

Russian Hunters on Svalbard and the Polar Winter

MAREK E. JASINSKI¹

(Received 28 June 1989; accepted in revised form 12 March 1990)

ABSTRACT. Ways of surviving in the High Arctic environment are among the most interesting problems addressed by archaeological research concerning hunting groups operating in these areas. The Svalbard archipelago affords a unique opportunity for comparative studies of arctic survival with respect to representatives from two different European cultural centers: the hunters from northern Russia and the western European whalers. The present paper concentrates on the Russian way of dealing with the polar winter. Both the documentary sources and the elements of material culture recovered during archaeological explorations reveal a relatively high level of adaptation to arctic conditions.

Key words: polar winter, Svalbard, Pomorye, Russian hunting, Orthodox monasteries

RÉSUMÉ. Les modes de survie dans l'environnement de l'Extrême-Arctique comptent parmi les problèmes les plus intéressants auxquels s'attaque la recherche archéologique sur les groupes de chasseurs de ces régions. L'archipel du Svalbard constitue un endroit unique pour des études comparatives de la survie dans l'Arctique, en ce qui concerne les représentants de deux centres distincts de culture européenne: les chasseurs de la Russie nordique et les baleiniers de l'Europe occidentale. Cet article se concentre sur la façon dont les habitants abordaient l'hiver polaire en Russie. Les sources documentaires, ainsi que les éléments de la culture matérielle récupérés lors d'explorations archéologiques, montrent que le niveau d'adaptation aux conditions arctiques était relativement élevé.

Mots clés: hiver polaire, Svalbard, Pomorye, chasse russe, monastères orthodoxes

Traduit pour le journal par Nésida Loyer.

INTRODUCTION

The term "polar winter" can have different connotations. The Arctic, defined as the region north of the Arctic Circle or north of the 10°C isotherm, covers an area of millions of square kilometres differentiated in terms of climate, vegetation and culture.

Discussing the hunter-gatherer groups in the far North, Simonsen (1974) considered the problem of human existence on "the edge of the possible" with regard to adaptational abilities. He also considered attempts at going past this boundary by occupation of particularly inaccessible areas. One of the examples cited by Simonsen was hunting activity in the archipelago now officially known as Svalbard — a group of islands situated between latitudes 74° and 81°N and longitudes 10° and 35°E, with Spitsbergen as the main area (Figs. 1, 2).

With regard to the historical processes Svalbard has gone through, there exist theories concerning settlement occurring in the Stone Age and the presence in this region of human groups in the Middle Ages (*cf.* Jasinski, 1988a,b). In the post-medieval period western European whalers and Russian hunters were present, while today settlement related to the extraction of coal deposits is developing. But on one point there is little doubt. At Svalbard forms of dynamic settlement able to exist self-sufficiently never developed. In this case the "edge of the possible" was exceeded. The requirements set by the natural environment were never met by the responses formulated in the course of the cultural process. This process shaped only such forms of social practice as permitted a brief sojourn in these regions, directed mainly at the exploitation of natural deposits.

Man has tried and still is trying to capitalize on the riches of the Arctic, to escape with them over to the other side of the "edge." Phenomena of precisely this kind delineate the division of polar areas into two human zones: the sphere of permanent habitation and the sphere of exploitative expansion, situated beyond the "edge of the possible." Wintering in the first zone is a constant link in the cultural process.

Wintering in the other zone is a special phenomenon requiring extraordinary abilities for adaptation.

RUSSIAN HUNTING

One of the episodes in the history of Svalbard was that of Russian hunting, which lasted until about the middle of the 19th century. However, the date of its origins has not been established. Essentially there are two views (*cf.* Jasinski, 1988a). The first, shared particularly by West European researchers, sets this period after the mid-17th century, based on the fact that none of the whaling groups, so numerous in the region of Svalbard from about 1612 on, reported any meetings with Russians or noticed any traces of their hunting activities. The first report of this kind, dating from 1697, speaks of the presence of Russian ships near the shores of the archipelago (Conway, 1906:233). A different view is presented by Soviet archaeologists (*cf.* Starkov, 1986) who cite the results of their own research based upon excavations indicating the possibility that walrus hunters coming from the shores of the White Sea (Pomorye) were engaged in hunting in the Svalbard region even in the period preceding the famous voyage of Willem Barents in 1596. Intensive archaeological studies of the Russian hunting stations are presently being carried out by the Soviets, Norwegians and Poles, and it is hoped that they will provide further data necessary for the ultimate resolution of this question.

The development of Russian hunting in Svalbard was related to general social-economic changes in Russia during the 16th to 19th centuries. The main element of these changes was the incorporation of the peripheral regions, such as Pomorye and Siberia, into the system of the centralized empire, in particular the tightening of economic relations. One of the results was a very rapid increase in the Pomoryan contribution to the exports of Russian goods. The exports of the "products of the North," mainly walrus tusks and furs, had gone on for many centuries, dating back to the period of domination by Novgorod. In the 16th century, however, trade became greatly intensified and was channelled

¹University of Trondheim, Museum of Archaeology and Natural History, Department of Archaeology, 7004 Trondheim, Norway
©The Arctic Institute of North America

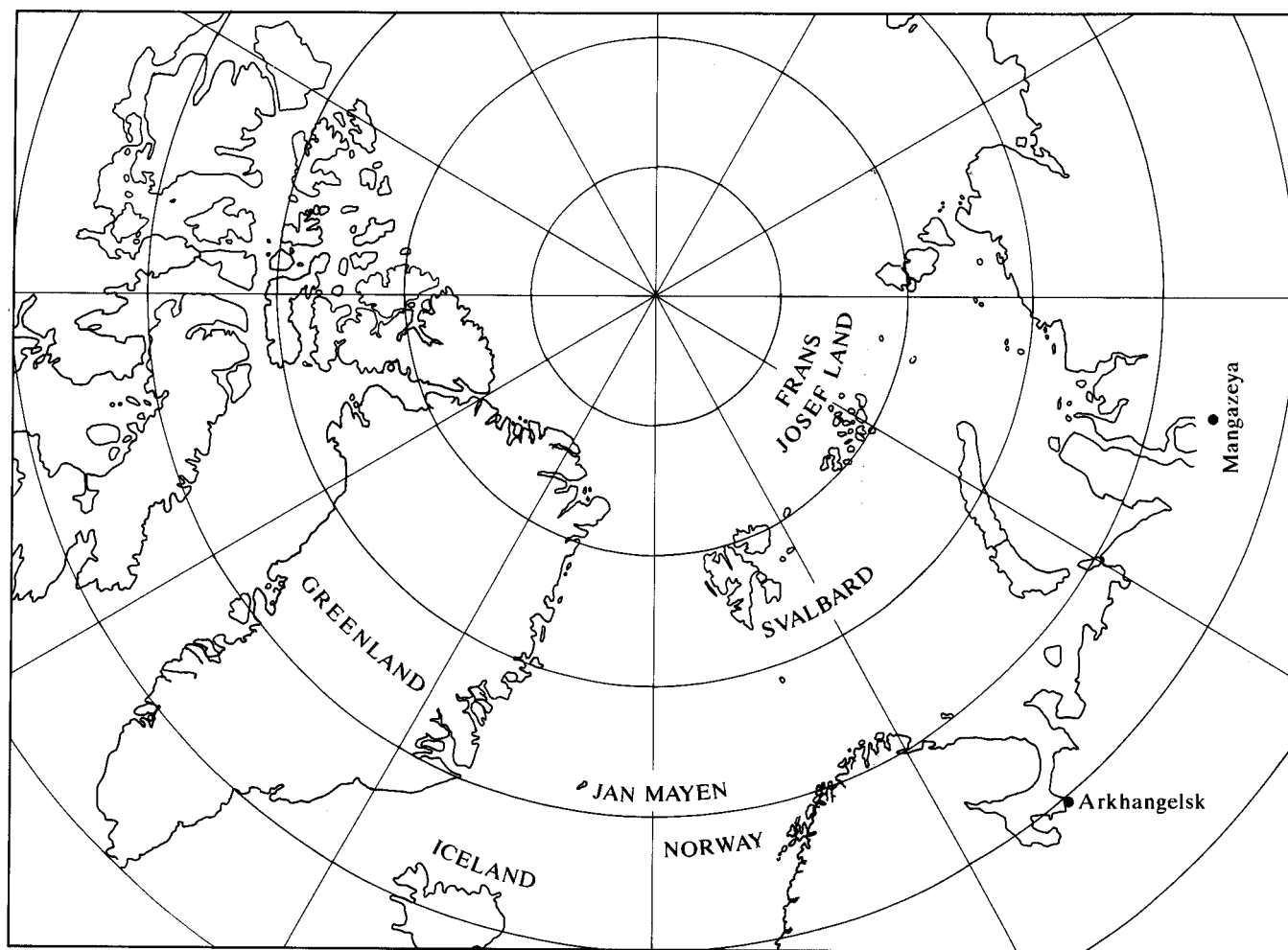


FIG. 1. Map of the arctic region.

mainly through the newly created port of Archangelsk (Fisher, 1943). The northern areas of Russia were rich in walrus, seals and foxes, and the port made these valuable goods readily available. The Pomoryan sailors hunted these animals both along the shores of the White Sea and in Siberia. At that time, there were frequent voyages eastward to the mouth of the River Taz, where a trade station, Mangazeya, was established.

In 1619 the tsar of Russia, Mikhail Fedorovitch, passed a decree banning all voyages from the White Sea to Mangazeya. He intended to eliminate the trade carried out by foreigners directly with the inhabitants of Siberia, as well as similar trade carried on by the "go-between" Pomoryan merchants (Armstrong, 1965:18). This decree radically changed the economic standing of the Pomoryan hunters by effectively separating them from convenient hunting areas in these regions. Storå (1987:124) pointed out the ecological aspect of hunting in the White Sea area — namely, that the mass hunting and fishing over many centuries in this shallow and low-salt sea must have disturbed the biological equilibrium. Decreased hunting success forced the Pomoryans to seek new areas. The way to the east was closed by the tsar's decree. In the west there was Norwegian competition. Therefore, what was left was northwards, to Svalbard, which was at that time "no man's land."

Both written and archaeological source data permit presentation of the hypothesis of the existence of *two main phases*

of Russian hunting on Svalbard. In the first period, up to the second half of the 18th century, expeditions were organized by the hunters themselves (those who had sufficient means), the northern Russian Orthodox monasteries, private adventurers and town merchants. At that time, small groups consisting of several hunters were sent to Svalbard to hunt and to build "on the spot" hunting stations, such as Worcesterpynten (Fig. 3), Revelva and Russepynten (Fig. 4), which were adequate in size. In the second period, from the second half of the 18th century up to about 1850, merchant unions and trade companies, such as the White Sea Fishing Company, came into play. At this time the profit requirements of such enterprises led to a conspicuous increase in the number of participants in expeditions and to a partial change in hunting techniques. This in turn brought about changes in the structures and dimensions of hunting stations. Indications of these changes are found in the archaeological excavations of Russian settlements from this period (Christiansson and Simonsen, 1957; Chochorowski and Jasinski, 1988a). These settlements, including Schønningholmane at Hornsund, Russekeila at Isfjorden and Habenichtbukta at Edgeøya (Fig. 2), comprised entire systems of buildings with relatively large common areas, providing shelter for a group of several dozen people at once.

To be considered efficient, a Russian hunting expedition to Svalbard was, first of all, one from which the participants managed to return home, along with the acquired goods. Cer-

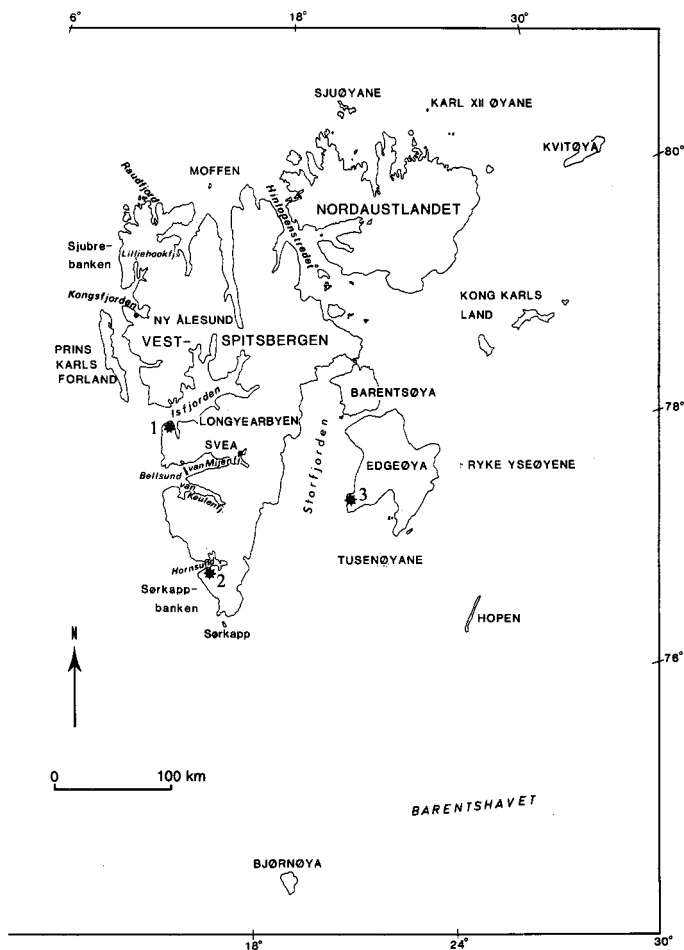


FIG. 2. Svalbard Archipelago: 1) Russekeila; 2) Schønningholmane; 3) Habenichtbukta.

tainly, survival through the winter might have been the most difficult aspect of such an enterprise. However, danger lurked both before the winter months came and after their termination, as well as during the voyage to and from Svalbard. The Russian hunting on Svalbard was of a twofold nature. Documentary sources and archaeological data provide evidence for both seasonal summer hunting and hunting throughout the year, including wintering over on the archipelago. The *Atlas of the Archangelsk Province* from 1797 (*Atlas Archangelskoj Gubernii s topograficeskimi, istoriceskimi, ekonomiceskimi i kameralnymi opisanyami, Cast pervaya, 1797*, in Ovsyannikov, 1988) describes the dispatching of boats from particular regions of Pomorye to Novaya Zemlya and Spitsbergen (commonly known at that time as Grumant) from May to July, depending on ice conditions. This source also says that "... if a hunting season was good, hunters came back the same year" (Ovsyannikov, 1988:80, author's translation). In other cases such expeditions took 17 or 18 months, sometimes even 2 years, and some of them were gone forever. Other sources state that many of these expeditions were originally planned to take the whole year and, therefore, were specially equipped and prepared for spending the polar night on Svalbard (cf. Keilhau, 1831).

There were specific stages to such an expedition. First was the preparatory stage: the selection of the personnel, the preparation of boats and equipment, the provision of food and the voyage from the shores of the White Sea to Svalbard.

The second stage consisted of the organization for the stay at Svalbard, the construction of the station and the simultaneous initial hunting period (still in summer), along with the preparations for winter. The third stage involved wintering, quite often imposing a change in the way of life and hunting techniques. The final stage began in spring, as the sun reappeared over the horizon, with a return to previous hunting techniques and, at the same time, the preparations for the return trip. This stage ended, at least for those expedition members who survived, with the return voyage to Pomorye and the sale of the acquired goods. Each stage was



FIG. 3. Worcesterpynten, remnants of a Russian hut, surface view. Photo, Marek E. Jasinski.

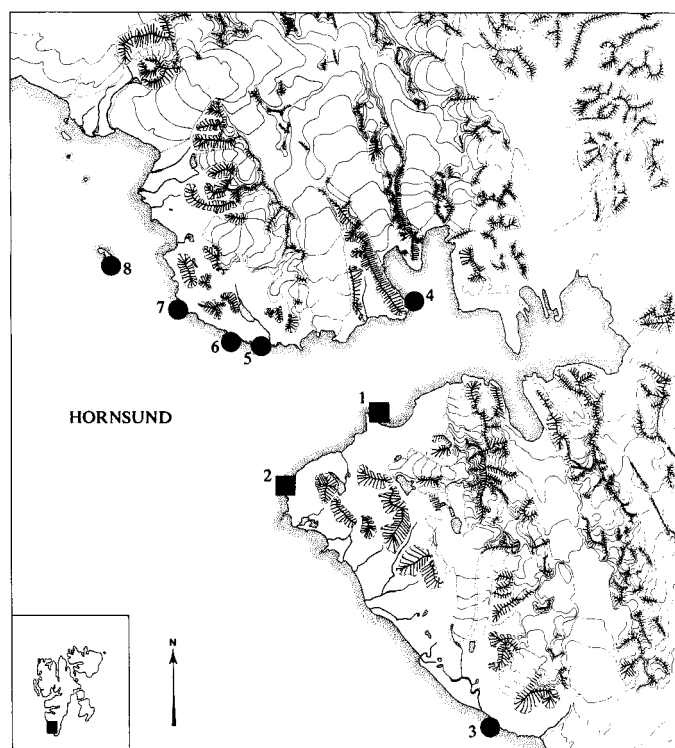


FIG. 4. Hornsund: 1) Schønningholmane; 2) Palffyodden; 3) Bjørnbeinfløyene; 4) Gnålodden; 5) Revelva; 6) Worcesterpynten; 7) Russepynten; 8) Dunøyane site. Dots — sites with a single hut. Squares — sites with two or more huts.

equally important for the success of the expedition. However they differed greatly in the degree of difficulty and in specific aims. The failure of any stage might mean a failure of the whole enterprise, and this, in turn, could lead to catastrophe.

Stage One

Even here, in the preparatory stage, the wintering factor played a very important role. Above all, it was necessary to get the ship and the auxiliary boats in shape, keeping in mind that they, too, had to survive the polar winter. At least some of the Russian expeditions had their own transport, a ship secured for the winter in a convenient place, often on land, which was to return the next year to the mother port (cf. Ovsyannikov, 1988). An alternative was a ship that transported the members of the expedition to Svalbard and then returned to Russia, repeating the voyage the following year and bringing the hunters back home. Quite frequently in such cases, groups were exchanged at the hunting grounds. Such ships must have been sufficiently strong to manage the voyage through the Barents Sea. Belov (1956) mentions several types that were used. Those most universally used were *koca* and *lodya*. Starkov (1987) suggested the existence of a separate type with a specially reinforced hull structure. Elements of Russian sewn boats are scattered all over the coast of Svalbard (Lamont, 1876:279; Jasinski, 1988b:99-103) (Fig. 5).

Also of great significance was the choice of the group of hunters. Apart from skill in hunting techniques, these people had to be adaptable to communal living under polar conditions. Since the conditions were extreme in the course of the polar winter, psychological factors played a great role. The long tradition of hunting on the arctic seas resulted in the formation of whole family dynasties engaged in this work. Practical skills and "psychological" strength were passed on from generation to generation. Possession of these qualities was highly appreciated in Russia at that time, and the members of such families quite often found jobs in the merchant fleet, which was then being established, and in the navy of the Russian Empire (Belov, 1956:66, 68).

The expedition equipment was also prepared very carefully. Apart from the hunting equipment, the team was equipped with winter clothing and food. Documentary sources indicate that at the end of the 18th century there existed a financial system by which the equipment costs were largely financed by the organizer, who most often did not himself take part in the expedition but received a specific part of the profits. The food taken on the ship included both that needed for the voyage and food to complement the menu in the course of wintering, to be consumed along with the meat and fat from the animals hunted on Svalbard. Some was also stored as a reserve in the event of getting locked in the ice. This complementary food was, most importantly, the ancillary source of vitamins, apart from fresh meat and blood, which gave protection from the greatest danger of the polar winter, scurvy.

After the preparations had been completed, there remained the voyage to the coasts of Svalbard. The sailors had two routes from which to choose. The first, along the shores of Novaya Zemlya and the edge of the pack ice, offered the opportunity of hunting walrus, even at this stage. In the author's opinion, this route was taken especially during the first phase of the development of hunting on Svalbard. The other route, chosen more in the later period, was toward the

northwest, up to the coast of Finnmark in Norway, and then northwards over the open sea.

Stage Two

Upon arrival at a specific area of Svalbard there began an extremely active period during which hunting was coupled with winter preparations, taking advantage of the weather and lack of ice. The hunters' main prey were marine mammals, mainly walrus valued for their tusks, skins and fat. In addition, the beluga whale and all available species of seals were hunted. Perhaps fishing took place as well. With regard to land animals, reindeer were the predominant prey. As well as hunting, the hunters built their huts and collected driftwood to be used as fuel throughout the winter. Obviously, the possession of an appropriate shelter, a hut, providing refuge from freezing temperatures and blizzards, was a basic condition for survival in winter in these geographical latitudes. The problems related to this are among the most interesting aspects of the Russian wintering on Svalbard. The above-mentioned *Atlas of the Archangelsk Province* (Ovsyannikov, 1988:80) describes the transport of such huts, or perhaps their prefabricated parts, on ships from Pomorye, and "... he who had not huts on Novaya Zemlya, or at Grumant, at previous stations, took them along, and after setting them up on the spot he began to hunt..." (Ovsyannikov, 1988:80, author's translation). These data were confirmed in the course of Polish-Norwegian excavations at Hornsund (Chochorowski and Jasinski, 1988a:48). Starkov (1986) has also mentioned this possibility. Another type of hut uncovered in the course of the Hornsund excavations is represented by structures built using driftwood. Certainly, driftwood served as the building material in emergency situations, such as after a hut burned down. Functional differences between the prefabricated huts and those built of driftwood are also possible.

In the course of excavations carried out at Hornsund (Fig. 4), it was possible to observe specific standards concerned with the placement and construction of Russian dwellings (Jasinski, 1990). In this region nine Pomoryan settlements were identified, five of which were excavated. Two of them, Schønningholmane and Palffyodden, included three huts, whereas the rest consisted only of single dwellings (Bjørnbeinflyene, Gnålodden, Revelva, Worcesterpynten, Dunøyane

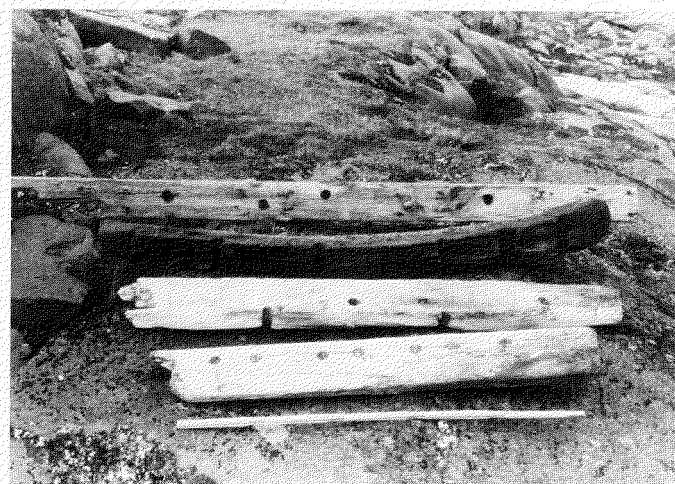


FIG. 5. Elements of Russian sewn boats from the west coast of Edgeøya, Svalbard. Photo, Marek E. Jasinski.

1, Dunøyane 2 and Russepynten). As a rule these houses were built with log cabin construction, although sometimes a frame timbered construction method was applied. The location of the entry door was placed depending on the dominating direction of the winter winds, such that they were on the leeward side (Chochorowski and Jasinski, 1988a:38-41). Usually the hut contained a small vestibule, which also served as a storage area for equipment and food and out of which was access to the proper, windward, dwelling room. This room served the hunters as the living room, kitchen, workshop and bedroom. Its main element was a stone or brick stove, serving to heat the hut and cook the meals. The floor was made of wooden planks. In many cases, the floor planking originated from the hull of the boat, as evidenced by the preserved traces of the "sewing" technique so typical of Russian boat making (Chochorowski and Jasinski, 1988b:Fig. 9). In many Russian-made Svalbard huts the floor was placed upon a stone slate foundation covered with insulating layers of sawdust and wood chips. Sometimes the huts were additionally insulated by building up outside along the walls of the leg-enforced ramparts (Jørgensen, 1985). Some of the Russian settlements, both on West Spitsbergen and Edgeøya, were equipped with bathhouses of typical Russian construction. These bathhouses were either free-standing buildings or outer buildings standing adjacent to the dwellings (Keilhau, 1831:155).

Stage Three — Winter

As the winter months arrived, the third, most difficult stage of the hunting expeditions on Svalbard began. This stage brought about many changes in the everyday activities of the group of hunters. There were several significant winter-related factors, first and foremost being the climatic conditions, the low temperatures, the coming of the polar night and the frequent blizzards. The temperature range on Svalbard during a year seldom varies outside -30° and 10°C . The mean winter period temperature presently varies between -8° and -10°C . During the little Ice Age, these temperatures might have been slightly lower. However, it seems that they cannot have been much lower than those observed at that time on the northern coasts of Russia. For example, the mean January temperatures are now about -10°C at Murmansk and -12°C at Archangelsk. Therefore, to a large extent, the Russians had the ability to deal with temperatures of this kind. What was significant was not the cold itself, but its results, such as the freezing of fjords.

On Svalbard the polar night lasts, on average, from the end of October to mid-February. However, even this element would not have been fully alien to Pomoryans. Even though most of the White Sea and Pomorye lie south of the Arctic Circle, the earlier exploitation of the Siberian coasts and the Kola Peninsula must have resulted in adaptation to this phenomenon. It was only the combination of these elements, the ice on the fjords and the ever-present darkness, along with the tormenting winds causing snow blizzards, that caused fundamental changes in the functioning of a group. Hunting for beluga whales was impossible. The hunting of seals or walruses might have taken place but only in convenient conditions, such as cloudless weather with moonlight. During this period efforts were concentrated on hunting fur-bearing animals, the arctic fox and the polar bear. We know that the furs of the foxes, white if shot during the winter,

show the best quality and therefore have the highest trade value. However, such hunting was carried out using traps that did not require constant supervision. Bears were hunted using firearms, but only when they appeared in the direct vicinity of the hut, which happened very often, since bears were frequently purposefully lured by the smell of meat hanging outside the door. For such occasions special shooting openings were constructed in hut doors, making it possible to gain additional furs without having to leave the hut and risk a more direct encounter. Bears were also killed with firearms as hunters travelled to check traps when it became possible or necessary.

The transition to the techniques of hunting used during winter meant a decrease in the hunters' physical activity and a significant amount of time spent indoors in the station. In the first period of Russian hunting on Svalbard such a situation did not bring about changes in the social structures of the groups. A team of hunters, consisting of a few members, wintered together in one hut. Their "labor" corresponded to the demand. The situation was different in the second period, when several dozen hunters could not hunt during the winter on the sea due to ice. Supervision of traps and the sporadic hunting of seals and walrus did not provide enough work for the whole group. The *Atlas of the Archangelsk Province* (Ovsyannikov, 1988:82) describes the division of the group in such cases into teams of two or three, which wintered in *isbuski*, small huts located 20-100 versts (approximately 24-106 km) from the summer stations. In the literature on the subject the analogy has repeatedly been drawn between this system and the main and auxiliary stations of Norwegian trappers (e.g., Odincov and Starkov, 1985). This analogy, however, is not always true. First, this system was used by the Russians only in the later period, in those cases when the number of hunters was too high. Second, the *isbuski* were not auxiliary stations to be visited cyclically by the inhabitants of the main stations, as was often the case for the Norwegians, but independent winter stations where crews lived all through the winter, exploiting only the area assigned to them.

As the winter came, the danger of scurvy, a typical polar disease, increased. The Russians were able to avoid this danger using very simple means — an appropriate diet. Fresh raw meat, animal blood and fish ensured the intake of a number of vitamins. The hunters often used additives to increase the doses of vitamin C. Ships brought specially prepared sour milk in barrels. The cloudberry (*Rubus chamaemorus*), known to contain 60 mg of vitamin C per 100 g, was added to this milk. This drink, called *starka*, was drunk especially in winter. Pomoryans also took along pine cones and needles from which potions were brewed. The food brought from Russia also included large amounts of flour, corn and grain. Scurvy grass (*Cochlearia*), collected on Svalbard in summer and autumn, was added to food, fresh or sour (Belov, 1956:60). These efforts were very successful. Of 20 skeletons from the cemetery in Russekeila, only one showed indications that death was caused by scurvy.

It has already been mentioned that the physical activity of the inhabitants decreased with the approach of winter. It is known that in the polar winter the most unfavorable factors include inactivity and a passive waiting for the sun to reappear over the horizon. This often leads to psychological crises, which can result in tragedy. The Russian method for coping with the inactivity and boredom of the polar night

was additional work intended to gain extra profit. In the cultural remains of many Russian settlements on Svalbard, tools such as awls for making footwear were discovered. The fact that these products were meant for sale after the return to Russia is indicated by the mass presence of lasts of typical female and children's sizes, among other things. Also, ropes and ship tackle were produced. Apart from these activities, skins from hunting were conserved and oil was cooked from walrus fat. This oil was then stored in barrels often placed around the huts, forming additional insulation and protection from the wind.

The passing time was measured by "calendars" in the form of small timber slats on which the days were notched with a knife. Days were distinguished from nights based upon knowledge of the stellar constellations. There was also time for play. At many sites, chessboards and chessmen have been found. The *Atlas of the Archangelsk Province* (Ovsyannikov, 1988:83) also confirms the custom of mutual visits between winter stations. This no doubt had a positive effect on the psyche of hunters isolated from the outside world for long months.

This provides, moreover, additional information concerning the Russians' ability to survive. They not only repeatedly covered long distances in the dark, often on skis, but were also able to live through unexpected changes of weather or blizzards during their travel. They used the North Star to find their way. Later they also had compasses. In the course of such a trip a reserve supply of bread and a spade were obligatory equipment. If they were surprised by a blizzard, they tried to find an open, level spot so as to avoid being covered by snow. If the blizzard was too strong to survive in this way, they built a shelter of frozen blocks of snow against a hill, raising the height of the wall as the surrounding snow deepened (Belov, 1956:62).

There was still another psychological factor that helped the Russians survive the polar winter on Svalbard — religion — whose role cannot be overestimated. In both chronological phases the northern Russian Orthodox monasteries were among the main organizers of hunting expeditions to the archipelago. For the most part the monasteries belonged to the sect of "old believers," characterized by relatively austere monastic rules and customs. In the 17th and 18th centuries monasteries were still among the richest landowners, ruling over enormous estates. More often than not they gained special privileges from the tsar that strengthened their economic standing. The members of the expeditions were frequently recruited from the population living on monastery lands, with even the monks themselves taking part. Their role was probably to carry out priestly duties and see to it that the old believers' norms were observed. Over the door of a hut, in Habenichtbukta, its inhabitants set the inscription "*Siya isba staroverska*" ("this house belongs to old believers") (Keilhau, 1831:154) (Fig. 6).

Until recently, a characteristic feature of the Svalbard landscape was monumental Orthodox votive crosses erected, often in groups, at almost all hunting stations. Their roles were no doubt complex. They were certainly religious in nature, as an offering. They were also an expression of prayer for protection and good hunting (Rae, 1881:117-118). Keilhau (1831:156) believes that they were erected every year upon reaching the hunting grounds and before the return trip to ensure a good voyage. The dead were buried near the crosses, being thus dedicated to divine care. Some of the crosses were

located at a distance from the settlements, perhaps indicating the boundaries of an activity area for a given group and at the same time being a symbolic patron for a given region. Starkov and Ovsyannikov (1980:124) believe that the crosses also functioned as landmarks for Russian navigation. The belief in protection by supernatural forces was no doubt another positive psychological factor helping to cope with the difficulties of the polar winter.

The Final Stage

As spring came the hunters returned to their previous way of life. The hunters from the *isbuski* scattered throughout the area loaded their catches into boats and, as soon as ice conditions allowed, returned to their comrades at the summer station. The hunting of marine mammals was then resumed, for this was the best time for hunting seals. The summer also offered the last chance to catch walrus. At the same time preparations for the return journey were made, the ship was loaded and food reserves were gathered. What remained was the voyage to Pomorye.

Not All Survived

As stated above, some hunters remained on Svalbard forever, buried at the foot of the votive crosses. We do not know why many of them died, since so far only a few analyses of osteological materials have been carried out. An exception is the analysis of 20 skeletons from Russekeila (Christiansson, 1968). Their position in the cemetery, seven groups of 1-3 skeletons and one group of 7 skeletons, suggests some endemic disease among the Russekeila settlers one season, and so does the fact that 2 skeletons were found in the ruins of a hut. In only one case could scurvy have been the cause of death. For the other 19, despite observations of pathological changes, it proved impossible to identify the causes of death. Investigations indicate that rheumatism was a frequent ailment, as were changes in bones caused by small contusions.

All the skeletons from Russekeila were those of men aged 18-35. A characteristic feature is given by data on muscle insertions and indicates particularly strongly developed musculatures. Around Hornsund there are fewer graves. At Palffyodden five were found and analyzed. Four of them contained men's skeletons, both adult and juvenile. Interestingly, one of them was the grave of an adult woman. The morphological features of the skulls — the main average head index of 82.8 — indicate a common north European



FIG. 6. Habenichtbukta, remnants of Russian huts, surface view. Photo, Marek E. Jasinski.

ethnic origin, just as in Russekeila. However, the female skull was different from the others, being much longer and lower. Its main index is 77.2 (Chochorowski, 1988:127). In the Palffyodden case, as well, the causes of death are unknown.

Not only diseases and accidents threatened the Russian hunters. Besides battling the forces of nature, they also often succumbed to human relentlessness and cruelty. V. Carlheim-Gyllenskold (1900) wrote that in 1820 at Hornsund (what was probably meant was the settlement on the islands of Dunøyane slightly to the north of Hornsund) a Russian ship was found with a dead crew. These hunters had just finished their own hunting season and were getting ready for the trip back when they were attacked, robbed and killed by a group of "Svalbard pirates." The only grave at Bjørnbeinflyene contained the skeleton of a man with a lead bullet stuck in the shoulder blade, probably the direct cause of death.

CONCLUSION

Seas of the Arctic Ocean have played a decisive role in the economic and political life of Russia. For centuries they were the only Russian outlets to Europe. It also took centuries for Pomorye to be transformed into a specific region of the empire, with its own cultural features. As the utilization of the natural resources of the arctic islands became increasingly important, the mobility of the groups of hunters on the arctic coast was one of the prerequisites for the functioning of the economy.

With regard to Svalbard, both the documentary sources and the elements of material culture recovered during archaeological explorations reveal a relatively high level of successful adaptation to arctic conditions achieved by hunters from the Pomorye area. This was based mainly on accumulated experience enabling wintering in the High Arctic environment. The long tradition of hunting on the arctic seas resulted in a major portion of the Pomorye population being highly specialized in this occupation, and the necessary knowledge and skills were passed from generation to generation. Another important factor was an advanced organizational system where all the elements formed the most efficient structure possible.

REFERENCES

ARMSTRONG, T. 1965. Russian settlement in the North. Cambridge: University Press. 224 p.

- BELOV, M.I. 1956. Arkticeskoe moreplavanie s drevnejsich vremen do sere diny XIX veka, Istori ja otkrytja i osvoenja Severnogo morskogo puti, Vol. I. Moskva: Morskoi Transport. 591 p.
- CARLHEIM-GYLLENSKOLD, V. 1900. På åttionde breddgraden. Stockholm: Albert Bonniers Forlag. 256 p.
- CHOCHOROWSKI, J. 1988. Pomor settlement complexes in northwestern Sørkappland (West Spitsbergen) in light of Polish archaeological exploration. Tromsø, Kulturhistorie 11:123-144.
- CHOCHOROWSKI, J., and JASINSKI, M.E. 1988a. The structure of the Pomor settlement complex on the Schønningholmane site (Hornsund, West Spitsbergen). Archaeological data. Acta Borealia 1/2:34-49.
- CHOCHOROWSKI, J., and JASINSKI, M.E. 1988b. Traces of Pomor nautical penetration on the coast of north-western Sørkappland, West Spitsbergen. Acta Borealia 1/2:50-69.
- CHRISTIANSSON, H. 1968. Excavations at Russekeila in West Spitsbergen. I. Skeletal remains. Tromsø Museum Skrifter XIII(1). 38 p.
- CHRISTIANSSON, H., and SIMONSEN, P. 1957. Scandinavian archaeological expedition to Spitsbergen 1955. Polar Record 8(55):348-349.
- CONWAY, M. 1906. No man's land. A history of Spitsbergen. Cambridge: University Press. 377 p.
- FISHER, R.H. 1943. The Russian fur trade 1550-1700. University of California Publications in History. Vol. 31. 275 p.
- JASINSKI, M.E. 1988a. Russiske fangststasjoner på Svalbard. Tromsø, Kulturhistorie 11:10-16.
- . 1988b. Maritime aspects of Svalbard archeology. Oslo: Norsk Sjøfartsmuseums Årbok. 85-106.
- . 1990. Russian hunting in Hornsund, West Spitsbergen. Settlement pattern. In: Forskning om mennesker på Svalbard. Rapport fra en konferanse, 3-6 mai 1989. Oslo: NAVF. 39-58.
- JØRGENSEN, R. 1985. Norsk Arkeologi på Svalbard. In: Arkeologisk Fel-tarbeid i Nord-Norge 1984. Tromsø, Kulturhistorie 5:101-120.
- KEILHAU, B.M. 1831. Reise til Øst — og Vest-Finmark samt til Beeren-Eiland og Spitsbergen, i Aarene 1827 og 1828. Christiania: Johan Krohn. 247 p.
- LAMONT, J. 1876. Yachting in the arctic seas or notes of five voyages of sport and discovery in the neighbourhood of Spitzbergen and Novaya Zemlya. London: Chatto and Windus, Piccadilly. 387 p.
- ODINCOV, V.A., and STARKOV, V.F. 1985. Nekotorye problemy arkticeskogo moreplavania i pochody russkich na archipelag Spitsbergen. Letopis Severa 11:147-161.
- OVSYANNIKOV, O.V. 1988. Pomorskaya promyslowaya "enciklopedija" konca XVIII v. In: Kultura Russkovo Severa. Leningrad: Nauka. 71-86.
- RAE, E. 1881. The White Sea Peninsula, A Journey in Russian Lapland and Karelia. London: John Murray. 347 p.
- SIMONSEN, P. 1974. Veidemann på Nordkalotten. Hefte 1, Samf. vit. inst. ved Universitetet i Tromsø, stensilerie B, nr 1. 142 p.
- STARKOV, V.F. 1986. Russian arctic seafaring and the problem of the discovery of Spitsbergen. Fenoscandia archaeologica III:67-72.
- . 1987. Russkoje arkticeskoje morieplavanie i pochody na Szpic-bergen w XVI w. In: XIV Sympozjum Polarne, Lublin. 236-241.
- STARKOV, V.F., and OVSYANNIKOV, O.V. 1980. Archeologiceskije issledovanja na Spitsbergenie. Vestnik Akademii Nauk SSSR 3:122-128.
- STORÅ, N. 1987. Russian walrus hunting in Spitsbergen. Etudes/Inuit/Studies 11(2):117-138.