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Use of Fur and Leather in the Arctic

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極北地域における毛皮革の利用と技術

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Animal skin is an important material for Arctic peoples, for it is not only easily obtainable but also has superb qualities of durability and formability which allows it to be used as various purposes, such as insulation and water proofing, essential for living in severe conditions of the North. Other necessities made from animal skin include clothing, bags, tents, bedding, kayaks, thongs, nets and even buckets and scoops. These items suitable for nomadic life, are lighter than ones made from wood, stone and clay. The people in boreal forests made canoes from birchbark; however, people in the tundra made skinboats such as the kayak and umiak from hides. Large quantities of skin are necessary to make skinboats and tent-covers compared to the amount required for making clothing.

The most important easily accessible and useful skins in the Arctic are reindeer and seal skins. Regional characteristics are found in fishskins used by peoples especially dependent on river fishing, and in birdskins used by islanders and coastal peoples. On the other hand, a diversity of skin types can be seen in the use of dog skins by ethnic groups such as the Nivkh, Koryak and Chukchi. Also, a special use of seal pups' fur dyed red and ermine skin is tassels for ceremonial clothing. Animals with fur of high quality such as *Canidae* and *Mustelidae* are important for adorning clothes as well as for trading.

By surveying the relation between the traits of each skin and its use, the purpose of this paper is to describe how the Arctic peoples made the best use of the available animal resources to adapt to life in such severe conditions.

Animal skin is very sensitive to humidity and temperature, causing special dressing and treatment a necessity. Therefore, skin dressing is presumed to have been part of the daily work especially among the northern peoples. However, it can't be said that higher techniques for skin dressing developed in colder environments, for there was great diversity in the methods used, depending on the type of animal, its use and seasonal availability. There are some investigations on ethnic migration, cultural diffusions, and cultural differences related to the study of skin dressing processes. The principal point of view of these papers is that the culture of Paleo-Asiatic peoples and Eskimo have an old and simple type of dressing; however, later high quality products with elaborate work made by the Tungus peoples gradually spread throughout this area and moved northeast. Taking in to account these investigations, I would like to make a distinction in this paper between the Arctic forms by comparing the skin dressing methods of the northern tundra with that of the boreal forests.

Finally, though vegetation was poor in the tundra, I would like to suggest some of the important roles it played in tanning animal skins.

Use and characteristics of species used

The availability of each animal varied for each environment. In the cold tundra climate, not only were the available animals limited, but some of them could not be obtained throughout the year due to seasonal migration. Even in adjacent areas, such as the island-mainland, the east coast and the west coast, hunting conditions varied, thereby causing variation in the types of animals used. Also, concerning clothing, even for the same ethnic group, sometimes there were differences in the type of skin used for age or sex. For example, calf's skin and birdskin, both soft and light but not durable, were used for woman's and children's clothing.

Principally, people in the North adapted materials which they obtained locally; however, those materials that were not available were traded with other groups. As a typical case, maritime people exchanged sea mammal products for reindeer fur with inland people (e.g. Maritime Chukchi and Reindeer Chukchi).

Referring to many ethnographies, we can infer that throughout the Arctic, the most useful animal skin is reindeer, followed by seals. G. Hatt(1969) mentions that bird and fish skins were of importance next to reindeer as material for clothing in the Arctic. However, considering other use apart from clothing, it is possible that sealskin had more importance than bird and fish skins due to its durability and protection from cold and dampness.

Use of animal skin

1) Reindeer(caribou) skins were a necessity for winter clothing. The skin and hair layers of the reindeer vary considerably seasonally and with age. Different types of reindeer skin were used for various purposes. For example, soft calf's skin was used for infants' clothing, the thin hair of spring-summer fur, for summer clothing, and the thick hair of autumn-winter fur, for winter clothing. Also each part of the skin has a different property. For example, the leg skin, having smooth hair, was preferred for trousers and boots. This shows effective use of its property to shed snow.

In the cold climate of the tundra, reindeer hides with their hair removed were not very useful, but in the boreal forests, tanned hides were widely used for making clothing, tent-coverings and bags along with other deer hides.

When large herds of reindeer migrated in spring and autumn, people concentrated on hunting them. The autumn skin which had just molted was of good quality. Koryak and other reindeer nomads used calf's skin not only for infants but also for adults. However the Tungus, who, by not slaughtering calves, economized on the few reindeer that they bred, often used the relatively thin and light adult skins in summer instead of calf skin. Thus selective use of skin was consistent with the people's realization of their needs for subsistence.

2) The water-tight seal skins were widely used for boots(soles) among Eurasian and North American peoples. A great part of summer clothing, especially for Eskimos, consisted of seal skin. This material was also important for clothing for the Nivkh and the Ainu in Far East Asia.

At the same time, sealskin, having durability, was used for thongs and covers for skin-boats, and bearded seals and walrus were especially suitable for this purpose. Each type of species had its own purpose and was used accordingly. The fur of newborn seals dyed red played an important role in the spiritual culture which was applied to the shaman's costume or ceremonial clothing. In addition, water-proof parkas made from sea mammal intestines shows remarkably adept usage.

Sea mammal hunting was the main means of subsistence among the Eskimo and Paleo-Asiatic peoples along the sea coast of the tundra area and the Okhotsk Sea. Inland people exchanged reindeer fur for sea mammal products with maritime peoples; e.g. lasso and towline for sleds used by Reindeer Koryak were made of sealskin (Jochelson 1905-08).

3) Following reindeer and sealskin, dog skin was probably an important material for Arctic clothing. This assumption is controversial however. Although dogs are good furbearers, Eskimos, who had a close relationship with them, avoided using their fur in preference of other animals'.

There is great difference in the use of dog skin according to each ethnic group. Especially among the Paleo-Asiatic peoples such as the Nivkh, Koryak, and Itel'men, who sacrifice dogs, they are also the principal materials for clothing. In addition, Sakhalin Ainu often wore garments of dog skin. They were widely used as "trimmings," like decorative borders. In West Greenland, birdskin jackets were edged with black dog skin on the collars and wrists. Similarly, dog and wolf furs were used to trim caps and hoods for breathing on them did not freeze them. Moreover since dog skin is water-tight, it became essential material for clothing for summer seal-hunting among Koryaks, and for mittens for winter seal hunting among Bering Strait Eskimos.

4) Other types of skin that were locally important, for example, were Arctic fox skins for jackets in Greenland, and Arctic ground squirrel skins for woman's fine wear in Alaska.

There was a special use of ornaments for ceremonial clothing in each area, such as white winter skins of ermines in North America and seal pups' fur dyed red in Northeast Asia.

Furthermore, it is mentioned that furbearers like sable, sea otter, beaver and arctic fox became important items of trade with the European people in early times, although this is a little off the viewpoint of this paper which is to investigate the adaptations to austere life in the tundra.

5) Birdskin has been of great importance as clothing material especially for the people living on islands and along the coast (e.g. Aleutian, Greenland etc.) where reindeer population was scarce.

Typical kinds of bird which were used are aquatic birds such as loons, cormorants, geese, ducks and auks. Among them, the auk was likely more accessible because they built nests in colonies. Birdskins were often used for inner shirts due to their insulative properties. The webfeet of birds such as gulls were also used for making bags.

6) Numerous uses of fishskin are well known. There is extensive use of them in the Amur River region, and also to some extent in the Yukon-Kuskokwim River region, though it is not well known. Water-tight clothing for fishing and sea mammal hunting were made from fishskins.

Skin dressing techniques and cultural distribution

Animal skin in raw condition is not suitable for use since it is apt to rot or become stiff. For this reason, skin dressing is an essential and indispensable technique for the northern peoples who use plenty of animal skin for various purposes. Skin dressing is a series of processes in which the decomposable connective tissues are removed by drying, washing and scraping to preserve only the fibrous organic tissue, and thereafter filling the fiber with tanning substances. These processes make the skin durable and flexible.

Animal skin consists of two layers, the epidermis and corium (papillary layer; grain and reticular layer), under which the fat and meat are attached. The portion used as leather

is the corium section consisting of protein(collagen) as its main ingredient. Hair, sweat glands and sebaceous glands all belong to the epidermal tissue and invaginate into the corium. Skin dressing processes are divided into three parts: preparation, tanning and softening (in Japanese all these processes are called by the term "nameshi"). In order to make de-haired leather, all tissues, except the collagen, are removed by rotting. On the other hand, in the case of making fur(hair left on), substances such as tannin, alum and formalin which solidifies the corium are smeared on. Smearing and scraping are done only from the meat side.

Skin dressing includes both chemical and physical processes. Under the severe cold, it is very natural that northern peoples required high quality skin products for clothing, housing and boats in order to survive. Women spent a lot of their time on skin dressing and experience was necessary(some of the hunting tools such as thongs were dressed by men). I believe that it is significant to study the adaptation of northern peoples to severe environments by comparing the tools and tanning substances of skin dressing techniques.

There are some suggestive investigations on this subject. Sasaki(1992) divided the use of skin from Sakhalin to the Amur river region into two complexes: fishskin-priority complex with simple dressing techniques and animal skin priority complex with highly developed skin dressing techniques. The former was constituted of fishing and sea mammal hunting cultures which required light and water-proof clothing made of fishskin, typical of the Nivkh and (Sakhalin)Ainu. The latter adapted to hunting in forests was typical of the Tungus usage. Based on distribution and ethnic descent, Sasaki supposed that the former was considered to be an old fundamental cultural stratum and the latter had spread with the movement of the Tungus. To put it concretely, animal skin priority culture overlapped with the fishskin culture beginning with the Songhua and the Upper Amur River extending to the Lower Amur. This new stratum spread thickly over the fundamental cultural stratum. He mentions that the Tungus methods have affected the Nivkh culture, but did not reach the Ainu who had little contact with the Tungus people. From Hokkaido to Southern Sakhalin, there existed another cultural stratum who depended on clothes made of plant fibers instead of animal skin.

Using Sasaki's supposition and taking into consideration Hatt's world wide work, types of skin dressing can be categorized as follows. On one hand, the Nivkh type of simple dressing(using feces and urine, rare usage of fat for tanning, lacking variety in scrapers, a great deal of scraping with hands, feet and teeth, and few repetitive processes) are common among the Chukchi, Koryak and Eskimo belong to the former old stratum found among Paleo-Asiatic people and Eskimos. On the other hand, the Tungus type complex dressing(applying various scrapers at each step, using many substances such as brain, fish-roe, decayed wood etc., no usage of urine, smoking of skin) spread with the Tungus to northeast Siberia, and greatly effected Yukaghir methods, and also those of the Chukchi and Koryak.

However, the scope of these studies may be too wide. I feel that a closer examination with emphasis on the purposes and use are necessary to examine the different processes.

Dressing techniques developed through the effect of fur trade, (e.g. tools which were not functional without iron blades may have begun to be employed after around 17 or 18 century). Leroi-Gouran (1943) mentioned that "this universal technique was not a sign of an old common origin", but came about due to necessity. (Although, as he pointed out some regional relationship does exist between the types of scrapers and tanning substances used.) I think that the viewpoint of simultaneous occurrence should be considered.

Next, I would like to review several cases of skin dressing while placing attention on the differences in processes according to materials(reindeer skin or sealskin) and purposes (hair removal, water-proofing, or heat retention).

In the tundra, people can obtain a lot of game at one time. If the skin was not treated properly as soon as the animal died, it would become unusable. Therefore temporary preparation for storage was done by scraping the fat and meat off the skin roughly and then drying or leaving it under the snow.

First of all, I would like to show the case of Bering Strait Eskimos (Nelson 1899) (Fig.1-3). There is an obvious difference in skin dressing methods between caribous and seals. In dressing sealskin and walrus hides for skinboats or tent-covers, they are first scraped clean of fat and meat, then rolled into a bundle with the hair side inward and kept inside the house until they begin to ferment and the hair loosens. Small sealskins are sometimes dipped in hot water to hasten the loosening of hair. The hair is then scraped off and the skin is stretched over the side bars of a wooden frame by stout cords passed through slits around the edges of the skin. Then they are scraped again and placed outside to dry. In case of skin with hair on, it is soaked thoroughly in urine to remove the fat, then stretched, scraped and dried in the same manner.

On the other hand, to dress caribou skin with hair on, the meat side of the skin is moistened with urine; it is then rolled into a compact bundle with the hair side outward, and permitted to remain a few hours inside the warm kashim(house), after which any remaining fragments of sinew or meat are removed with a scraper. It is then dried and scraped again and hung up open in the kashim while a fire is burning. After it dries, it is taken down and scraped carefully and lightly on the inner side to soften it. After this treatment, the skin is scraped again and boiled fish eggs, while still warm, are rubbed repeatedly between the hands.

We know that the method to dress reindeer skin was more complex than for sealskin. When the hair was removed, the skin was rolled hair-side inward and skin with hair attached was rolled with the hair-side outward as a beginning step.

Next I would like to present the case for Chukchi(Bogoraz 1904-09) where there are obvious differences in dressing methods between fur and leather(Fig.4-6).

After the skin is removed from the animals' bodies, all skins were cleaned of meat and sinew with a knife and stretched on the ground. (If skins are not tanned immediately after drying, they were folded for storage.) In dressing skin with hair left on, the usual process begins with folding a fresh skin with the meat side in, and leaving it in this state over night. If it dries, the skin is soaked in water. In the morning, the meat side of the skin is scraped with an iron scraper and trampled with the feet. Then the skin is smeared over with reindeer-dung, human urine or meat broth, and again left over night. After that, it is scraped for a second time and trampled with the heels. This method up to this process is also similar with that of the Bering Strait Eskimos. After this process, the Chukuchi often dye the skin with alder-bark boiled with urine. They recognized dyed skin was a better repellent than a white inner side. This process corresponds somewhat to tanning.

Although not as important as currying reindeer skins was a more complex process. The skin is soaked and left for twenty-four hours folded together. Then the hair is scraped off and the skin is dried. It is smeared with one of the materials mentioned above, then scraped again, and bleached in the wind or dyed with yellow ochre. Most of the curried skins are smoked for a couple days over the hearth or in a special shed.

Also, it is clear that dressing sealskin was a more simple process than dressing reindeer

because the Chukchi had little use of sealskin hides for clothing except for boat-covers and boots soles.

In a report on West Greenland(Nansen 1893), there is a detailed description of sealskin dressing for each purpose, though the description for dressing reindeer is brief due to little use(Fig.8-11). There are two types of skins without hair, *the black skin* with the dark colored epidermis left on and *the white skin* with the epidermis removed. For the kayak, the black skins, which are water-tight and do not need to be greased, were considered best in winter; the white, on the other hand, which had to be kept well greased with seal-blubber, were preferred in summer. To make black skins, they are soaked for a day or two in stale urine so that hair can be removed easily. On the one hand, for white skins, they were rolled up and laid in a warm place either outdoors or in, until the hair and epidermis could be easily scraped away with a mussel-shell. To remove fat, women generally preferred to use their teeth instead of scraping, since they could suck out blubber. If the sealskin was to be dressed with its hair attached, it was scraped on the blubber side roughly with a crooked knife, then soaked in water and washed, stretched, and dried. It was then made soft and pliant by rubbing.

Reindeer skin was simply dried and rubbed without water being applied to it. (If it were washed with water, probably the hair would have fallen out.)

In dressing bird skins such as the eiderduck (feathers are never removed), the first step was to carefully dry the feathers. Then the skins were turned inside out and the layer of fat was scraped away thoroughly with a mussel-shell or a spoon and eaten. Next, they were dried, and after a few days, the last remnants of fat were removed from them by means of chewing, then dried again, washed in warm water three times over, pressed, and hung up for final drying. This part of the work was, for the most part carried out by women and children and was enjoyed, for it enabled them to obtain fat at the same time. This work was easy and could be done in spare time. Nansen did not give the description for dressing fish-skin. However, among the Bering Strait Eskimo, dressing small animals such as birds, marmots and muskrats was performed in a similar simple manner. To put it concretely, skin dressing of small animals was a simpler process than that for bigger animals such as for sea mammals and reindeer, not requiring special tools and generally done by chewing only. For this reason, young women and children could dress small animals.

As mentioned before, skins which were used for skinboat coverings did not have to be dressed elaborately. The skin with its meat and hair scraped off roughly was stretched on the kayak so that it could dry upon the framework. The skin used for boot soles were generally untanned(in most northern arctic regions).

Next, I would like to examine the methods among the Hare Indians of the boreal forest zone.

To make moose leather without hair, the Hare Indians required much time. The process was as follows. In the first step (Hara 1980), hair was removed by shaving off or pulling out and the meat and fat were scraped off. Once again the hair was shaved, and soaked in water in a tub(sometimes soap was added) in order to remove the blood. Afterwards, the skin was scraped to an even thickness and smoked for preservation. When the skin was half dried, it was soaked in water again, holes were opened around the edges, wrung dry and dried on a rack. The above is a preparation process for preservation, so that the leather could be stored even if it could not be tanned immediately. For the first process of tanning, the skin was

smoked with decayed fir and after it became warm, it was soaked in a tanning solution mixed with soap, caribou brain and water (occasionally, in some cases, liver of moose or caribou or fish roe, or wheat flour was used instead of brain, and lye was used when soap was not available). Afterwards, the process of wringing and soaking into a tanning solution was repeated 4 to 6 times. Then the skin was scraped and smoked after soaking in a new tanning solution. This final process of smoking was to color the skin.

For the West Main Cree of Hudson Bay, preparing caribou skin basically for clothing material was a long process. The hide, after it was fleshed, was pegged on the ground and stretched. The hair was later shaved while being fixed on a log. A semilunar knife was used for fleshing. The skin was then soaked in a brain mixture, rinsed, dried, stretched and smoked. Tanning seal and white whale skin required similar hard work; however, the cleaning of hare skin was relatively simple (Honigmann 1981).

The purpose of skin dressing methods discussed so far and the materials required for each are roughly summarized as follows:

- a. Leather needed more time and higher techniques, compared to fur.
- b. Dressing of seal skin is simpler than reindeer, and even more so for small mammals, birds and fish.
- c. To remove hair to make leather, the skin must be left laid out for a comparatively long time (one to three days) with the use of urine as a decomposition accelerator or by soaking in hot water.
- d. Urine was used for three purposes: as decomposition accelerator, washing substance (especially fat) and decocting fluid of alder-bark for red dye.
- e. Brain and fish roe used in the last process were effective for softening and water-proofing due to their oily contents. Brain also has an effect on bleaching.
- f. Seal skins did not need to be greased during the dressing process and were only necessary for care of the product.
- g. Leather of reindeer was smoked in the last process in many cases for coloring, watertightness and prevention of decay.
- h. A method to bleach skin in the tundra was to expose it in cold air. Coloring was more effective on bleached skin.

Discussion

It is highly possible that a more complex dressing type overlapped with the older and simple method (e.g. the area of the Paleo-Asiatic and Eskimos) through the spread of Tungus peoples, as Sasaki (1992) and Hatt (1969) have mentioned. This spread could be seen particularly through iron blade-type scrapers peculiar to the Tungus who were influenced by external factors, such as contact through trade with more civilized societies and through the introduction of nomadism.

However, an alternative explanation is that the development of dressing methods have no relation to ethnic migration or diffusion of techniques but occurred simultaneously. For example, Athabascans living further south than Eskimos used various tanning substances and more complex processes, such as using animal brain and smoking moose hide, as did the Tungus. These processes were performed for higher quality.

Simple dressing procedures were enough for use of fur and leather in the cold conditions of the tundra even in summer. Also it was necessary to leave the hair on the skin for protec-

tion from the cold. The dressing process to retain the hair did not demand a more complex procedure. Moreover, the dressing process of sealskin was simpler than that of reindeer and was sufficient for the material to be water-tight. The ethnic groups depending mainly on sealskin are Paleo-Asiatic peoples and the Eskimos, living in the tundra region. Therefore, although the dressing processes in the tundra were simple and of the old type, they were sufficient to make the necessary products and were probably the reason why higher techniques did not develop. These people had a variety of types of scrapers for different purposes, with cleverly made handles, and their urine-tanning method with high washability was very effective for fatty sea mammal skins.

On the other hand, in the boreal forests where the temperature was hot in summer, it was necessary to make leather with the hair removed. To improve water-tightness for deer leather, greasing and smoking were necessary. For the aesthetic side, bleaching and dyeing were then done, for leather does not have much color variation unlike fur. The development of complex dressing processes were accelerated by the desire for higher quality (superiority in softness, color and water-tightness).

Fur and leather were not daily necessities in areas south of the temperate zone (Obayashi 1989). Principal materials of clothing were cloth woven, pressed or knitted with plant or animal fibers. Of course, complex dressing methods were observed in these areas too. However, judging from the cases in Europe and Japan, such items were for only a specific class of people or for special use such as armor or shoes, and these techniques were held by a specific group of craftsmen. The refined methods and tools of the modern society should by no means be compared to those of the people in the north. However, the methods of dressing of the northern peoples, are very appropriate for their way of life.

No doubt skin dressing is an universal technique in the cold areas, with more complex techniques (tools, tanning substances, repeated processes) in the boreal forest zones than in the tundras. However, I think that the skin dressing culture should be evaluated on the grounds of materials obtained and purposes of use while considering the respective natural environment and means of subsistence.

Skin dressing is one of the techniques which had developed from early times to adapt with the cold as the people advanced to the north.

Plants usage for skin dressing

Lastly, I would like to consider that plant use for dressing animal skin. In the boreal forests zone, decayed woods were often used for tanning substances and smoking material. On the other hand, skin dyeing with alder had spread widely in the tundra, especially in North-east Asia up to Alaska (Serov 1988, Saito 1992). Among the Northwest Coast Indians, baskets and Chilkat blankets were treated with dyes from hemlock bark and cranberry decocted in urine, or were dyed red from the urine of urine bucket made of alder (the red dye of alder-bucket dissolves into the urine) (Kew 1974). The dye of alders that included tannin were used for tanning too, and red-dyed furs had a very important role in the spiritual world of the North.

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〈Bering Strait Eskimo ベーリング海峡エスキモー〉
 seal skin or walrus hide without hair アザラシ・セイウチ皮

- Seal and walrus hide had many usages. e.g. summer clothing and skinboat
 夏用の衣類や皮船などに利用する

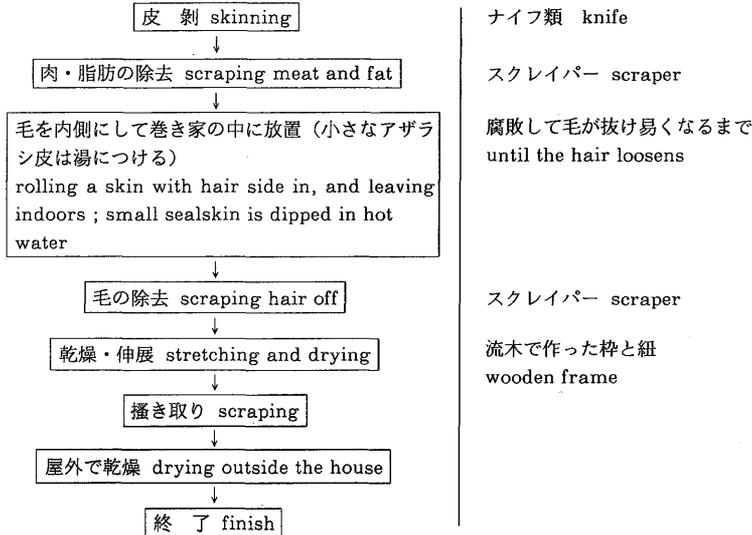


Fig. 1

*If the skin with hair on, for use in making boots or clothing, it is soaked in urine to remove the fat, then stretched, scraped, and dried.

毛皮の場合 (ブーツや服に利用) は、入念に尿につけて脂肪を洗い流し、前述どおりに引き伸し、スクレイプし、乾燥させる。

*The white parchment-like leather is soaked in urine to free it from the fat, stretched and dried in the open air in winter. This skin is washed the surface and dyed from alder-bark.

薄く白い革 (ブーツや装飾に使用) に仕上げるには、除毛した小さなアザラシ皮を脂肪を落とすために尿につけ、寒い季節に木枠に張り伸ばして乾燥させる。この白革を赤く染めるには、ハンノキ樹皮を使う。
 [Compiled from Nelson 1899]

〈Bering Strait Eskimo ベーリング海峡エスキモー〉
 caribou fur with hair on カリブー毛皮

- Caribou fur had many usages, as well as for winter clothing.
 冬用の衣類をはじめ、用途は広い。

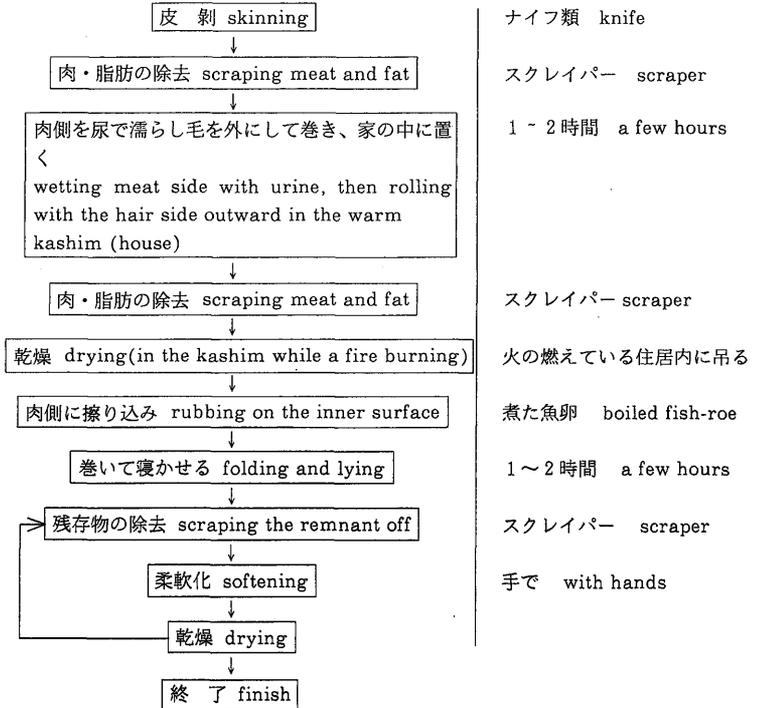


Fig. 2

[Compiled from Nelson 1899]

〈Bering Strait Eskimo ベーリング海峡エスキモー〉
small animal(hare, muskrat, marmot, bird etc.)
小動物(カリブー幼獣、ノウサギ、マスクラット、マーモット、鳥)の場合

• small animal was used for clothing. 衣類などに利用。

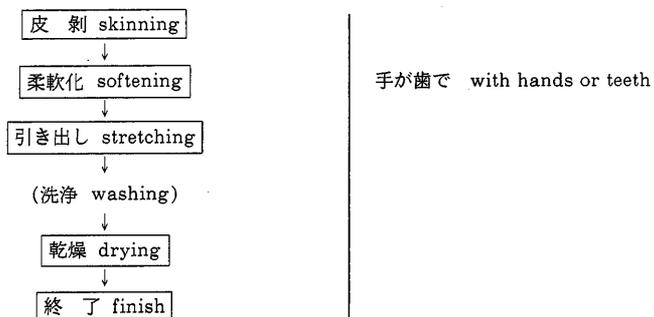


Fig. 3

[Compiled from Nelson 1899]

<Chukchi チュクチ> reindeer skin with hair on トナカイ毛皮

- Reindeer fur had many usages, as well as for winter clothing.
冬用の衣類をはじめ、用途は広い

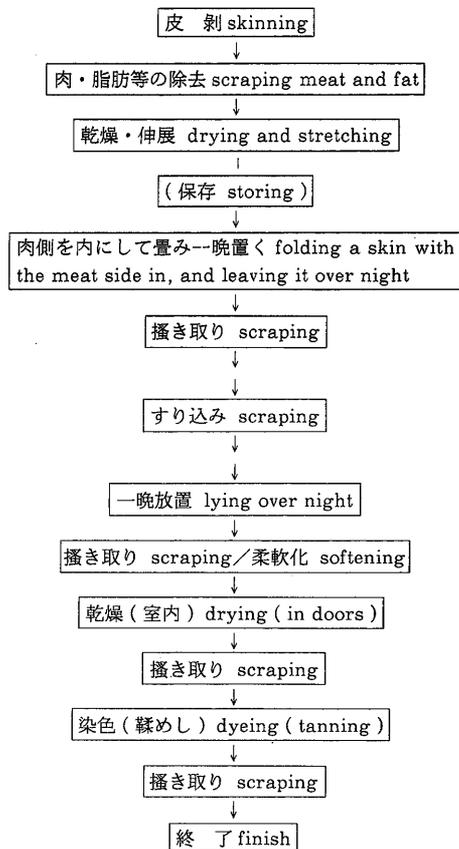


Fig. 4

[Compiled from Bogoras: 1904-09]

<Chukchi チュクチ> reindeer leather without hair トナカイ革(レザー)

- Reindeer leather was used comparatively little, only for tent-covers
テントのカバーなどの他は用途は少ない



Fig. 5

[Compiled from Bogoras: 1904-09]

ナイフ類 knife

押さえにペグ peg、石 stone

畳んで folding

スクレイパー scraper

トナカイの糞・人尿・肉汁
reindeer-dung, human urine,
or meat-broth

2日間 a couple of days
炉や特別な小屋の中で

〈Chukchi チュクチ〉 アザラシ・セイウチ革 seal or walrus hide without hair

• Seal and walrus skin was utilized only for boots, bag, skinboats and summer trousers. These skin were less used than reindeer skin.

靴、袋類、皮船のカバー、夏用のズボンくらいで、トナカイ皮より少ない

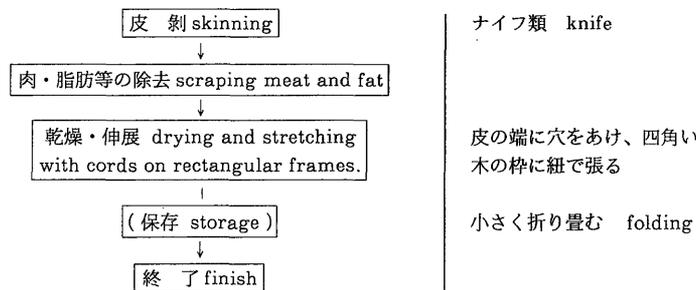


Fig. 6

*When used for covering a boat, walrus hide is simply soaked in water, then cut and sewed in the shape required, and pulled over the frame.
船のカバーには、水に浸してすぐに裁断して縫って張るだけ

*The skins of seal that are used with the hair on are prepared by merely scraping their inner side with an iron scraper. (A little blubber are left on the skin. These skins are not dyed.)
アザラシ毛皮（春のブーツ、ズボン、バッグ用など）には、内側をほんの少しスクレイパーで削って除去する（脂肪を少し残して置く・染色しない）

*The white parchment-like leather used for ornamental purposes is obtained by bleaching the well-scraped skins in the air for a long time. (The best season is the early spring.) Sometimes such leather is dyed russet with alder-bark. The best parchment is obtained from the gullets of large seals.
アザラシ白革（装飾用）は、よく掻き取り、空気に長く晒す。早春が季節的に良い。ハンノキ樹皮で赤く染めることもある。大きなアザラシの喉の部分が最適。

*The fur of young spotted seal is dyed a handsome red color by using the inner bark layer of the larch-tree boiled with alder-bark.
ゴマアザラシの幼獣の白い毛革は、カラマツ内皮とハンノキ樹皮を煮た染料で赤く染める。

*The walrus hide is split in two with a thin broad knife.
セイウチはよく切れるナイフで2枚にそぐ [Compiled from Bogoras:1904-09]

〈Yukaghir ユカギール〉 トナカイ毛皮 Reindeer fur with hair on

• Reindeer fur had many usages, as well as for winter clothing.

冬用の衣類をはじめ、用途は広い

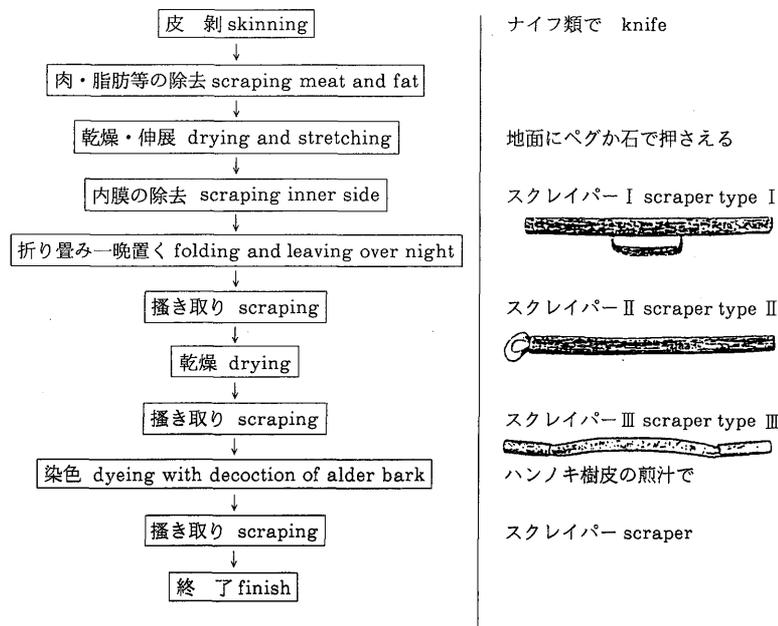
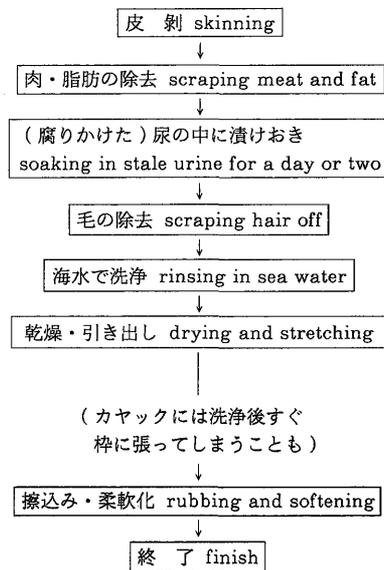


Fig. 7

*For currying, the hairy side of the skin is soaked with water or urine, folded, and left for a couple of days. After this, the hair is scraped off and the skin dried. To obtain a soft hide, the curried skin is scraped several times. For summer clothing and tent covers curried skin are also smoked, making the leather fairly waterproof and preventing it from shrinking after wet. レザーにする場合は、毛の側を水か尿に浸して折り、2日間寝かせる。その後、毛を除去して乾燥させる。柔らかな革を得るためには、数回こそぐ。夏用衣類やテントカバーにするには、燻煙をすると防水性が高まり濡れても縮まない。 [Compiled from Jochelson:1926]

〈West Greenland Eskimo 西グリーンランド・エスキモー〉
 seal leather without hair (black skin) アザラシ革 (黒皮)

- The black skin was used for winter kayak and boot soles and so on.
 アザラシの黒皮は、冬のカヤックの他、靴底などに使われる。



ウロ (女性用ナイフ) ulo
 台; クジラの肩胛骨
 1~2日
 ウロ ulo
 (吊すかべぐで地面の上に) peg
 夏: 陰干し
 (冬: 雪の中に埋めて保存)

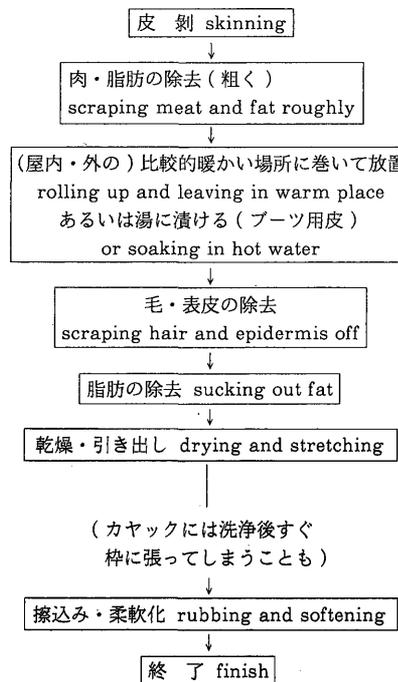
Fig. 8

- * 銀面が損なわれていないので、暗色である。防水性が高く、靴(底)、皮船などに利用。グリース(アザラシ脂)でのケアは必要ないので冬用のカヤック皮として好まれる。(昔は1年に2回皮を張り替えていた)
- * カヤック・グローブには、はじめ同様の処理をして、除毛後に血を塗ることと巻いて放置する工程を2~3回繰り返すと、耐久性に富む。

[Compiled from Nansen 1893]

〈West Greenland Eskimo 西グリーンランド・エスキモー〉
 seal leather without hair (white skin) アザラシ革 (白皮)

- The white skin was used for summer kayak and boots and so on.
 白皮は夏用のカヤックの他、靴などに使われる。



ウロ (女性用ナイフ) ulo
 台; クジラの肩胛骨など
 (毛と銀面が緩むまで繰り返す)
 →冷たい海水に漬ける
 then soaking into cold sea
 イガイの貝殻のスクレイパー
 mussel shell scraper
 歯で噛んで吸い出す
 (吊すかべぐで地面の上に)
 夏: 日陰干し
 冬: 雪の中に埋めて保存

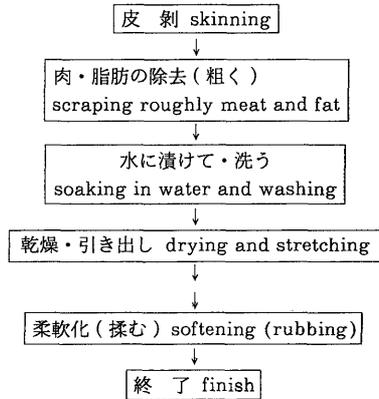
Fig. 9

- * 常にグリースによる手入れが必要なので、夏向きのカヤック皮。

[Compiled from Nansen 1893]

〈West Greenland Eskimo 西グリーンランド・エスキモー〉
 seal skin with hair on アザラシ毛皮

- Seal skin with hair on was used for clothing.
 アザラシ毛皮は衣類などに使われた。



ウロ(女性用ナイフ) ulo

台; クジラの肩胛骨など

(吊すかベグで地面の上に)
 夏: 日陰干し
 冬: 雪の中に埋めて保存

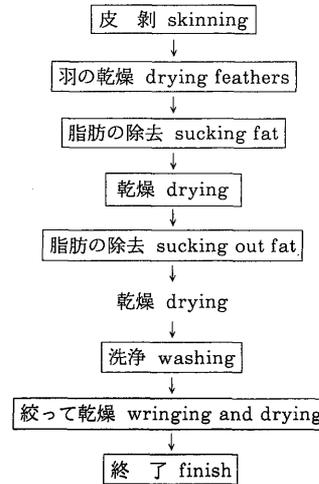
Fig.10

- * Reindeer skin is simply dried and rubbed, no water being applied to it.
 トナカイ皮はただ単純に乾かして揉むだけ。水は使わない。

[Compiled from Nansen 1893]

〈West Greenland Eskimo 西グリーンランド・エスキモー〉
 bird skin (eider duck etc.) 鳥皮(ケワタガモなど)

- Bird skin used for clothing, as well as inner jackets.
 鳥皮は内側に着る服をはじめ、衣類などに使われる。



イガイの貝殻のスクレイパー
 mussel shell scraper
 1~3日、屋根の下に吊す

菌で嚙んで吸い出す

Fig.11

[Compiled from Nansen 1893]