian archipelago). The people who visited the long-term camp on Zhokhov Island were mobile terrestrial hunters with somewhat unusual hunting specialization. Judging by the character of faunal remains the main objects of hunting were reindeer and polar bear (the minimum numbers of individuals of these two species do not differ). There are also single bones of wolf, walrus, and birds. The hunting equipment represented by bone spear points with inserts, remains of a bow (?), fragments of arrow shafts, and projectile points strongly testifies to the terrestrial character of hunting. As to the unusually high percentage of polar bear bones, it can probably be accounted for by the decrease of reindeer population, which went through a

long crisis, like the other representatives of the mammoth faunal complex.

The sites of North-East Asia take a special place. During the whole Holocene, the most of this region was occupied by tundra, while forest vegetation remained very sparse and confined to river valleys. According to a widely held view, the area adjacent to the Bering Strait was first colonized by the Upper Palaeolithic hunters who then penetrated into North America. Subsequently, this land became the eastern part of the area occupied by the Mesolithic and Neolithic cultures which formed within the limits of what now is Yakutia. One of the most important features characteristic of the region is the extreme abundance of its sea resources. It is the region where the classical cultures of maritime hunters have existed during the last two millennia. A hypothesis was put forward that the roots of sea hunting here can be traced back to the Mesolithic time. However, it seems more plausible that the formation of sea hunting is a relatively late phenomenon and that originally it was of secondary importance for local dwellers. The scenes of sea hunting with the use of multi-seater boats are represented by some petroglyphs dated to the first millennium BC. The materials of the Palaeo-Eskimo culture that appeared in the middle of the first millennium BC also give some evidence of sea hunting.

The main cultural traits associated with sea hunting (specialized equipment, a high level of social organization) were developed by the Late Neolithic groups of Chukotka as early as the end of the first millennium BC. However, the classical cultures of sea hunters with their highly specialized adaptation models had formed only by the beginning of the first millennium AD.

Therefore, the formation and development of cultures based on maritime adaptations took place both in the West and in the East of the Eurasian Trans-Polar regions. However, while in the Northeast of Asia these cultures prove to be relatively young, in the Northwest of Europe they have a long history. It appears that the presence of favourable environmental conditions did not always lead to the transition to specialized sea hunting, as it was the case, for example, in the extreme Northeast of Europe. The early formation of maritime economies in northern Fennoscandia was conditioned by the peculiarities of the settlement history of the region, where people had originally to live in a ‘passage’ between the glacier and the sea coast.

In conclusion, it should be stressed once again that both the processes of cultural development in the Arctic zone and the colonization history of this region were strongly influenced by environmental changes.