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ORAL HISTORY AS HISTORY: TUTCHONE ATHAPASKAN IN THE PERIOD 1840-1920

PART 2

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In this chapter and the next two, our purpose is to determine whether the societal organization and culture of the Tutchone during the second half of the nineteenth century could have been transformed as a consequence of technological disruptions which might have altered its forms of appropriating materials between 1840 and 1920. Chapters 5 and 6 provided some of the elements needed for this study. What we must now establish is whether or not such change in the forms of appropriating natural resources and raw materials in fact occurred. This final task generally consists, first, in determining what work patterns (synchronic division of labour) and forms of production (organic or diachronic division of labour) existed in 1840-1850 in (1) the extractive as well as in (2) the transformation industries; and secondly in considering, one by one, the factors that might have been present and might have had the potential to transform these forms of appropriating materials (depopulation; the manufacture of new products; the abandonment of certain indigenous products; and the use of new means of appropriation which we have noted earlier).

This chapter is devoted to answering the question, "What were the forms of appropriating materials in the *extractive industries* circa 1840-1850?" The next two chapters aim to answer the following questions: 1) What were the forms of appropriating materials in the *transformation industries* circa 1840-1850? 2) Did any possible factors of change arise and how?; and 3) If so, did they have an impact on the forms of appropriating materials? At that point, all questions concerning the economic history of the Tutchone society between 1840 and 1920 will have been answered and it will then be possible to draw a final conclusion as to this society's societal and cultural history by pulling together all the partial conclusions derived from Chapter 3 onward.

7.1 Reconstruction of the Forms of Appropriating Materials Involved in Extracting Raw Materials circa 1840-1850

The logical starting point would be to answer some basic, yet fundamental, questions, such as: What types of extractive industries existed around 1840-1850? From what age to what age would one generally work in these industries? Are there sufficient period documents to

reconstruct a detailed portrait of these industries as well as the methods of working in them? If not, how could we compensate for any shortfalls in information?

The two points pertaining to ethnography must be answered straightaway as the first governs the way in which this chapter is organized while the second cannot be deferred to subsequent sections.

The journal kept by Campbell during his stay at Fort Selkirk from 1848 to 1852[335] may be used to draw up the inventory of extractive industries. It substantiates the fact that the Tutchone were harvesting minerals, plants and trees, birds, mammals and fish in 1840-1850. Taken with other data it also suggests that approximately 45 percent of their food supply came from hunting mammals, 40 percent from fishing, 10 percent from hunting birds. and 5 percent from gathering berries. While it might seem ludicrous to assign statistics to these suppositions, it will be shown below that the percentage of food products derived from fishing and hunting (mammals) was indeed in the neighbourhood of 85 percent, with hunting and fishing products in virtually equal proportion. The journal shows, furthermore that fishing was the most *reliable* food production industry and therefore a key component of the economy.

On the subject of working age, Campbell's journal reveals that boys were initiated to hunting large game such as bear between age 11 and 14 and that even the elderly and less physically capable had to remain active in subsistence pursuits.[336] An observation recorded by Tollemache (1912: 170) confirms as much. In the middle of winter, he saw a campsite near Tatlmain Lake where two elderly women had been left alone with a boy of about 11 years of age. Ostensibly, the Tutchone considered this threesome to be a self-sufficient unit that was quite capable of meeting its basic needs. In fact, Tollemache noted that the three managed quite well on a steady diet of hare. He even adds a few interesting pieces of information concerning this people's work ethic and consumption habits.

> During the winter an Indian will occasionally cut a small hole in the ice on a lake, and will squat beside it for hours enveloped in a blanket, while he holds a piece of twine with a baited hook submerged in the water on the chance of securing a stray pike. In a severe climate like the Yukon, to continue this occupation for a prolonged period on a cold and draughty lake requires an amount of stolid patience which few white people could display (*ibid*.: 274). When meat or fish prevails in abundance, during the salmon season or when moose have lately been killed, they will gorge themselves in the most extraordinary fashion, rising several times during the night in order to satisfy their appetite (*ibid*.: 265).

Tollemache's remarks are based on observations made between 1898 and 1902 while among the Macmillan River and Tatlmain Lake Tutchone. However, as the Euro-Canadian population was totally negligible in both those regions, and given the nature of the subject matter, the facts reported may be held as valid for 1840-1850.

To a certain extent, the points raised above require that the matter of method be addressed briefly: Which documents are to be used? What problems might be associated with them? The sources consist mainly of everything that Campbell observed in 1843 and later between 1848 and 1852. What has been written between 1852 and 1900 (cf. Chapter 2) may

[335] Campbell, *Lewes and Pelly Forks Journal, passim*.
[336] *Ibid*., *passim*.

be used as a last resort since no radically different means of labour were introduced during that period (cf. Chapter 6). However, these data will have to be handled with caution. For each case, we must distinguish facts that are likely to shed light on the situation in 1840-1850 (such as, the types of lakes used for fishing, the way in which relocations were organized, methods of gathering berries, and so on) from those that are not.

Even when combined, these documents do not provide a complete picture. A number of modes of acquisition are not described. As was the case in Chapter 6, we must then turn to the oral histories to fill in the blanks. But here again, we are faced with the problem of identifying and accounting for inconsistencies in these accounts. How shall this be achieved?

Even though we know that recollections of techniques involved in subsistence and survival are the least likely to have been gradually coloured, the first step is to draw up an accurate inventory of raw materials harvested during that era. For this exercise, we have the oral accounts of the Tutchone and, considering the raw materials that were used in all locally made finished products, we can check whether our informants might have neglected to mention the harvesting of any raw materials. The information must then be cross-checked by comparing the list of what was purportedly harvested with a list of all the natural resources available so as to draw up a list of materials that were not used. A list of materials used versus those not used can then be compared with the habits of the Tutchone's neighbours in order to determine what was customary in Northern Athapaskan societies and also shed light on what was out of the ordinary and therefore potentially problematic. The next step entails a detailed examination of any unusual facts that might have actually been true. In most cases, a re-examination of archival data suffices. We can thus draw up an inventory of harvested natural resources and confidently claim that it is both exact and exhaustive.

The second step is drawing up an inventory of spatio-demographic constraints and techno-social limitations that generally applied to the extraction process for each type of natural resource. This can be done quite handily by matching the ecological and ethological traits of each type of resource with the corresponding technique known to the Tutchone for extracting those resources. The minerals, flora and fauna of Tutchone country have been studied in depth and this information is indeed available. The implements used in extracting those resources were described in Chapter 6.

The final step is matching the facts contained in archival documents with the Tutchone's descriptions of work patterns to identify any inconsistencies. This may be achieved by grouping materials under the headings of constraints and limitations. In fact, as noted by now, there was very little room to manoeuvre in a subarctic society such as that of the Tutchone. The work patterns adopted in the extractive industries were determined almost entirely by the characteristics of the materials being extracted and the techniques used to extract them. There were virtually no options from which to choose. It is thus easy to determine their compatibility with the content of oral literature.

On the whole, this approach is effective. Aside from the section on minerals, for which one of the steps can be skipped, it will be followed point by point.

7.2 Extraction of Minerals: Inventory of Minerals Used

Insofar as minerals are concerned, there is little reason to compile a complete list of all resources available in the Yukon. Since we know what the Tutchone economy was like in 1840-1850, no one would dispute that the mining of iron, zinc, etc. was impossible at that time and can therefore be left out of our examination altogether. The most efficient procedure will be to determine which work tools, means of labour and objects of consumption were used by this society. We will then establish which of those were (partly or entirely) made of minerals and, based on the overall region's ecology and ethnography, establish which inert materials were used.

This exercise is summarized in Table V. The last three columns list, from left to right, the work instruments, means of labour and means of consumption which, in Tutchone society, were composed at least in part of one mineral or another. The first column lists the minerals that were harvested: water, a certain number of unidentified types of stone, sandstone, slate, obsidian, pyrite, copper nuggets, ochre and coal. Some of the uses to which these minerals were put pose no problem: stone was used for the striking parts of tools; water for cooking, washing and drinking; ochre (*tsi'*) and coal (*čo*) as dye in tattoos and face paint; and pyrite as flint. Other uses, however, call for a few remarks.

Red ochre appears to be the preserving agent in leather and wood (snares, snowshoe frames, etc.). It seems that the deterioration process for materials that came into direct contact with snow was slowed considerably if treated with ochre. As ochre was often mixed with fat one could argue that it was the fat that was the preservation agent, yet the Tutchone insist that it was indeed ochre.

Stones used as ballast in fish nets were oval cobbles weighing about one kilogram that were placed in moose-skin pouches attached to the bottom of the net.

Stones used for boiling water could be ordinary river cobbles the size of a fist. However, as these cobbles split and cracked with repeated heating; some Tutchone said that a block of lava was by far preferable as this material would not crack. Lava stone was readily available in the Fort Selkirk area and it is said that women made sure to take their cooking lava blocks with them while changing camps. Boiling stones were heated in campfires to the point of turning white, lifted out of the hot fire with tongs made of branches and thrown into a birchbark basket or spruce root basket filled with water.

Stones reserved for ritualistic purposes were used primarily for the rites of passage of girls. By all accounts, they were perfectly ordinary stones. Stones kept as aesthetic objects were rocks which, for one reason or another, had attracted the attention of the one who picked it up. One example: a stone that looked exactly like a woman's buttocks, complete with anal and vaginal orifices as well as a clitoris, was found by chance by a shaman and carefully preserved.

This inventory, based on reports provided by Tutchone people in 1972-1974, is very likely a comprehensive listing. First, items that have since fallen out of use, such as ochre for face paint and coal for tattoos, were noted in 1843 (Campbell in Wilson, 1970: 113) and

1883.[337] Secondly, an examination of what was commonly used by the Tutchone's neighbours reveals that, aside from copper, they all used the same minerals and for similar purposes (cf. McClellan, 1975b; Guédon, 1974; McKennan, 1959; Osgood, 1936b, 1940, 1971; Honigmann, 1954).

TABLE V. INERT MATERIALS USED BY THE TUTCHONE

Materials	Usages		
Subjects of labour	Work instruments	Means of work	Means of consumption
Water	Steam for bending wood	Rinsing, cooking	Drinking
Unidentified stones	Adze blades, hammers, mauls	Ballast for fish nets, stones for boiling	Ritual and aesthetic objects
Sandstone	Used for smoothing/ sharpening wood and bone		
Slate, schist	Scrapers (moose skin scrapers)		
Obsidian	Knives		
Pyrite		Flint stone	
Copper	Knife blades, spear, arrowhead points		necklaces, bracelets, nose rings, earrings, amulets
Red ochre		Preserving agents	Dye for tattooing, face paint
Coal			Dye for tattooing, face paint, amulets

The only items that could be called into question are the absence of the use of salt and the date to which the earliest instances of copper extraction can be traced. Such questions can be easily addressed however. The same data as those used to reject the assumption that meat and fish were cured with salt and the fact that salt was not used among the Gwich'in (Bompas, 1888: 94) is conducive to believing the Tutchone's claims that salt was not used. An easier task is determining how far back in time one must go to find indigenous peoples in the Yukon, including the Tutchone, who used copper.

Archaeologists (Willey, 1966: 448) date the use of copper in the Upper Yukon Basin to about 1000 A.D. Many of the Tutchone's neighbours used native copper before the arrival of Europeans (Osgood, 1936b: 70; 1971: 71, 96; McKennan, 1959: 58, 85; McClellan, 1975b: I, 254, 287, 318-319). Proof of how long it had been in use among the Tutchone specifically can be traced to an archaeological site where a discovery was made in 1950 of "a small piece of much beaten copper" (Johnson and Raup, 1964: 177, 178) as well as to the

[337] V. C. Sim, *Journal of a Journey on the Yukon River*, July 23, 1883 (C.M.S. Archives film A 112).

fact that in 1843, some Tutchone were wearing copper nose rings (Campbell in Wilson, 1970: 48). This was indirectly confirmed by Davidson (1901: 81-82) for 1869. At that time, the Tutchone of Kluane Lake explicitly designated the White River Basin as the source of their copper. Numerous testimonials follow. Glave (1892: 877-878) who was among the people of Aishihik in 1891 noted:

> At different times samples of native copper have reached the coast. These interior Indians [Tutchone and Nabesna/Upper Tanana] have bartered it with other tribes, some of whom have taken it down the Copper River to the trading-posts on the sea, and the white men have had brought to them pieces of the pure metal weighing several pounds, and showing signs of having been hacked off a solid block. All the coast tribes refer traditionally and historically to the Copper Mountains of the interior. In former days the weapons and utensils were beaten out of this metal. Old Kay Tsoo, the powerful Chilcat warrior, dispatched his slaves far inland with loads of seal fat to exchange for copper, but the warlike tribes living on the headwaters of the White and Copper rivers [Tutchone and Nabesna/Upper Tanana] attacked them so fiercely and persistently that the traffic ceased. The Indians at Nanchay's camp [Tutchone from Aishihik] gave most encouraging accounts of the rich deposits of the metal away to the northwest of our position; they assured us that boulders of solid copper were piled at the base of the mountains, from which they chopped off all they needed. Of course their information was highly coloured for our edification, though they had several nuggets with them which they carried for repairing purpose. The old man had a band of it strapped around the bowl of his pipe, and the young hunter used barbed arrow-heads beaten from the metal in its natural state. They told us that they had several lumps in the village, each as much as a man could carry.

That same year, another explorer, C.W. Hayes (1892: 122-123; 143-144), observed that the Tutchone of the Lower Pelly (Selkirk) were using arrowheads, knives and musket balls for flintlock guns that had been made of native copper extracted from a source near the headwaters of the White River. In 1898, a Frenchman, Boillot (1899: 216-217), saw a Tutchone man from Lake Laberge wearing a copper nose ring. In 1899, a prospector by the name of Bratnober showed Inspector Jarvis (1900: 105) of the North West Mounted Police some specimens of balls for flintlock guns made of copper, thus proving that the White River Tutchone were using native copper. Also in 1899, another explorer, Brooks (1900: 381), saw some Tutchone taking native copper from a deposit on the headwaters of the White. Some copper items made before 1900 were still kept by the Tutchone into the 1940s. According to two Tutchone elders, with whom I spoke in 1973, two women in Little Salmon and Big Salmon still wore copper nose rings in the 1920s. In 1932, an Alsatian trapper camped out near Kluane Lake saw a native from the White River practising with a bow and arrow. The head of his arrow was made of native copper.[338] In 1945, Father Bobillet saw one of the elderly women of the Big Salmon band wearing a copper nose ring.[339]

[338] Information gathered in 1972 directly from a witness.
[339] Bobillet, *Journal d'un missionnaire au Yukon*, p. 684.

7.2.1 Limitations Associated with Harvesting Minerals

With the exception of water, ordinary stones used in rituals as well as coal, all other minerals could only be obtained from one of a few natural quarries. Thus, almost all the slate for scrapers and moose skin scrapers used by the women of Little Salmon originated from a deposit located on the north shore of Little Salmon Lake; ochre from a parcel of land adjacent to Tatchun Lake; and pyrite from a single vein in the valley of the lower course of the Tay River. Copper nuggets could be found at four sites, all located in the basin of the White River headwaters: Kletsan-del or Kletsan Creek, the Kluantu River, Tatamagouche and Mush Lake (Hayes, 1892: 143-144; Muller, 1967: 105). Yet, it is impossible to determine whether all these deposits were quarried as the locations of the deposits were kept secret by the Tutchone who knew of them. We do know that the people of Selkirk quarried the deposit at Kletsan, some 300 km from their usual hunting grounds, and that it was the only one of which they knew. It was a layer of ground that had been eroded by the Kletsan Creek current (Hayes, 1892: 123, 143-144). Most of the nuggets weighed little more than a few ounces each. A few exceptional nuggets weighed between five and six pounds. Nuggets weighing in the neighbourhood of ten pounds were even rarer (Brooks as reported by Cairnes, 1915: 133).

There is a shortage of information about stones used to make hammering tools, but it would be logical to presume that such minerals were extracted from a few selected sites as Leroi-Gourhan (1945: 138-146) wrote, even in the Stone Age, one would not necessarily stumble upon the kind of pebble that could be used in making an arrowhead or a knife blade (*ibid*.: 139).

Finally, let us consider the limitations put on mineral extraction by the harsh subarctic climate of the Yukon Plateau. In winter, all water courses and lakes were frozen solid, and water was obtained by collecting and melting snow crystals which form at the base of the snow layer. These snow crystals were melted in baskets made of birch bark or spruce roots by heating stones as described above for cooking. It must be noted that the Tutchone hated drinking water that was made from melting river or lake ice as such water took on a disagreeable taste caused by decomposing leaves and branches trapped in the ice. Throughout the entire season, i.e., from November to May, the Tutchone had to contend with another problem as well. Under the snow, the ground was hard as rock, making it difficult, if not outright impossible, to extract any minerals. Therefore, the production involved in this work (picking up of rocks, copper nuggets, etc.) had to be carried out almost exclusively from June to September, or October at the latest, and a sufficient supply would have to be stored to meet needs throughout the winter season.

7.2.2 Synchronic and diachronic work and production patterns in mineral extraction

We have a few descriptions of the work involved in harvesting water, copper and pyrite. The Tutchone remember that water for the entire camp would be obtained in summer by sending a boy or girl to a stream or lake with a watertight birchbark or root basket or a water

skin made of the stomach of a moose. Granular snow was collected in the same way in winter. In the case of rich families, this work was done by a servant.

Brooks, who observed indigenous people harvesting the copper vein at Klet-sandek, writes that the work was performed by men, who sought the copper from the riverbed. Everyone had to make do with digging in the "recent stream cuttings" using a caribou antler[340] and collecting whatever nuggets they could find. Even if four or five men went to the same site together, there was never simultaneous cooperation (different tasks executed simultaneously and in conjunction by different men or women) or parcelling of tasks (Brooks quoted by Cairnes, 1915: 133). We have one observation about the extraction of pyrite dating from the 1870s related to a man from Little Salmon: like copper, this mineral was extracted from an open deposit using only a digging stick; a task that could be performed by one person. Here again, the men would go to the site together, but the work involved did not require them to work as a single coordinated unit. Instead, the extraction was done by men working alongside one another, but not cooperatively in the strict sense of the term. For other minerals, particularly stones used in making tools, the data are very vague. However, based on how the Tutchone spoke of this task, it can be presumed that it was up to the men to extract stone, and that the work involved was similar to that for extracting copper and pyrite.

A review of what has been practised elsewhere in the world, in societies similar to that of the Tutchone (Leroi-Gourhan, 1945: 138-146) provides a comparable description of mineral extraction activities, indicating that the information preserved in the Tutchone oral tradition is representative of the mid-nineteenth century proto-contact period. Among the Tutchone, therefore, the tasks associated with extracting minerals was carried out exclusively through individual labour power by individual producers (in the meaning assigned to these expressions in Chapter 6, section 6.1).

7.3 Harvesting Flora

7.3.1 The Environment

In Chapter 5, section 5.2, it was shown that the flora in the Yukon is more diverse than southern preconceptions might lead one to believe. Botanists have uncovered the existence of no fewer than seven different biological communities. This diversity is based on factors such as the composition of soils, drainage, slope, exposure to wind and rain, run-off, permafrost, etc. The central and southern Yukon is home to at least 1,264 different varieties of plants. Some families are well represented: 198 distinct varieties of *monocotyledonae*, 284 varieties of *archichlamydae*, 164 *metachlamydae*, 76 *cyperacae*, 72 *graminae*, etc. (Porsild, 1951: 61).

[340] For the period 1840-1890 we saw, in Chapter 5, that there were no barren-ground caribou in Tutchone country. We therefore assume that the antlers used to extract copper were from woodland caribou. They would have been either found on the ground after the animals shed them or removed from the heads of the few animals that were killed each year.

7.3.2 Inventory of Flora Used by the Tutchone

Each variety of floras might have been used by one person or another, at one time or another, for one purpose or another: a type of dry sedge to light fires; a branch of a particular tree or shrub to repair a deadfall; a root from a particular variety of tree eaten as food during food shortages, etc. An inventory of what each was used for would be interesting but beyond the scope of this study. We will simply try to identify the parts of the plants that were *regularly* harvested and for which the work involved in harvesting them could not have been neglected without there being repercussions on the economy. Our focus will therefore be limited solely to plants commonly used by all.

This is presented in Table VI. The names of plants are listed in the first column (see Appendix A for their scientific names); the other columns indicate the purpose(s) for which the plants were used: productive consumption (i.e., work instruments and means of labour) and individual consumption (i.e., food and durable goods). Aside from the list of uses for medicinal plants, the inventory may be considered comprehensive as a study of the practices of the Tutchone's neighbours reveals no other routinely harvested flora.

In order to comment on the table in detail and present the work patterns associated with the raw materials listed, I have grouped all raw materials harvested by category and, for each category, I have explained in general terms, the inventory, the uses, the limitations and, lastly, the work patterns. The categories are presented in the following order: edible roots, berries, medicinal plants, trees.

All that affects the ecology of plants is based on personal observations, reference documents containing a number of pertinent data and, above all, the studies by Porsild (1951). Personal observations and documents will be indicated as such. Reference to Porsild's work will not be annotated in an effort to avoid cluttering the text unnecessarily with parentheses. References can be checked more readily in the index of Porsild's book than in reams of references here.

7.3.3 Edible Roots: Types, Accessibility and Work Patterns Associated with Harvesting

Bear root is a plant that grows anywhere between 50 cm and 1 m tall. Its rhizome, extending about 10-15 cm underground, has numerous tubers measuring 5-10 cm in length and 2-3 cm in diameter. These are slightly sweet, and can be eaten raw or cooked. This plant species is found in valleys. It is very common in alluvial terraces and even dominant in some floodplain terraces, near riverbanks and lakeshores. It often grows in large clusters and can therefore yield large quantities of food. The Tutchone admit to having consumed much bear root in the past,[341] even though it tended to give them stomach aches. There is no doubt that this plant was used in the remote past as it was consumed in all parts of the Subarctic where it grew.

[341] Bobillet, *Journal d'un missionnaire au Yukon*, p. 657.

The tubers are at their best very early in the spring (i.e., end of April)[342] or just after the initial autumn frost, in September. This does not however mean that the Tutchone were limited to this period for harvesting this root. In fact, voles also consumed great quantities of tubers and always stored some away for the winter. The animals cleaned and cut them into small pieces (3-5 cm) and piled into small underground caches, not too far from the surface. People could always access these vole caches at all times regardless of the season. Although the tubers had an unpleasant flavour unless harvested at their peak, they were nevertheless eaten year round. If the voles' reserves could not be relied upon, the tubers could still be dug up in the dead of winter.

The task of extracting the tubers was very simple. Women working either individually or in company of others would unearth them with digging sticks in spring or autumn. In winter, the technique was the same for tubers that were still attached to rhizomes as for tubers that had been stored underground by voles. The only extra step required was to thaw the ground by making a large fire over the spots where the roots could be found or where the rodents would have stored some. Campbell provides a firsthand account dating from 1850. That winter, in February, some Tutchone had not had a bountiful hunting or fishing season, and the threat of famine was looming. They nevertheless managed to get through this difficult period thanks to the voles. After some time, Campbell noted that:

> They have lived almost entirely on roots for the past fortnight; which they procure with much address; [the roots] being in caches made underground by the mice.[343]

7.3.4 Berries: Types, Accessibility and Work Patterns Associated with Harvesting

Blueberries, stoneberries, soapberries, currants, raspberries and lowbush cranberries, as well as "camp robber eyes" (*Arctostaphylos alpina*, Spreng), strawberries and rosehips topped the list of most commonly occurring berries.

The berry-producing plants were harvested not only for their fruit, which was used for food and dyes (alpine cranberry), but also, in certain instances, for their leaves and sometimes stems on account of their medicinal properties. These uses were common among other Northern Athapaskans.

Berries were available in a great many botanical communities. Soapberries, blueberries and strawberries were concealed everywhere throughout the alluvial terraces. Soapberries and currants abounded along riverbanks and lakeshores. Second-growth timber on valley slopes offered a good habitat for stoneberries and blueberries. Stoneberries, rosehips and crowberries flourished on the dry, sunny hillsides—as high up as 1,000 m or 1,200 m for the latter two. Spruce forests provided an ideal environment for soapberries, blueberries and rosehips, with soapberries thriving up to an altitude of 1,200 m and blueberries and rosehips

[342] Observation made by the Tutchone.
[343] Campbell, *Lewes and Pelly Forks Journal*, February 17-27, 1850.

TABLE VI. PLANTS USED ON A REGULAR BASIS AND VARIOUS USAGES

Subject of labour	Work instrument	Means of labour	Dietary consumption	Durable goods
Bear root (Indian sweet potatoes)			Vegetable	
Berries (13 varieties)		Dyes	Fruit, condiments	Leaves and stems as medicinal remedies
Mushrooms			Food	Puffball mushrooms (powder used to heal wounds)
Young leaves (several varieties)			Fresh vegetable	
Seeds, leaves, roots from 20 to 30 plants				Medicinal remedies
Labrador tea				Medicinal tea
Lichens (several varieties)		Dyes		Medicinal remedies for the heart
Sphagnum moss				Sanitary napkins; diapers
White spruce and black spruce				
Roots	Watertight basket for cooking	Fore and aft of moose-skin boat; numerous types of twine and ties used in basket weaving and parts assembly		
Branches	Materials for building fish weirs, funnel fish traps, etc.	Frame for moose-skin boat		Materials for building circular shelters, lean-tos
Boughs				Insulation in lean-tos and ground cover in winter

Subject of labour	Work instrument	Means of labour	Dietary consumption	Durable goods
White spruce and black spruce				
Trunks	Handles for many different tools: adzes, etc. (poor alternative to birch)	Posts and beams of drying stages used for drying fish and meat; caches; handles of wooden toboggans; basins		Posts and beams for lean-tos; disinfectant powder
Knots	Wooden wedges for making planks and stripping bark from trees	Caches, handles of toboggans, basins		
Bark				Covering for lean-tos
Resin (pitch)		Water-resistant adhesive		Mosquito repellent, medicinal disinfectant, analgesic to soothe coughs, chewing gum
Birch trees				
Trunks	'staves' for bows, arrows, tongs to pick up heated stones, fur stretcher, chisel, gaff, harpoon, fish hooks, parts of various snares/traps	planks for toboggans, snowshoe frames		Wooden platters, ladles, drum frames
Bark	baskets for cooking	Containers		"Sun goggles," baby carriers
Black cottonwood				
Trunks		Dug-out canoes		
Branches	Bow drills			Posts for summer lean-tos
Bark		Ashes used to deodorize beaver nets		Ashes used in chewing tobacco
Boughs		Coverings for fish drying stages, work mats, used to cut up fish and game		Coverings for summer lean-tos

Subject of labour	Work instrument	Means of labour	Dietary consumption	Durable goods
Cottonwood				
Trunks		Snowshoe frames (poor alternative to birch)		
Cambium				Laxative, cough remedy
Sap			Sweet sap	Cough syrup
Boughs				Analgesic
Willow				
Roots		Many types of ties/joints in assembling pieces		
Branches, boughs	Fish trap frame, springs in traps, used to stretch beaver pelts	Frames for moose-skin boats, work mats used to cut up fish and game, frames for “smoking” leather		Frames for pots, food plates
Bark				Remedy for diarrhea
Alder				
Bark		Dyes, deodorizer for traps		Analgesic
Poplar (unidentified)				
Cambium			Sweetener	Laxative
Lodgepole pine				
Cambium			Sweetener	
Resin		Deodorizer for hare snares		Disinfectant
Various tree trunks				
Green	Traps for bear, wolverine, marten, mink, wolf, fox Mechanisms in snares for moose, lynx, muskrat	Ground-caches		Fire to repel mosquitoes, Bridges
Dried	Fire	Planks, bridges of rafts		Firewood, wooden bowls, grave enclosures

up to 1,800 m. The more humid spruce forests, which were carpeted in moss, were favourable for the growth of high-bush cranberries up to an altitude of 1,200 m and currants and blueberries up to an altitude of 1,800 m. Blueberries and blackberries cropped up among the groves of spruce growing out in humid areas (as high up as 1,800 m), while lowbush cranberries could grow there as high up as 2,200 m above sea level. Coniferous forests were hosts to cranberries and blackberries which grew as high up as the maximum altitude for those plants. Blackberries and blueberries grew among stands of lodgepole pine up to normal elevations. At an elevation of 1,800 m, the hilly regions concealed raspberries, blueberries and "camp robber eyes," a species peculiar to this environment. Even in the tundra of the upper plateau there was no shortage of bacciferous plants, especially with lowbush cranberries livening up the fields of heather. Given the heterogeneous nature of these environments, the Tutchone, wherever they were camped, were always in the vicinity of areas where they could obtain at least a few of the most common types of berries.

Lowbush cranberries, currants, stoneberries and blueberries offered the best possibilities for high yields in relation to the amount of work required to harvest them as they grew in bunches on plants that grew close together in true colonies. Wild blueberries in the Yukon have a diameter of about 1 cm, and in the course of a short work day, anywhere from 10 kg to 20 kg can be collected.

Despite their widespread availability, soapberries, blackberries, raspberries and cranberries could not be harvested as efficiently for the plant species that bore them were rarely dominant in any given area and grew instead in small clusters here and there. In addition to being somewhat less common, crowberries, strawberries and rosehips presented the same disadvantages.

The most important berry for the Tutchone was the blueberry. It would be dried and preserved for winter. The next in line was the soapberry which, after it had been cooked and mashed, was turned into a type of sherbet that was greatly enjoyed. Some women prepared this treat every evening during the summer.[344]

The first berries to ripen were currants and "camp robber eyes," from June 15 and July 15, respectively. Between July 20 and 31, blueberries, soapberries, strawberries and rosehips would reach their peak followed by raspberries and stoneberries. Between August 1 and 15, it was the turn of crowberries, highbush cranberries and lowbush cranberries.

Strawberry plants and raspberry bushes dropped their fruit within 10 days or so of their ripening, while the fruit of other species remained fresh and succulent for about 30 days. Only five bacciferous plants kept their fruit, albeit withered, throughout winter: rosehip, blackberry, stoneberry, lowbush cranberry and crowberry. The bulk of the fruit therefore had to be gathered within about 40 days between the end of July and early September. After that, only the fruit from the five plants mentioned immediately above could be gathered and even then, they were not abundant, not in the best condition, and not easy to remove from their snow-covered bushes. They were, however, strategically important whenever food supplies ran short, but over the course of a normal annual cycle, this was of little consequence. It was far better to collect the fruit in season and prepare preserves for the winter either by mixing them with salmon oil or by sun-drying them.

[344] Bobillet, *Journal d'un missionnaire au Yukon*, p. 541.

As was the case for bear root, the extraction process was one of the simplest. No tools were necessary; they were simply gathered by hand. A minimum of one container was needed. The task was carried out by women who worked independently of one another despite the fact that they often set out together in groups of four or five. For this, I am relying on oral literature. Campbell's journal[345]also records that Tutchone women gathered and stored berries.

7.3.5 Medicinal Plants: Types, Effectiveness, Accessibility and Work Patterns

All my data about medicinal plants were provided by contemporary Tutchone. The validity of applying these data to the latter half of the nineteenth century will be examined, but only after presenting a number of important points of information provided by those individuals.

These data concern the inventory, accessibility, and effectiveness of healing plants (an important matter in any culture). Once those facts are described, it will be possible to describe the work patterns related to the industry in question.

The Tutchone report that the healing plants consisted of several different species of young sprouts, mushrooms which could be used for food and which also had healing properties, a variety of muskeg moss (*Sphagnum rubellum*, Wils; Tutchone: *nig'a'*) that was unique for its absorbency and therefore used as sanitary napkins by women and as diapers for babies; Labrador tea, lichens, seeds, the roots and leaves of between 20 and 30 types of plants which were used for healing and occasionally for dyes. These same plants were used by the Southern Tutchone and the Tagish. McClellan (1975b: I, 223-232) provides a detailed list complete with their scientific name to which I refer the reader.

As for their effectiveness, the roots of hellebore, for example, were used to concoct an analgesic. Wilson (1965: 83-85), the nurse who looked after the Tutchone in the 1940s, had the opportunity to observe the effects of this plant. In one extreme case, she noted to her surprise that the drug totally paralyzed the central nervous system of one of her native patients and even reduced the patient's heart rate to 11 beats per minute. An unidentified variety of lichen (*udzi dj^{h}i'*) measuring only 3-4 cm high and resembling caribou antlers could accelerate the heart rate so much so that it could not be administered without supervision. Out of fear of its potency, my Tutchone sources strongly cautioned me against testing the samples they had helped me procure. The variety of moss used by women to make sanitary napkins for themselves or diapers for their babies was of a very high quality. For one thing, they were less likely to cause rashes or chafing than their commercial counterparts (Wilson, 1965: 49); for another, they were at least twice as absorbent as the products sold on the Canadian market today (based on a comparison which I conducted personally).

Wilson also noted the following. A female shaman successfully healed a child suffering from black measles—normally a fatal disease—using plants whose names the woman refused to disclose in a treatment that was repeated every two to three hours over a few days. The nurse also noted that a syrup made of water and spruce resin effectively suppressed

[345] Campbell, *Lewes and Pelly Forks Journal*, *passim*.

coughing; that tiny drops sprinkled on the "cotton" portion of cattails made a very potent chest ointment that could soothe cold symptoms; that another plant proved to be a very effective diuretic while the fireweed root could be made into a powder that could help heal scar tissue and was every bit as effective as any Euro-Canadian equivalent available at the time (Wilson, 1965: 64, 77, 120).

While not all medicinal products used by the Tutchone were as effective, the above examples clearly illustrate that many of the remedies derived from plants were proven remedies. Furthermore, as the products that were used to improve people's well-being are treated seriously everywhere, we must look at the branches of industry that were related to them. The accessibility of these plants may be ascertained using a list provided by McClellan (1975b: I, 223-232), notes by Porsild (1951) on the ecological distribution of these herbs, as well as a few of my own observations. These documents are sufficiently complete to draw the following brief conclusions: most berries and plants were gathered between June and September at the latest; aside from two or three species—specifically the alpine lichen mentioned above and those that grew in marshy areas such as the moss used for diapers—all were relatively common. In other words, they were all equally present in several botanical communities, whether at 800 m above sea level or at 1,800 m. It will be presumed therefore that the Tutchone harvested medicinal plants without having to travel far from the areas in which they carried out their more usual activities.

7.3.6 Early Use of Medicinal Plants

At this point, we must determine whether the inventory provided by the Tutchone is exhaustive and whether these plants had long been used for medicinal purposes.

In all likelihood, the inventory is not complete. While conducting my fieldwork, many of the Tutchone I interviewed were evasive when asked about this subject. While it hampered my research, it probably poses no serious problem. The plants listed above are sufficiently numerous and they undoubtedly represent the *types* of plants (as opposed to "all the species") that might have been used. Based on this list alone, we can identify all the work patterns associated with harvesting medicinal plants with no risk of overlooking some species that might have given rise to a wholly distinct work pattern.

Harvesting medicinal plants, on the other hand, seems to be a very ancient practice. All Athapaskans used such remedies and, even if the oldest documents make no mention of these practices for the Tutchone, at least one person (Glave, 1892) referred to such activity in 1891. Together with the fact that the Tutchone had knowledge of very potent products, this fact suggests that this people had long been familiar with the medicinal value of plants. The industry associated with extracting such materials can therefore most certainly be considered to have existed in 1840 and even well before that.

What then were these work patterns? Glave (1892: 878) who, in 1891, accompanied a group from Aishihik travelling to Kluane Lake, gives us the first description: **"**They marched slowly, snared small animals en route, and gathered armfuls of herbs and roots."

The Tutchone gave me similar details. Work patterns may thus be summarized by the formula of individual work carried out alone or in the company of others. This was to be expected. The work entailed pulling out plants, gathering lichens and moss, and unearthing

roots from loosely packed soil. Such activities require nothing more than the hands of one individual, a digging stick sometimes, and a container for carrying the product of one's work.

7.3.6 Trees: Types, Accessibility and Work Patterns Associated with Harvesting

Let us now examine how the last category of plants was harvested: trees (white and black spruce, white birch, cottonwood, willow, lodgepole pine and a few other varieties).

The varieties and some of their uses are presented in Table VI. As in the previous section, most of the species used have been determined from the component elements of the means of appropriation presented in Chapter 6, and were shown to be complete and to date back to early times. Other usages, particularly as means of individual consumption, have been determined from Tutchone informants. Most such usages are very common in subarctic Athapaskan societies. The only points left to query are the types of dwellings, the use of sap from white birch and the types of grave enclosures. These will be now examined one by one.

The types of lean-tos referred to in the table were the predominant type of Tutchone dwelling by far. They were also known as "brush camps." They were actually very simple three-sided lean-tos made of branches. Just outside, a campfire radiated towards the interior of the dwelling. Circular houses were stronger and used when roaming grizzlies threatened and perhaps in case of war. They were a type of conical structure that was set up by placing cut tree trunks tightly together against a standing tree trunk. The entire structure would then be covered with earth and then snow. This type of dwelling was much less commonly used. Archaeology has shown that both types of dwellings had long been in use among the Tutchone (Johnson and Raup, 1964: 184). Further details concerning their appearance are provided in the section concerning transformation industries (Chapter 9).

The table does not indicate the existence of tents despite the fact that Campbell used the term "leather tents" in a passage written 40 years after his sojourn in the Yukon and despite the fact that Schwatka (1893: 233-234) also alluded to a type of tent. The reason is quite simply that all the Tutchone consulted from 1972 onward denied that their ancestors had ever used tents. They were well aware that the Han had semi-spherical dwellings made of caribou skins and that the Kaska of the Upper Pelly used teepee-style tents. They made a point of mentioning these facts to show just how their homes were distinct from those used by other Athapaskan groups. I elected to believe what the Tutchone told me. In fact, none of Campbell's writings dating from 1843 or 1848-1852 contained any reference at all to tents, but, interestingly enough, they mention the existence of huts.[346] The word huts seem to fit the description of lean-tos or "brush camps." It would appear that Campbell confused his recollections among the Tutchone with those among other indigenous groups with whom he had been acquainted in his career (the Han, for example). Given the 40-year time lapse, this is entirely plausible.

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[346] *Campbell to Chief Factor John Lee Lewes*, June 6, 1843 (H.B.C. Archives).

The problem posed by Schwatka's writings (1893: 233-234) is simpler to resolve. While in Tutchone country, this explorer saw nothing but lean-tos (*ibid*.: 174-240). His description corresponds perfectly with what the Tutchone said of these shelters and with the vestiges that I observed. However, when Schwatka alleged the existence of special tent used by the Tutchone, he reports what he had learned of their winter dwellings through a series of two or three interpreters. Obviously, some of the translations had been poorly rendered as his description of conical tents with double walls completely covered in two or three feet of snow in fact more closely corresponds to the conical shelter made of tree trunks arranged tightly together which the Tutchone described to me.

The existence of grave enclosures is even simpler to resolve. Schwatka (1893) proved their existence in 1883 and they certainly existed in 1840-1850. Grave enclosures were fences made of wooden planks tied together, side by side, with roots. They surrounded the basket containing the bones and ashes of the deceased which had been covered with stones and earth (for more details see Chapter 9).

The procedure used to extract sap from cottonwood was comparable to that used to extract sap from maples in eastern Canada. The use of this sap was not mentioned in any of the documents left by Campbell, but it is likely that that this resource was an indigenous one among the Tutchone.

Let us now return to the data presented in Table VI. Two facts are particularly striking. First, forest products were harvested to a far greater extent than might have ever been imagined. The resources provided by trees were put to about 90 different uses. Some varieties were sought not only for their wood, but also for their roots, boughs, bark, cambium, resin and even sap. Secondly, unlike the plants discussed above, trees proved to be the primary resource not only for a number of products intended for individual consumption, but most were also to be used for products related to productive consumption.

The products in the first category included firewood, lean-tos, mats, circular shelters, ladles, a few pharmaceutical products, and food by-products (e.g., chewing gum made of resin, a beverage made of sweet sap). The work instruments and means of labour that belonged to the second category of items included all tool handles, deadfalls, fish traps, fish weirs, parts of vertical snare set ups, drying stages for meat and fish, one type of toboggan, containers used in work, snowshoes, dug-outs and moose-skin boats. Other raw materials provided by trees included deodorizers for traps, glue, items used in assembling pieces and basket weaving, as well as planks used for a multitude of purposes such as the construction of grave enclosures.

Some usages must be explained. Using roots to fashion watertight baskets in which food could be cooked was noted by Campbell in 1843: "Their kettle was made of the small fibres of the roots of trees, neatly split and knitted up tight and close like a basket."[347] The same roots were used to tie up various parts of "carpentry" work such as moose-skin boat frames and grave enclosures. The Tutchone had no nails and they preferred roots over green hide babiche for their durability.

Some uses may seem odd; however, upon reflection they do make sense. Deodorizers for beaver traps (cottonwood), hare traps (alder bark) and traps for a number of other animals

[347] Campbell in *Burpee's manuscript*, p. 56 (Public Archives of Canada).

(lodgepole pine) were concoctions brushed on to traps after they had been set. They served an extremely important purpose. Without them, a number of mammals with a keen olfactory sense could not have been captured in great quantity.

Green wood would be set on fire to fend off mosquitoes from campsites in summer and spruce resin was applied on hands and faces to repel them. Such measures were not excessive. In the Yukon and indeed throughout the Subarctic, these insects, reproduce by the billions in the humid forests of the valleys where, for two months of the year, they are the true masters of the region. While bears waited around to catch salmon, their mosquito-bitten eyelids would swell to the point where they could not see at all. A person without protection was subject to the same attacks and could quickly become so incapacitated as to not be able to take aim at his quarry.

The table also shows that work mats and plates were made of cottonwood and willow boughs. They were simply mats 2-3 cm thick and made of the fine green twigs of these trees together with their leaves. In summer, the Tutchone would never cut their meat or fish directly on the ground and always used such mats.

The mats or ground insulation used inside the lean-tos were made of a 40-50 cm layer of spruce boughs (4-10 cm when flattened out). These mats were absolutely necessary in winter as the snow was barely cleared away from the frozen ground of dwellings and the bedding of skins could not come in contact with snow if it was to remain comfortable.

Snow goggles" were essentially two slits cut into birch bark. Despite their appearance they were not trivial items either. The spring sunshine is intensely bright. Like Euro-Canadians, the Tutchone, too, were prone to snow blindness. The nurse who cared for them in the 1940s attested to this fact. At Tatlmain Lake she came into contact with a group in the process of moving to a new camp:

> The teams drew near. The first sled [toboggan], pulled by four dogs, was piled high, and a man and two children, about five and seven years of age, followed. As they squinted at us through swollen, inflamed eyelids, we saw that they were almost snow-blind. Discharge from their eyes had frozen on their cheeks. Both of the children had colds, and from noses to chins two green frozen strings swayed in the wind.

It is hard to imagine that a hunter who would have had more exposure to the sun and snow than children could have set out without protective eyewear.

Hide smokehouses, whose structures were oblong domes made of willow branches, were used to smoke moose hides so as to keep them from decomposing easily.

Sweathouses whose willow branch frames were shaped like the smokehouses but larger, were steam saunas which were used by the men on a regular basis. It has been shown that these date back to a remote time (cf. Johnson and Raup, 1964: 195). They were still used in the 1940s:

> At nearly every Indian camp you will find a sweat bath. Built like a tiny tent with its frame of willows covered by skins or blankets, it is usually located close to a small creek or river. Rocks are heated in a camp fire built close to the small shelter, then rolled in and cold water poured on them. The little tent fills with steam, and it is surprising how much steam rolls up from three or four heated rocks. Sometimes the naked Indian will go directly from a sweat bath into a cold stream. This is not at all unusual as it is one of the ways they have for treating sickness (Wilson, 1965: 56).

Ladles, plates and bowls carved out of wood were exactly as their names suggest. Ladles were used as "spoons" to eat soup and melted grease. A variation, made of Dall sheep horn, was used by wealthy Tutchone.

Bridges were nothing more than trees that grew along riverbanks and were cut with adzes and thrown across the water course.

If we add to these products all those that are presented in the table but which hardly require any explanation, it becomes clear that the harvesting of forest products was an important branch of industry. The constraints of this industry must therefore be examined. On this subject, the following points are worthy of note. Whereas some resources could be harvested any time of the year regardless of their properties at the time of harvesting, others had to be extracted at very precise periods of the year. In some cases, only specific specimens were suitable for the intended end product.

Resources for which harvesting did not depend on season or particular properties of the resource included frames for moose-skin boats, funnel-shaped fish traps and fish weirs, smokehouses and sweathouses (spruce or willow), posts and beams for the drying stages used to dry meat and fish, lean-tos, circular dwellings, deadfalls, traps and rafts (spruce, poplar or other tree trunks, green or dried, depending on the use) and, lastly, firewood. In forested areas, the varieties of trees and tree products required for these uses were readily available. The Tutchone did not have to bother storing them as they could simply acquire them as and when they were needed.

Trees and tree products which have to be harvested during certain seasons included resin, sap, cambium and bark (lodgepole pine for deodorizer; spruce pitch for glue, disinfectant, chewing gum and analgesic, and bark for brush camp covers; cottonwood for cough syrup or as a sweet treat), leaves (cottonwood for analgesics, etc.) and, lastly, roots (spruce and willow which were used in assembling pieces and basket weaving).

The sap and cambium from cottonwood (*k'an*) and lodgepole pine had to be harvested in spring (i.e., May and early June). As these products were difficult to preserve, they do not seem to have been stored, but were simply consumed in season. For optimum pliability, spruce bark had to be stripped from the tree in June when the tree had the most sap. The resins and leaves of deciduous trees and the roots of spruce and willow had to be harvested during the summer. To meet their needs in the low season, the Tutchone kept quantities in birchbark containers or stored them in bulk. They transported some of these supplies from camp to camp or placed them in caches with other products intended for winter use.

Products that had to be sought during specific seasons from particular specimen trees included the hardwood for the handles of all tools and means of labour—adzes, digging sticks, chisels, dug-outs, planks, snowshoe frames, etc.—as well as wood for personal goods, such as baby carriers, drum frames, ladles, bowls, plates, etc.

One noteworthy point: dug-out canoes absolutely had to be made of cottonwood while all other products had to be made of birch (*k'ii*). Spruce and willow were poor substitutes and were used only when more appropriate materials were not available (it showed in the quality of goods made of these wood species: they would deteriorate more rapidly).

Cottonwood was and continues to be common in the Yukon. However, dug-outs had to be built following very stringent specifications. They required straight tree trunks about three feet in diameter (McClellan, 1975b: I, 270) and six to eight feet in length (Wilson, 1965: 69). At that latitude, however, trees were generally much smaller (15 in. in diameter)

and often crooked and bent. The Tutchone assured me that it could take a long time—years in fact—to find appropriate raw materials. This, combined with the difficulty of carving the wood and shaping it into a dug-out (cf. Chapter 9) explains why this means of transportation was rarely used, as Schwatka had observed in 1883 (1893: 116-117):

> The "cottonwood" canoes […] are very scarce, there probably not existing over ten to twelve along the whole length of the upper river as far as Fort Selkirk. [Tagish and Tutchone country] […]. The scarcity of good wooden canoes is partially explained by the smallness of the logs; white birchbark canoes are unknown on the Yukon until the neighbourhood of old Fort Selkirk is reached [close to Han country border].

Birch—far and away the best lumber—presented a few problems too. In Chapter 5, I indicated that in the Yukon good quality birch generally grew on clay soil mixed with gravel which, with the permafrost so near to the surface of the ground, remained waterlogged throughout the summer and that those places were very rare. The same held true in the Mackenzie River Basin. Of this area, Bompas (1888: 67) wrote:

> The forest trees […] are chiefly the pine and birch, the latter only sprinkled here and there among the pines. Each of these trees is of essential use to the inhabitants. The former builds the houses and boats, and provides the fuel. The harder wood of the latter tree forms the sledges, snow shoes, axe handles, and other implements.

McClellan (1975b: I, 280) made similar remarks about the rarity of birch in the regions she studied.

It should be noted here that the Tutchone distinguished from among four different types of birch and that only one was deemed appropriate for making arrow shafts, bows, snowshoe frames, etc. To be of the right quality, the grain of the tree had to be such that its trunk could be split into straight planks simply by applying pressure with wooden wedges. Certain sectors—southwest of Carmacks, for instance, along the Nordenskiold (Bostock, 1936: 4) or the basin of the Upper White (Johnson and Raup, 1964: 196)—were regarded as lacking in this fundamentally important forest resource, whereas others, such as the north shore of Little Salmon Lake seemed to be ideal for their growth even if there were only a few suitable locations. These regional disparities were not without consequence. In 1843, the people of Little Salmon were called *Gens des Bouleaux* by their neighbours.[348] Other groups, like those along the Upper White River, would barter copper in exchange for birch which they needed to make arrows (Johnson and Raup, 1964: 164, 196).

Scarcity was not the only problem related to harvesting birch. To obtain suitable lumber, a tree had to be cut down at a very precise time of year and time of day: at the end of autumn, very early in the morning before sap built up in the trunk. In spring and summer, the waterlogged wood was as unusable as in winter when it was frozen. The same limitations applied to all birch substitutes as well as to cottonwood which was used to make dug-outs. Suffice it to say that quality lumber could be harvested only during a brief period and that the Tutchone had a limited amount of time in which to build up their reserves for winter and summer.

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[348] *Campbell to Chief Factor John Lee Lewes*, June 6, 1843 (H.B.C. Archives).

Now that all the main limitations on extracting forest products have been presented, let us turn our attention to work patterns. My inquiries among the Tutchone yielded a very simple response: wood extraction had always been an individual endeavour. Women were in charge of cutting off spruce boughs to make mats and to insulate the lean-tos, collecting willow branches to make coverings for fish and meat-drying stages as well as work mats and plates; rounding up dead tree trunks to be used as posts and beams in lean-tos and also for meat and fish-drying stages, circular shelters and firewood. Each day, the women—young and old—returned from their hare trap lines or other activities, carrying pieces of dead wood found lying on the ground, and dropped them at the entry to the campsite.[349] Women were also responsible for collecting sap from cottonwood and cutting roots to be used in basket weaving.

Certain tasks were the domain of men: collecting branches to be used in building fish weirs, moose-skin boats, funnel-shaped fish traps, sweathouses; gathering tree trunks to be used in making deadfalls and rafts; cutting roots that would eventually be used in constructing the fore and aft of moose-skin boats; and harvesting the bark and wood to be used as lumber.

What I learned about the division of labour between genders corresponds to the division of labour in all Athapaskan societies. We will have the opportunity to examine this in detail in Chapter 8 and 9. As for validating assertions that the Tutchone always worked alone (or independently, alongside other people), we need only look back to chapter 6 and consider the means of appropriation used in the extraction industries.

The first means was the bare hand. The Tutchone used their hands to break off spruce boughs (to make ground mats or light fires to keep mosquitoes away) and willow branches (to cover meat and fish-drying stages, “work mats,” eating mats etc.). Large branches of spruce and willow trees which were used to build fish weirs, funnel-shaped fish traps, lean-to structures, moose-skin boat frames, smokehouses and sweathouses were broken off by the same means. Dead tree trunks that were transformed into posts and beams for meat and fish-drying stages, lean-tos and circular shelters, logs for rafts, dry trunks for deadfalls and caches and, lastly, firewood were also be gathered by hand.

This last observation might seem surprising, but considering that the Tutchone were a nomadic people who abandoned their lean-tos, drying stages and other structures after perhaps only one single use and leave behind rafts that had been used only once (the return trip being impossible on this type of craft), it becomes clear why they would have been content to use dead tree trunks which were otherwise cluttering up the forests. Wood collected for deadfalls, traps, lean-tos and fires sometimes still had stumps, roots and branches attached (see Diagram II, Chapter 5). They dragged them to where they wanted them and used them without altering them if not necessary. It was not always very attractive, but people were at least spared many hours of work. To make rafts, they went to rivers where spruce trunks had

[349] After 1900, the sight of women collecting wood elicited strong ethnocentric reactions. Many Euro-Canadians in the Yukon shared Wilson’s opinion (1965: 12): “the pitiful sight of ill thinly-clad women carrying bundles of sticks on their backs through the snow was something hard to watch.” Some were even under the impression that the women worked harder than the men. However, we will see later that this was not so.

been piled up after being carried along by the current and stripped of their bark along the way. Based on an observation by Schwatka (1893: 115-116) in 1883, this was an age-old practice:

> A short stroll […] revealed a great number of long, well trimmed logs that strongly resembled telegraph poles […]. They were finally made out to be the logs used by the Indians in rafting down the stream, and well-trimmed by constant attrition on the rough rocky beaches while held there by the storms.

In light of the work instruments and subjects of labour in question, it is obvious that all these extraction tasks required only individual labourers and producers as we have defined these terms. This was even true for the gathering of firewood which one might have imagined to be consumed in large quantities in winter and therefore having to be collected and stored in a relatively short span of time in autumn by fairly large groups such as those harvesting grain in other parts of the world. In point of fact, the Tutchone never built up reserves of combustible materials. Each day, the women gathered what was needed for the day wherever their camp happened to be. Two dead trunks brought as far as the camp were placed end to end before the lean-to, lit and pushed against each other as they burned. Accounts reported by Wilson (1965: 134) and my own findings reveal that this practice continues up to today.

The second means of labour used to harvest forest resources was the knife in combination with a container. Knives were used to strip bark from spruce, cottonwood and lodgepole pine to bring sap or resin to the surface. Sap, generally a very thin liquid, was collected in watertight birchbark baskets; resin, which was thicker and ran more slowly, was scraped away a few days after the trunk had been notched. Once again, the technique used to acquire these materials shows that sap or resin was extracted by individuals. Of course, when sap was to be collected in quantities, often in June, some five to seven women and girls might group together at a selected spot in the bush. However, gathering was not a prerequisite of the work itself; out in the bush, the women carried out their tasks separately. In fact, women often went into the bush alone and proceeded to extract the sap and resin on their own.

The third type of tool used to harvest forest products was the digging stick. It was used to remove small roots used in basket weaving and larger roots used to make the fore and aft of moose-skin boats. The Tutchone were vague about the nature of the tasks required. A look at how their neighbours went about these tasks, however, provides a general idea. McClellan (1975b: I, 280) reported the following:

> The spruce roots should be collected in the spring, and the smaller trees have the best roots. Tagish women remember how their mothers had to get up very early to collect the roots—they "never ate breakfast first." One Teslin woman said that the roots should be dug in the rain. A sharp pointed stick is needed to pry out the roots. They must be carefully split and kept damp while the basket is being woven.

Without a doubt, Tutchone women would have done exactly the same, as would have the men except, perhaps, that the latter would have used adzes to cut the larger roots. Based on the above description, it is to be noted that, once again, the work would have been performed individually.

The fourth and last tool used in the wood extraction industry was the adze. In general, it was used to cut down tree trunks that had to be transported on foot: birch for tool handles, snowshoe frames, planks and wooden plates; spruce and willow for dug-outs; and various

green trunks for caches, deadfalls and bridges. Although I did not see anyone using an adze, I was able to deduce how they were used by studying the numerous remains of tree stumps that had been felled with this instrument and the wood chips left at their base. Johnson and Raup (1964: 193) did precisely this and described the technique as follows:

> A cut was made with the adze three or more feet above the base of a tree and a chip, two to four inches wide, and from eighteen to thirty or more inches long, split off. This chip ran longitudinally down the tree. The lower end may have peeled off the tree or it may have been broken off. Rarely was it cut off by a blow with the adze. Such chips of varying size were removed all around the circumference reducing the size of it to a point where the tree broke off. This breaking was sometimes assisted by a few blows of the adze. We note that the Indians selected trees with relatively straight grain. We do not recall stumps of trees having the spiral and twisted grain so common in these forests. The stumps observed varied from about six to twelve inches in diameter.

This corresponds quite closely to information provided by a Tutchone man which I summarized in my journal as follows:

> For Johnny (age 75) a pick [*sic*] [i.e., adze], not an axe, is what was used for cutting. Wood would be chipped off from the area where one wanted to cut by striking the tree at an angle rather than head-on. By applying pressure on the handle, the blade would be used as a lever to chip off bits of wood.

Everyone knows how an axe is used. An adze is not that different to use. As a result, no one would contest that cutting a standing tree was, for the Tutchone, an individual endeavour. Given that the part of the tree trunk needed was cut off and transported by the same individual, we must conclude the labourer was also the producer. When a tree trunk was too heavy for one man, it may have been split into planks on the spot.

With this overview of forest product extraction processes completed, a general conclusion emerges. Harvesting berries, plants and trees entailed considerable effort. These resources provided important dietary staples (e.g., bear roots, berries, mushrooms, sweet sap), most of the pharmaceutical products so highly valued in any society, all the wood needed to make tools (e.g., bows, arrows, digging sticks, adzes, etc.), means of transportation (e.g., rafts, dug-outs, snowshoes, etc.), a few personal items (e.g., plates, ladles, baby carriers, drum frames, etc.), and all combustible materials. Although impossible to evaluate, a great deal of time was very likely devoted to production in this branch of industry. Yet, in spite of its importance, this sector of extraction activity never led to cooperative work patterns in itself. The cutting tasks entailed only individual work. In two exceptional cases (e.g., gathering berries and collecting sap from cottonwood trees), women would gather in small groups of five, six or seven. However, as this was not a requirement for the work itself, it was therefore not considered cooperative work and did not lead to the creation of collective production by parcelling out tasks.

7.4 Hunting and Trapping Birds

7.4.1 Inventory

Table VII summarizes the list of birds used for all types of individual consumption. The Tutchone state that there were a few sedentary species which could be captured even in the dead of winter: common raven (*Corvus corax*; *ts'ɛk' ye'* in Tutchone); ruffed grouse, sharp-tailed grouse, spruce grouse and blue grouse (respectively *Bonasa umbellus,* L., *Pedioecetes phasianellus,* L., *Canachites canadensis,* L. and *Dendragapus obscurus,* Say; all called *dii* in Tutchone); white-tailed ptarmigan (*Logopus leucurus,* Richardson); rock ptarmigan (*Logopus mutus,* Montin); and lastly, willow ptarmigan (*Lagopus lagopus,* L.). All ptarmigan are called *k'a miɛ'* in Tutchone.[350]

A great many migratory species were also hunted. Some non-waterfowl species arrived on the Yukon Plateau from about March onward: jays (*Pesoreus canadensis,* L.); snow bunting (*Plectrohenax nivalis,* L.); bald and golden eagles (*Haliacetus leucocephalus, Aquila chrysaetos, L,* respectively; *θagaa* in Tutchone). Others could migrate to the region only at the very end of April or early May, after the ice on lakes and waterways had started to break up. Among the many different types were trumpeter swans (*Olor buccinator,* Richardson) and whistling swans (*Olor columbianus,* Ord; *dagay*); mallard ducks, pintails, baldpates and shovelors (*Anas platyrhynchos, Anas acuta, Spatula clypeata* (Linnaeus), *Mareca americana* (Omelin); in Tutchone *tčot*); green-winged teals (*Anas carolinesis,* Omelin), three species of bluebills (*Aythaya valisineria* (Wilson), *Aythya marila* (Linnaeus), *Aythya affinis* (Eyton)); some eight other species of ducks, Canada geese (*Branta canadensis parvipes*; Cassin; *xɛ*); Arctic loons (*Gavia arctica,* Linnaeus) and common loons (*Gavia immer,* Brünnich; Tutchone: *tutsay*).

This inventory, provided by the Tutchone, appears to be complete. Of course, those familiar with the Yukon will be surprised that some very common species in Tutchone country have not been included: sandhill cranes (*Grus canadensis*; *tj^{a}ol* in Tutchone) which migrated by the millions in 1840-1850,[351] goshawks, osprey, common nighthawks, great horned owls, short-eared owls, long-eared owls, hawk owls, boreal owls, Bonaparte gulls (*mɛk' ĩɛ'*), two other species of gulls and numerous small birds: belted kingfishers (*tatco*), woodpeckers, larks, five or six types of swallows, blackbirds, snipes, sandpipers (*tad^{h}øra*), woodcocks, two species of grebe (horned and red-necked), chickadees, grosbeak, waxwings, robins, etc.[352] There is a simple explanation for omitting these. Some were simply not hunted; others, such as nighthawks, great horned owls and other types of owls, were associated with taboos. As for birds not exploited, I am certain they were totally overlooked because when my informants mentioned that a bird like the Bonaparte gull was not hunted,

[350] The Latin terms are from Godfrey (1966).

[351] Campbell, *Lewes and Pelly Forks Journal*, *passim*.

[352] On the subject of cranes, I took the Tutchone's silence to mean that they never hunted this bird species. This would be a logical conclusion considering that not a single archival source indicates any use of this animal.

then it became impossible to explain why an insignificant bird such as the bunting was not overlooked. Similarly for birds that were considered taboo. Taboos were still very strong in the 1970s and they could not have developed overnight.

These taboos are surprising as the Tutchone knew of techniques they could use to capture them, and even more so given that some of these birds, such as cranes and owls, must be edible as they were commonly eaten in China (Chang, 1977: 56, 67, 132, 154, 201) while kingfishers, robins, snipe and chickadees were occasionally eaten by the very poor farmhands class in France.

Why the Tutchone did not use these birds is, admittedly, curious. It was presumably wholly cultural, and will have to remain a fascinating question for others to fully resolve. In any case, resolving it is of little relevance here. The fact that such taboos existed is brought to light simply so that no one needlessly wonders why this section does not address, for example, woodcock hunting.

Let us now return to the list of birds that were captured and look at what they were used for, where they could be found and how they could be captured.

TABLE VII. BIRDS CAPTURED FOR INDIVIDUAL CONSUMPTION

Subject of labour	Means of labour	Food products	Prestige or trade goods	Ritual items
Grouse		Meat and eggs eaten on a regular basis		
Ptarmigan		Meat eaten regularly		
Swans		Meat eaten as a delicacy; eggs	Breast feathers removed and used in clothing and fancy hair adornments	Down, bones, etc. used in shamanism and various other rituals
Ducks, bluebills, geese, etc.		Meat and eggs as fancy food		
Loons				Part of the body used in shamanism
Bald and golden eagles	Feather shafts used in gopher snares; feathers for arrows		Feathers used as fancy hair adornments; feather shafts used for beads	Talons and various body parts used in shamanism
Common ravens	Flight feathers collected on the ground and used in snares			
Jays		Meat eaten during food shortages		
Bunting		Seasonal meat eaten in April		

7.4.2 Uses of Birds

It should first be noted that some birds—loons, common ravens and eagles—were hunted solely for their feathers and certain body parts: here again we must treat such facts as cultural prejudices for loons and ravens are edible (the former were eaten by Euro-Canadian trappers, while the latter were staples in China during the Ming dynasty (Chang, 1977: 201) and were occasionally eaten in the rural areas of central France. Another bird—the swan—was hunted for food and also for its prized plumage. Table VII shows that the feathers of eagles and ravens were used to set snares to capture gophers, a type of ground squirrel that lives in colonies. For this type of trap, only the shaft of the larger feathers was used. It served as a spring to close the snare as soon as the gopher put its head into it on its way out of its burrow. All other products for which the Tutchone employed feathers were symbols of prestige or ritual articles. Feathered swan breasts were used to make coats that were worn only by the richest of the Tutchone. The breasts were sewn together in the same way as the skins of small mammals were sewn to make clothing. Only the most beautiful swan and eagle feathers were chosen as hair adornments. Those cut into beads were ordinary long feathers. The barbs were removed from the feather shaft which was cut into small segments and subsequently dyed. Bird parts used in rituals included the down and the leg bone of a swan. The down was used in expiation rituals if, for example, one might have accidentally killed an otter. The tibia or the femur of a swan had to be used by young women during the period of seclusion immediately following the onset of their menstrual cycle. These bones were cut at both ends and the tube would then be used to drink fluids. During this ritual, women were prohibited from drinking directly from a container. The same applied to hostages—males—who were exchanged between moieties during the peace ceremony. The loon, a bird believed to have a particularly strong supernatural power, was hunted by shamans. Some used the hollowed out head and neck as a sheath in which to store swan down, for example. Eagle talons were used as amulets.

Birds were also a food source, of course, and this use calls for little explanation. Willow grouse ("partridge"), grouse (spruce and blue grouse) and ptarmigan are subarctic game birds and are eaten in all regions where they are found. The Tutchone call them "Indian chickens." Ducks and geese as food sources raise no issues. Only the consumption of swans, buntings and jays might be surprising. Suffice it to say that a taste of succulent swan flesh will convince even the most dubious. The Tutchone considered it a choice type of meat. As for buntings and jays, both these species are small birds, but easy to capture. Buntings move on the ground in large flocks, whereas jays are content to live near inhabited camps where they can steal food. In terms of food, these two small birds were, for the Tutchone, what other small birds were to people in other parts of the world: either they were captured as a substitute during food shortages, or they were sought after as a change in the daily menu.

Now for a look at eggs: the Tutchone claim that only the eggs of swans, ducks, grouse and willow grouse were eaten; the eggs of eagles, ravens, owls and gulls were explicitly omitted from their list of edible eggs.

Using birds as a raw material in making certain products or even as a source of food might not seem of great economic consequence. However, to think that would be a mistake, especially as coats made of feathered swan breasts and hair ornaments made of eagle feathers were highly prized, as were ritualistic objects. As in any society that values particular

objects (gold, diamonds, etc. for Europeans), these items were avidly sought too. Gathering the raw material for these prestige items was sometimes given priority over food extraction work which, objectively speaking was either more useful or more productive.

Furthermore, the shafts of eagle feathers and raven feathers were essential in an important sector of production among the Tutchone. Without those, gophers could not have been captured as effectively—and the ability to capture this small mammal was very important during periods in the annual cycle when food was not as plentiful. Of course, the flesh and eggs of small and large birds represented only a small portion of the food consumed over the course of a year. Yet, because some birds were present in the territory throughout winter and because migratory birds would arrive in the Yukon during a period of seasonal transition, their importance was greater than the quantitative value they represented in terms of food.

As a result, one cannot help but wonder when and where exactly they were accessible. To solve this puzzle, I focus largely on the ornithology work of Godfrey (1966) meshed with information found in period documents and information provided by the Tutchone.[353]

7.4.3 Where and When to Capture Birds

We will first look at sedentary birds. The common raven could be found hovering over the valleys all year long (that this bird is the creator of the world did not make killing it prohibited). It was captured only for its feathers as substitutes for eagle feathers. It therefore gained importance in winter when eagles were not around and the feathering of an arrow had to be repaired, for example. Yet, as the bird is hard to catch, in winter, on the snow, one could easily find feathers that had either been lost or from the corpse of a bird that had died of cold or hunger.

Ruffed grouse and sharp-tailed grouse were abundant in the valleys; the former in second-growth willow stands, the latter in forests recently ravaged by fire. As there were many such habitats, these birds could be captured year round without having to make special trips. There was one exception to the rule, however. Some years, the population of both these birds declined dramatically without warning.

Spruce grouse and blue grouse had somewhat different habits. In summer, large numbers of both varieties lived above the tree line where they divided into a multitude of colonies of about 15 to 20 birds. To capture them in summer, therefore, the Tutchone had to leave the bottom of the valley where they were fishing salmon and go high into the mountains. Consequently, both these species of wildfowl were only captured from time to time: either to break the routine in the camp or whenever there was a shortage of meat or fish. It was only

[353] All of the data concerning the ecology of birds come from my own field notes, personal observations, a few publications (Godfrey, 1966; Bostock, 1936: 5; Bompas, 1888: 65-66) and the following archival documents: Campbell, *Lewes and Pelly Forks Journal*; Z. T. Wood, Tagish District: *Selkirk to White Pass and Dalton Trail, 1897* (North West Mounted Police, *Report for the Year 1897*, Ottawa, p. 42); Bobillet, *Journal d'un missionnaire au Yukon*, pp. 374-565; Jack Lee, "*Game in the Yukon: Nine Years Exclusively a Hunter in the Yukon.*" Dawson Daily News, July 21, 1909, p. 29.

from about November until March that they became as accessible as ruffed grouse since it was during that period that they came down into the valleys to feed on conifers.

Ptarmigan lived in large colonies of 10 to 30 birds. The difficulties in capturing this species were the same as those encountered for grouse. In summer, during the nesting period, they lived in the uppermost regions of the Yukon Plateau. In winter, beginning in December, they moved to the evergreen forests in the valleys where they could be sighted more easily.

As for migratory birds, it was already pointed out that the jay, bunting and eagle arrived in the Yukon in March and that waterfowl arrived towards the end of April or early May. Now, I must specify the length of their stay in Tutchone country and describe the habitats in which they could be found. The jay and bunting remained in the Yukon until September. They liked visiting the Indian camps. That is where they were captured. Eagles lived in the Yukon during the same period. Approaching them was not an easy task. They formed couples in isolation from other couples and their nests were cleverly hidden. A Tutchone therefore had no choice but to hunt these birds where they hunted: near the many gopher colonies scattered throughout the region. This work entailed long hours of lying in wait, patience and intelligence. The few large feathers and claws obtained in this way therefore took on more than just symbolic value; the shafts of their flight feathers, which were essential in the types of snares used to catch gophers, were not taken for granted.

Hunting waterfowl entailed different constraints. First of all, without exception, none of the species sought spent their summers in Tutchone country. They nested much farther to the north, in the Arctic, and had to be captured on their way to their nesting grounds. In spring, during their south-to-north migration, only the first two weeks in May would be very productive. Of course, some ducks and swans continued to visit certain lakes until June, but after May 15 or 20, there were far fewer of them. The north-to-south migration in fall imposed fewer time constraints however. Flocks of geese, swans and ducks flew overhead from about September 10 to October 20. The hunting season for these species therefore spanned a period of nearly six weeks.

Furthermore, unlike the species described earlier, waterfowl could not be found everywhere. Geese, ducks and swans only stopped at lakes where there were aquatic plants on which each of these types of birds could feed. Despite the multitude of water bodies, relatively few of these species could be found in any given sector. Thus, in a 50 km radius around Carmacks, for example, there were only a few such lakes for ducks, only one for swans and not a single marsh for geese. Consequently, in order to hunt any of these types of birds, especially swans and geese, the Tutchone certainly had to set out on special expeditions. The fall waterfowl hunting period was, however, in conflict with the peak of the autumn moose hunting cycle, which was one of the most important production activities in the Tutchone economy. Obviously, less waterfowls were killed than could have been.

7.4.4 Work Patterns Associated with Bird Hunting

So far, we have covered the main facts related to the Tutchone's main uses of birds, the importance they attached to them and the spatial and temporal problems they had to contend with in order to capture them. It remains now to describe how the birds were hunted.

Once again, the response from the Tutchone was very straightforward. All the techniques used to acquire birds involved individual labour. The women were responsible for trapping birds while the men employed more direct techniques such as bunting arrows. This division of labour between genders reflects the division of labour current among other Athapaskan people, but once again, the question is whether the work pattern mentioned was in fact the only one.

To answer this question, let us compare the passive method (trapping) with the active method (hunting) then in existence. The passive method consisted in trapping birds without having to pursue them. This was the predominant way of capturing grouse, willow grouse, ptarmigan and duck. The traps were single-tethered snares laid directly on the ground and into which the birds stepped. To capture game birds, a small fence was erected in willow or spruce groves which these birds tended to favour. The women arranged a few openings where they then placed one or two dozen tethered snares. The next day, they returned to collect the "chickens" that had walked into the snares. A similar technique was used to capture ducks. The only difference was that no fence was set up and the tethered snares were stretched across the paths that these winged creatures took each day through the brush and grasses around a lake.

The active method consisted in capturing birds directly, either with bare hands or by extending a simple hand-held instrument. The Tutchone used both these procedures to capture ptarmigan which, on the coldest days in winter, would burrow in the snow with only their heads peering out, and grouse which, on the hottest days in summer and the coldest days of winter, would perch on branches. At such times, these birds seem incapable of moving and, in fact, they practically let themselves be killed as they did not really try to escape. Ptarmigan that had burrowed here and there in the snow could be caught by hand. Grouse, immobilized on their perches, were captured with a snare placed at the end of a stick. A hunter approached slowly and quietly, picking off his prey one by one. A similar work pattern was used for jays and buntings. A hunter laid bait on the ground and placed a snowshoe at an angle directly over top of it, propping it up with a stick. He then attached a string to the stick. Holding the other end of the string, he moved five or even ten metres away from the snowshoe. As soon as the birds stepped under the snowshoe, he pulled on the string with one swift movement to bring the snowshoe down over top of them. The operation was repeated until a sufficient number was captured. Another procedure consisted in using projectiles. Rather than catching grouse with snares stretched out at the end of a branch, some Tutchone preferred to throw stones at them. Similarly, in addition to being pursued, during other seasons, grouse and willow grouse were hunted with bows and arrows (see Chapter 6). Bows and arrows were also used to hunt eagles, swans and geese. It was, in fact, the only way to hunt these birds, and considering the intelligence of all three species of birds, the hunt entailed long periods of merely lying in wait.

By nature, all these methods were individual types of work and production. This is obvious for trapping where no pursuit was required. In such cases, the worker, usually a female, did not even have to be present when the bird was caught. It was better, in fact, for her not to be around at all. At the very most, the task consisted in setting up a fence and laying out 10-20 tethered snares. One person could easily take care of this on his or her own, so much so that this type of trapping was one of the activities immediately assigned to an elder whom, if he or she was no longer able to accompany his or her group, would settle down in

a section of the forest. McClellan (1975b: I, 168) reported a case of an indigenous man in the Yukon who, without any assistance, managed to find enough food during an entire winter through this means alone. Under normal circumstances, laying out tethered snares did not lend itself to working in the company of others. Instead of going together to the same wooded area, the women found it to their advantage to spread out and set up their traps in different groves rather than break down the activity into two tasks (setting up the traps and collecting the catches) since those who had placed the snares knew best where to go collect the eventual catch.

The same observation can be made for capturing birds through active means. Aside from bare hands, two instruments were used: snowshoes and bows. Either one could be manipulated by just one person. In all cases, the hunter had to hide and wait before the birds came close enough to him. While only a few precautions were needed for jays, bunting and fowl-like birds, many were needed for eagles, ducks, geese, and swans. If a bird of the later group was sighted while people were travelling, everyone stopped and remained silent. Only one man left the group in search of the prey upon which they had chanced. It thus stands to reason that when planned in advance, the activity was designed to be carried out by an individual, in complete isolation, so as to minimize the sound of grass being crushed underfoot and brush being moved by one's body. Anyone who has ever hunted waterfowl understands just how easily these birds can see through their predators' subterfuge. McClellan (1975b: I, 169) mentioned that the Southern Tutchone found mallard ducks to be just as elusive as Dall sheep and that the Tagish found them to be almost as cunning as beavers.

Overall, the study of bird behaviour and the techniques used to capture them show that birds could really only be captured single-handedly.

7.5 Hunting mammals

7.5.1 Inventory of Mammals Hunted and How They Were Used

Formerly, the Tutchone implicitly grouped the mammals of the Yukon into four categories. The first comprised a group of animals considered to have no economic value. The second included only one animal that was hunted not for food but for the by-products it offered. The third consisted of animals hunted strictly for their fur. The fourth was made up of animals sought for both their hides and their flesh.

Among those of the first category were two species of mice, four species of voles, three species of shrews, flying squirrels, pica, lemming, heather voles, least chipmunks, a species of bat and lastly, mink and river otters.[354] The animal in the second category (i.e., hunted only for its by-products) was a fifth type of vole. In the section on harvesting plants, it was shown how these voles stored sweet roots, and that the Tutchone would dig into this ani-

[354] In order to draw up an inventory of animals that were used and animals that were not used, I compared my notes with the complete inventory of mammals in the Yukon established by Banfield (1974).

mal's reserves with no designs on the animal itself. The longstanding tradition of this production activity was duly demonstrated by Campbell in his journal.

With only one minor exception, the following mammals were hunted exclusively for their skins: wolf (*egay*), wolverine and fox (*nut$^{\theta}$i*), marten (*nun'aη'*), least weasel and ermine weasel. The exception was the wolf (see Table VIII) which the Tutchone hunted not only for its fur but also, albeit on very rare occasions, for its young cubs. The cubs were captured in spring in their den and trained, like dogs, to become work animals. Even though one could not totally trust a trained wolf, the Tutchone prized them for their pulling strength.

None of these mammals was eaten or even fed to the dogs. Here, there is probably a certain cultural bias as fox, wolf, and at least one species of *mustelidae* which is similar to a weasel, were eaten in ancient China (Chang, 1977: 29, 100, 201, 263). At any rate, the phenomenon is still poorly understood. The Tutchone have a myth explaining why wolves eat dogs and why dogs never eat wolves even when offered to them. In fact, I once saw a group of wolves, take, carry away and eat a dog. Much later on, out of curiosity, I gave a young dog some wolf meat which I had boiled. It wouldn't touch it and preferred to fast rather than eat it. The dog broke its two-day fast when I finally offered it something else.

The last category hunted by the Tutchone included mammals defined as edible: moose (*handyε*), Dall sheep (*maai'*), beaver (*tsε'*), gopher (*tsaol*), muskrat (*dzan*), woodchuck (marmot) and squirrel (*dlak*), black bear (*šraa*) and grizzly bear (*šraa čo*), lynx (nedye). I have not included mountain goat, in this list, nor woodland caribou (*udzi*) or barren-ground caribou. The first could be found in the mountains along the coast and only exceptionally on the Yukon Plateau; it was therefore very rarely hunted by the Tutchone. As for the second, we saw in Chapter 5 that the variety known as woodland caribou had always been present in Tutchone country but not hunted (moose hunting opportunities being far more appealing) and that the variety known as barren-ground caribou only arrived in the territory around 1910 and did not alter traditional work patterns.

One important point must be underscored: animals classified as edible were considered as such. Despite the lowly or tabu status generally attribute to them by Europeans, muskrat, porcupine, black bear, lynx, etc. were sought with the same enthusiasm that non-indigenous Canadians might hunt deer or moose, or with the same zeal that they might fish for salmon; with the same passion that the people in rural France might hunt hedgehog (an animal resembling a small porcupine but belonging to a completely different species) or squirrel or capture frogs or collect snails; with the same fervour with which the Chinese captured wild cats (similar to lynx) for food during the Sung dynasty. The fact that muskrat, skinned and bloody, is bought *for food* and sold at the farmer's market in Baltimore, Maryland, U.S.A., should illustrate and reassure Euro-Canadian readers that there is nothing unusual in this. The Euro-Canadian definition of what is edible is as arbitrary as its definition of what is inedible. It should therefore come as no surprise that beaver was hunted in the middle of summer or autumn when its pelt was of no value whatsoever. A source from days gone by illustrates this well: "They are very fond of their flesh and destroy them indifferently in summer and fall" (Tollemache, 1912: 92). The author of this comment was referring to the Tutchone along the Macmillan whom he visited and observed around 1900. It will be recalled that the Gwich'in Athapaskan people did use beavers chiefly for food (cf. Chapter 2).

Tables VIII and IX show the main uses of all mammals that were hunted. Most require little commentary: the work instruments and means of labour were described in detail in Chapter 6. However, a few explanations are nevertheless in order. According to Table VIII, the skins of wolves, wolverines and weasels were used in shamanism, yet they were never produced in large quantity. One shaman apparently used, for example, the skin of a weasel that purportedly blinked its eyes to indicate that a patient of his was going to get well and kept its eyes closed when a patient was going to die. A skin like that would have been kept for years.

TABLE VIII. MAMMALS NOT USED FOR FOOD.

Subject of labour	Means of labour	Trade goods or prestige items	Ritualistic items
Wolf	Cubs captured for traction purposes; Killed to protect other game	Fur to trim clothing and as trade goods	Skin used in shamanism
Wolverine	Killed to protect game and cached foods	Fur to trim clothing and trade goods	Skin used for shamanism
Fox		Fur used for long indigenous robes	
Marten		Fur used for long, prestigious indigenous robes	
Weasel		Fur probably traded	Amulet

More important was the use of robes made of marten fur or fox fur and the production of skins for exchange with other indigenous groups. The robes in question were large cloaks made of many skins sewn together. They were worn by rich Tutchone during group ceremonies and symbolized wealth. In addition to marten and fox, the furs of wolf, wolverine and weasel were also traded. Wolverine was highly valued for its exceptional quality. Unlike all the others, this fur does not freeze in winter and is ideal for trimming parka hoods. However, this animal is extremely difficult to capture. Wolf fur is the next best type of fur for the same purpose.

In Table IX, a few details must be explained. The bells on beaver nets, which were made from moose hooves, were used to sound the alarm when a beaver got caught in a net. To imitate the presence of another male moose scratching its antlers, the shoulder blade of a moose was scraped against a tree trunk. Any male nearby charged the hunter who then killed the animal before being discovered in his hiding spot. The tanning solution made from moose brain was a solution made of water and brain. Skins were repeatedly washed and degreased in this detersive mixture. *Castoreum*, a very pungent product, was brushed onto the traps of carnivorous animals. It never failed to attract lynx, wolverine, marten, and other animals. Lastly, the table shows that antlers and horns were used to make points for tools, which seems to contradict the notion that copper was the preferred material for points on tools. In fact, these materials were only substitutes in the absence of metal, which was often in short supply.

The use of these animals as food also calls for a few clarifications. When I indicate that moose was consumed entirely, I mean that it truly was. The blood was used in soup, as were the pre-digested plants contained in the stomach. Foetuses were eaten, considered a delicacy, and reserved to the elderly. Today, the Tutchone call them "Indian turkey." The liver was served raw or rare. The vulva, naturally covered in fat, was very highly prized. The fatty tissues that held together the small intestines were patiently removed, and so on. Only the brain, which was always reserved to make tanning solution, and the eyes which, for ritualistic reasons, were removed as soon as the animal was dead, were not eaten. My data for the other animals are not as precise, but I nevertheless noted the same trend to use all, or almost all, of the animal.

Some social restrictions must be brought to light. The snout of the moose was reserved for women, but was taboo for men. The genitals of male moose were purportedly an aphrodisiac for women. Only men and women over forty were permitted to eat foetuses; these were strictly forbidden for young people. A few individuals, for reasons related to shamanism, never ate moose, beaver or bear. Moreover, bears, which occasionally attacked humans, aroused very interesting attitudes. Tollemache (1912: 215), who lived not far from Fort Selkirk from 1898 to 1902 made the following remark:

> While I was residing at Fort Selkirk one of the Indians arrived at the place after having become tangled with a wounded bear, and was badly hurt in consequence. The other Indians, on hearing his story, immediately started with their rifles in pursuit, and after tracking the bear for some distance eventually succeeded in killing it. They then proceeded to cut up the body into tiny fragments, which they scattered far and wide, and when this feat had been successfully accomplished the wounded Indian was considered by his fellow Indians to have been completely compensated for his injuries.

Campbell noted in 1848 that capturing and eating bear would give rise to a "grosse fête" (in French in the original: meaning "big feast") and carried undertones of shamanistic prowess.[355] And although this animal is eaten today with no particular fanfare, it is possible that eating bear in the past was usually accompanied by a ceremony.

As for durable goods made of certain animal parts, a few facts stand out. The Tutchone made plates out of the broadest portion of moose antlers. Food for an entire household was served on these platters rather than on individual plates. Moose hide—the hair side turned inward—was the most commonly used skin for winter clothing and bedding, but it is worth noting that Dall sheep skins were preferred, especially for clothing and mattresses for children. Capes made of gopher, hare, and lynx furs were similar to ceremonial robes, except that they were made differently. The skin was cut into strips 1-2 cm wide which were then interwoven horizontally and vertically to form a rectangular piece the size of a blanket. These woven furs with which the Tutchone covered themselves in winter were very soft,

[355] Campbell, *Lewes and Pelly Forks Journal*, September 28, 1848.

TABLE IX. USES OF EDIBLE MAMMALS

Subject of labour	Work instrument	Means of labour	Food	Durable goods	Prestige items	Ritualistic objects
Moose						
Hoof	Awl handle	Bells for beaver nets	Contents eaten			
Bone	Points for: Spears, arrows, hooks for making nets and snowshoes	Shoulder blade as alure	Marrow			Shoulder blade for geomancy
Antler	Points for: Spears, arrows, bunt-tip arrows, harpoons, adzes, ice chisels, clubs Handles for: Gouges, awls, etc		Antler velvet (delicacy)	Platters		
Stomach		Water container and food container	Tripe			
Intestines		Food container				
Bladder		Food container				
Sinew	Braided for use in snares (hare, grouse, willow grouse ptarmigan) and fish nets	Thread used in sewing				

Subject of labour	Work instrument	Means of labour	Food	Durable goods	Prestige items	Ritualistic objects
Moose						
Skin	Babiche for use in snares (moose, Dall sheep, lynx, bear, fox) and in beaver nets	Babiche for snow-shoes, coverings for skin boats, for pack-saddles worn by dogs, quivers, pouches, car-tridge pouches, vari-ous ties, hair for filling dog harnesses, etc.	Epidermis eaten	Clothing, footwear, brush lean-to cov-erings, mattresses, drums, covers for sweat houses	Accumulated as a status of wealth; hair used in em-broidery	
Brain		Leather tanning solu-tion				
Flesh and or-gans			Except for eyes, everything eaten, incl. foetus, nose, ears, vulva, penis, testicles, liver, heart, kidneys, blood, etc.			
Dall Sheep						
Bone	Various tools					
Horn	Clubs, points for tools			Ordinary ladles	Ceremonial ladles	
Organs		Various containers				
Skin		Babiche		Mattresses, covers, winter pants, cloth-ing	Wool traded	
Flesh and or-gans			Flesh very much prized; source of fat			

Subject of labour	Work instrument	Means of labour	Food	Durable goods	Prestige items	Ritualistic objects
Beaver						
Bone	Teeth used for gouge blade					Geomancy
Organs		*Castoreum*: used as bait in a number of traps (lynx, etc.)				
Fur					Baby beaver fur for prestigious robes, adult beaver for robes and trade	
Flesh and organs			Meat, especially the tail, in high demand			
Lynx						
Fur				High-quality capes and blankets		
Meat			Dietary staple as valued as hare			
Hare						
			Meat prized as regular food	Fur for ordinary capes and coverings, baby blankets, inner soles of moccasins; Young kept as pets for children		

Subject of labour	Work instrument	Means of labour	Food	Durable goods	Prestige items	Ritualistic objects
Porcupine						
			Meat prized as food, but animal mainly hunted if starvation		Quills cut up into bead-size pieces and used in embroidery	Palms used as cups used in rites of passage for boys
Gopher						
			Meat: regular dietary fare	Fur strips woven in regular warm capes and blankets		
Muskrat						
			Meat: regular dietary fare		Furs traded	
Marmot						
			Meat very much in demand		Fur used for fancy robes	
Black Bear and Grizzly Bear						
			Meat eaten but with certain restrictions for certain individuals	Skin used as blankets and bedding but with certain restrictions for certain individuals		Fat melted and consumed in certain rituals
Squirrel						
		Fed to dogs	Meat eaten during food shortages; the Tutchone would steal from their mushroom reserves	Lining of nests: “cotton” for diapers and sanitary napkins (after smoking)		Nest and organs used in shamanism

especially those made of hare or lynx. The Tutchone and the first Euro-Canadian settlers (Bompas, 1888: 64), all agreed that these were the warmest clothes one could ever wear.[356]

The hare skin blanket of a newborn was even simpler: Wilson (1965: 126) who had the opportunity to see one, writes that "a raw rabbit skin was wrapped around the feet and buttocks, and another around the chest and back. Soft muskeg moss was tucked in for diaper, and the baby was warm…" Lastly, the table shows that the lining of squirrel nests was used as a material for diapers and sanitary napkins. This was "cotton" collected from the various plants that these animals amassed in their nests. It was a poor substitute for muskeg moss when it was in short supply. Full of fleas, it had to be fumigated at length to rid it of these vermin before it could be used.

The columns "prestige items" and "ritualistic objects" do not pose any special problems, but a few clarifications need to be made. Moose hides accumulated as a sign of wealth were tanned. (It will be shown below that tanning was a time-consuming process.) Some rich people owned a great many such skins. They were used either as marriage "gifts," as a way of showing off one's wealth at potlatch funerals, or as currency to acquire prestige items from the Tlingit.

Of the three types of robes indicated in Table IX, not counting those of Table VIII, the most prestigious was that made of baby beaver pelts, followed by adult beaver robes and finally robes made of marmot fur. Moose hair and porcupine quills were classified as luxury items, but they had little value in themselves. It was by dyeing them and embroidering them into clothing that they came to be regarded as prestigious. Containers made of mountain sheep horns were large ladles, often decorated with geometric designs and were used to drink the rendered fat of bear or moose at potlatches and other ceremonies. They could hold about one litre of fluid. No special work time was devoted obtaining items used in rituals. For example when young boys of about 13 or 14 years of age went hunting, they could drink, for ritual reason, only the contents of the dried skin of a porcupine palm for a whole day. It was not necessary to kill an animal specifically for that purpose; each group and each individual knew in advance what they would have to use, and the items needed for a ritual were simply obtained and stored as and when such animals were hunted.

7.5.2 Completeness of the Inventory

The preceding pages are only a summary of what I learned from the Tutchone I interviewed starting in 1972. The task now is to determine whether the inventory prepared on the basis of their information is as comprehensive as possible. There is no disputing the following uses: bones, moose antlers, horns from Dall sheep, beaver teeth for tools, plates, etc.; meat and fat from moose, Dall sheep, lynx, beaver, hare, etc. for food; skins or furs of moose, Dall sheep, wolverine, wolf, fox, lynx, and hare for clothing. Furthermore, there is no con-

[356] The expressions "fur robes" and "ceremonial robes" are used to differentiate robes made of hare, lynx or gopher furs, which were ordinary and worn by many, from robes made of marten, beaver, fox or marmot furs, which were worn by the richest men and women only.

testing that mice,[357] voles (except one species), shrews, bats, and other rodents were not used. Most of these uses and avoidances are well known among many Northern Athapaskans.

In contrast, there is less certainty about the two animals that were not used—mink and otter—or about some strange uses such as marten and beaver which were used for the manufacture of highly valued fur robes. Mink does not seem to be a source of food anywhere, but the fur of this animal was certainly prized in countless places. The otter was eaten in ancient China (cf. Chang, 1977) while in France it was regarded as a great delicacy until the nineteenth century (cf. Balzac, *La Rabouilleuse*). Its fur fetched a high price in many cultures. We therefore have one perfectly edible animal and two bearers of prized fur, none of which was hunted. Could this have been so? Another surprise is the existence of prestigious fur robes among subarctic hunters. If such robes did exist, surely they may have been introduced through the fur trade.

To solve the puzzle concerning mink and otter, the following facts may be mentioned. The Tutchone believed (and still hold), that to come into contact with and even kill an otter or mink brought the bad luck of being possessed by the animal. They believed that it would settle in the stomach of anyone who touched it and lead to that person's death, with particularly devastating effects if the unlucky host was a woman. A shaman would be endowed with evil powers. Anyone who ate either of these animals would fall violently ill (stomach cramps) and would call on the powers of a shaman to escape the clutches of death. Moreover, the otter was considered capable of disguising itself as a man arriving in a canoe. It sought the friendship of any Tutchone it encountered. If friendship was offered, it would move in with that Tutchone and bring him or her underground where some mysterious form of danger awaited. To avoid such schemes, a Tutchone who met a friendly stranger who arrived in a canoe would grab the stranger's paddle and toss it into the fire. If the visitor was in fact an otter, the paddle would burn like a feather; the stranger would revert to an otter, dive into the river and disappear.

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[357] Wilson (1965: 113), the nurse who cared for the Tutchone during the 1940s related an anecdote that would seem to indicate that some small rodents were eaten. When she visited a school for Indians in Whitehorse, the teacher showed her pupils pictures of animals and asked them to identify them. When she showed a photograph of a mouse, the following exchange took place:

> "Can anyone tell me what this is?" she asked gaily. Every hand in the room rose slowly – not 'like a shot,' but with careful deliberation. "What is it Rosie?" she asked a little girl with eager bright eyes.
>
> "Mouse!" said Rosie.
>
> "Yes, it's a mouse," said the teacher. "Now, what would you do with it?"
>
> "Eat him!" came the prompt reply.
>
> Wilson added: "The teacher stood in stunned silence, but the pupils all nodded their approval. Rosie had given the correct answer."

However, as I never heard adults speak of eating mice, I included them in the category of animals that were not used. If I was mistaken to have done so with field mice which after all are edible, such an error would not have a significant impact on this work. In any case, even if mice were captured, the work would have certainly been an individual effort with traps.

In the 1970s and later, those aged forty and over still firmly clung to this strong religious belief. Everyone claimed that these animals were hunted neither for food nor for their furs and that, aside from one or two exceptions, everyone still abstained from doing so. One anecdotal case: during the winter of 1973-1974, a 70-year-old man refused to kill an otter that frequently visited his camp, despite the fact that the market price for otters was high and the man needed money for medical care. To him, approaching an otter was tantamount to tempting fate; killing one was downright dangerous.

In another case dating from the 1950s, two Tutchone men were out trapping when they encountered a Euro-Canadian trapper. This man offered them a meal of beaver meat. "It was already cooked," he said. One of the Tutchone declined the invitation, but the other one ate hungrily. As the two native men were leaving the camp, the one who had abstained from eating pointed out that the white man had no beaver pelts, just the skin of one otter. He had deduced that the meat offered to them must surely have been otter. The one who partook of the meal had an immediate reaction: stomach convulsions and vomiting. Coincidentally, in 1974, 25 years after the event, I recounted this anecdote to the sister of the "victim" and another woman. They had not heard of the incident, and I was unaware that they knew nothing of it. My story was received with cries of such horror and disgust that their lips could not keep from trembling. Their faces betrayed both fear and worry. Killing and eating an otter seemed unnatural to them. They said that the skin of this animal must not be taken even when one is captured accidentally, say, in a beaver trap. Should such a thing happen, one has to cut open the belly of the otter from the sternum to the pubis, stuff the cavity with swan or duck down, and then place the animal in the fork of a tree, belly up and fur intact.

Without a doubt, these beliefs date back many a generation. In his recapitulations of skins and furs purchased between 1848 and 1851,[358] Campbell noted only one mink and 14 otters over a period of three years. Even so, these must have been caught by his own employees as his journal for the same years mentions not one case of a Tutchone bringing in mink and only one instance of an Indian selling an otter skin.[359] For the same period, however, he purchased a total of 572 marten skins. Marten is as difficult, if not more difficult, to capture, but it is not taboo and has been traditionally hunted. The journal cites many examples of marten skins being sold by the Tutchone people.

Neighbouring Athapaskan groups also believed the otter to be malevolent. Pike (1896: 145) indicated that, although populous around Frances Lake in Kaska country, this animal was not hunted. He wrote:

> A curious [belief] prevails that if you kill an otter, it is capable of causing much trouble by coming to life again in your stomach. Only three winters ago, a Frances Lake woman laid [*sic*] at death's door with this malady, but she was saved by the timely arrival of the only medicine man left in the tribe. He seems to have diagnosed the case correctly at once, and holding a sheep's horn spoon to the patient's mouth, he proceeded to repeat a long incantation suitable to the occasion. As soon as he had finished, to the great joy of all the relations who had gathered to see the death, three little otters dropped out into the spoon. The old lady

[358] *List of furs traded at the Forks of the Pelly and Lewes*, Outfit 1848, Outfit 1850. *Pack from Fort Selkirk*, Account 1851 (H.B.C. Archives 1M 893 and 1M 582).

[359] Campbell, *Lewes and Pelly Forks Journal*, January 10, 1849.

> recovered rapidly, and afterwards confessed to having stolen and eaten an otter that she had found in somebody else's beaver trap during a long period of starvation in the early summer.

The same attitude prevailed among the Tagish, Southern Tutchone (McClellan, 1975b: I, 142-144) and Nabesna/Upper Tanana (McKennan, 1959: 163).

Insofar as concerns the robes, the following data are certainly pertinent and must be mentioned. The information contained in archival documents matches the findings of ethnohistorians in that both date the use of these precious fur robes to a remote period in time. In his "Lists of Furs traded at the Forks of the Pelly and Lewes,"[360] Campbell reveals that marten, fox, wolverine and wolf were captured and traded even before he had settled in Tutchone country. In his memoirs (in Wilson, 1970: 113), he specifies that weasel fur was used as decorative trim on clothing.

De Laguna (1972: I, 433-436) specifies that the Tlingit wore marten and fox furs well before Russian goods reached the Yukon headwaters via Tlingit middlemen. McClellan (1975b: I, 141) wrote: "Even before the days of developed fur trade, marten skins were prized for making the fur robes of higher-class [Athapaskan] persons. The mythical Wealth Woman herself wears such a garment." She even mentioned that wolverine skins were exchanged between the Athapaskans of the Upper and Lower Yukon River and that weasel skins were sold to the Tlingit who used these furs to make fancy clothing (*ibid*: 132-154). An obscure document dating from 1909, for which I unfortunately mislaid the reference, demonstrates that, at that time, the Athapaskans of the Yukon headwaters still sold wolf and wolverine skins to the Athapaskan groups of the lower course of the Yukon. One wolf or wolverine skin was worth three marten or white fox skins.

A number of pivotal questions may be posed at this point: Could objects considered to be luxury items be in use among hunters and gatherers? Did trade practices exist indicating that not only these objects were present, but that they were in fact more valued than more practical objects? Could time have been spent producing things that served no other purpose than to display one's fortune? Is it possible for a hunter-gatherer society to develop a concept of luxury goods so as to display wealth differences? Or was the concept of prestige or luxury items an introduction into the culture of the Tutchone resulting directly from the eighteenth and nineteenth century European fur trade in the north American North-West?

Answers to these important questions can be found in a few period documents beginning with the book written by Bompas (1888), an Anglican missionary. After 18 years among the Gwich'in, whose language he managed to learn well, and numerous encounters with the Han and a few Tutchone, he wrote: "Marten or beaver skins formed at first rich coats for the Indians, but these are now traded off for necessaries" (*ibid*.: 90). The second is the Fort Yukon Journal.[361] It specifies that in 1848, "The *Gens des Fous* [Han] took with them some beavers and martens which the Indians would not give us unless for beads and guns" or for a military style jacket, coloured and trimmed with copper buttons and highly valued by the Indians. The third is the journal kept by Campbell while at Fort Selkirk. He indicated that

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[360] *List of furs traded at the Forks of the Pelly and Lewes*, Outfit 1848, Outfit 1850. *Pack from Fort Selkirk*, Account 1851 (H.B.C. Archives film 1M 893 and 1M 582).

[361] *Fort Yukon Post Journal*, July 15, August 5, 1848 (H.B.C. Archives, Film 1M 166).

marten were sold mainly to obtain flintlock guns and beads.[362] The last was provided by Schwatka (1893: 228, 230). For the year 1883, he stated that:

> The little civilized clothing [the Tutchone] possess is obtained by barter with neighbouring tribes, and has generally been worn out by the latter before they exchange, hence it is tattered and filthy beyond measure, and in no wise so well adapted to their purpose as their native clothing.

He further indicates that these fabric clothes were worn by chiefs.

In this respect, oral histories and archival documents complement each other. Robes made of marten and other furs date back to early times. They did not appear—even indirectly—as a result of the fur trade. On the contrary, the fur trade slowly brought about their obsolescence. It only stands to reason that on the European market, marten was greatest in demand, followed by fox and other precious furs. The fashion in these distant countries is unlikely to have persuaded the Tutchone and other Athapaskan peoples to wear these furs. It must therefore be accepted that using these furs to signal prosperity was an indigenous characteristic that predated any European influence, even indirectly through trade with other Indian groups. Once it had become a part of life, the fur trade's impact was only this: any Tutchone who had previously worn robes of marten and other furs to distinguish themselves from other "classes" began acquiring goods which they deemed to be even more precious either because they were even rarer in their territory or impossible to produce: glass beads, flintlock guns, jackets, cotton and wool cloth and clothing. These were no more useful than the marten robes; even the flintlock gun which, as was shown in Chapter 6, was not radically more effective than the bow. We can therefore accept as factual that there existed a category of native animals hunted solely for their pelts as well as a category of luxurious clothing made with these pelts. Lastly, as we have shown that the non-use of a few animals was real—a finding that may have seemed surprising at first—we may consider that the inventory provided by the Tutchone in the early 1970s is a comprehensive one.

7.5.3 Accessibility of Mammals and Logistical Problems

With this overview complete, we must now try to find where each type of mammal could be found, during what times of the year and in what number. This will be established on the basis of my own observations, those shared by the Tutchone, some general ethological comments found in the works of Banfield (1974) and Burt and Grossenheider (1952), as well as on a series of eight zoological maps, each drawn on a scale of 1:250,000, which cover nearly all of the Tutchone territory and indicate the areas inhabited by each of the species in question.[363]

Aside from an example or two, it is impossible for me to detail the distribution of each species region by region. The territory is so vast that even a multi-volume work would not

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[362] Campbell, *Lewes and Pelly Forks Journal*, *passim*; *Requisition for Fort Selkirk. LaPierre House*, June 21, 1852 (H.B.C. Archives, Film 1M 852).

[363] Maps of the Land Use Information Series. Indian and Northern Affairs. *Stewart River*, map, 115-0-115-N (E½); *McQuesten*, map 115-p; *Mayo*, map 105-M; *Carmacks*, map 115-I; *Glenlyon*, map 105-L; *Kluane Lake*, map 115-G, 115-F; *Aishihik Lake*, map 115-H; *Laberge*, map 105-E.

be sufficient. Instead, I propose a summary of existing information where I will do my utmost to highlight the general logistical and production problems encountered by the Tutchone as a result of the geographic distribution of the game they hunted and the behaviour of each species hunted.

First, let us consider the animals hunted strictly for their fur. The matter of "when" they were hunted is easily addressed. The animals of this category did not hibernate and their furs were at their peak from November to mid-April. Our look at the spatial distribution and behaviour of each species will therefore focus exclusively on this season.

Wolves, largely nocturnal animals, were present throughout the entire Tutchone territory. The eight zoological maps studied, each representing either a square area of 80 by 80 miles or a rectangle of 100 miles by 80 miles, reveal only slight regional disparities. There seem to have been more wolves in the square or rectangular areas around Aishihik, Mayo, Glenlyon and Kluane than in the areas around Carmacks, Stewart, McQuesten and Laberge. However, since neither of these two groups of four areas represents a group of contiguous squares, since there was no absence of wolf in any of these areas, and since each Tutchone regional group straddled two or even three squares, no single group had any real advantage over another. There would have only been minor differences in production volume between families of a single regional group. Since moose accounted for about 80 percent of wolves' food source, wolves could always be found in areas where moose were abundant. These areas were subdivided into territories measuring between 100 and 260 square miles, each inhabited by packs of 2 to 14 wolves. Capturing them therefore did not require any special expedition outside the Tutchone's regular hunting zones, but the number that could be captured by each hunter was necessarily limited.

The geographic distribution of *wolverines* was different. These animals feed essentially on beaver and porcupine. Both were plentiful enough throughout the entire territory to meet the alimentary needs of wolverines. However, the eight zoological maps show that four 80-square-mile areas and one rectangular area of 100 miles by 80 miles were home to only a small number of wolverines and that in the areas where there were larger populations—Aishihik, Kluane, McQuesten—they were relatively abundant in only a few specific mountainous zones. This spatial distribution probably resulted in differences in production volumes among Tutchone and other groups and undoubtedly explains why the fur of this animal was traded with other peoples (although not regarded as prestigious, it was very useful in that it did not freeze). Two other facts are worth noting. Wolverines are mostly nocturnal, but can also be active during the day. They prefer habitats at alpine and subalpine altitudes, but even there, there is no concentration of this animal as wolverines are solitary and territorial. The best season for hunting this species was the winter. However, alpine areas only had martens and black bears (in hibernation) as additional mammal resources. There, the type of game customarily hunted by the Tutchone for food (hare, etc.) was rare. Moreover, wolverines, intelligent animals that they are, could thwart a hunter's designs and even destroy his cache of provisions, making away with what the hunter had captured in his snares. We saw in Chapter 6 that in 1848-1852, wolverines brought a group of Tutchone to the point of starvation in precisely this manner

Because of the low density of the wolverine population and the nature of its habitat, it was more efficient to send a hunter in solitary pursuit of this animal away from the family camp. Moreover, because of the inherent risk of failure and danger of starvation, one had to

belong to a group of relatives whose activities were sufficiently diverse that they could go assist one of their own when that person was hunting this animal. Even in the richest zones, only a few could devote themselves to this activity. Others had to do as those in low-density zones and be satisfied with capturing the few animals that lived in their regular hunting zones, i.e., the valleys.

Foxes: the regional distribution of this animal was similar to that of wolverines. The zoological maps show an abundance of this animal in the rectangular area around Kluane (100 miles x 80 miles) and a fair number in the Glenlyon (80 x 80), Laberge (80 x 80) and Stewart (100 x 80) sectors. In each of the four other 80 x 80 zones, there is no mention of a fox population, no doubt because it was very small. These studies corroborate my own observations as well as what I was told by the Tutchone. The distribution of this animal, like that of the wolverine, would certainly have resulted in uneven production volumes among different Tutchone groups. However, groups that had access to a plentiful supply of fox had fewer problems than those that had access to an abundance of wolverine only. Foxes are essentially nocturnal and live near lake shores, in forests and open spaces in valleys where they feed on hares, mice, birds, gophers and, as reported by the Tutchone, even fish (longnose sucker), which they captured directly from spawning grounds in lakes. The Tutchone could thus combine the trapping of this animal with other food producing activities in their usual hunting and fishing grounds. The only constraints were that, in winter (the peak period for capturing any fur-bearing animal) foxes were solitary and the density of their population was consequently low even in regions rich in fox (1.6 per square mile). As a result; to obtain a fair number of foxes, a Tutchone would have to work alone, covering a relatively large area. It should also be noted that fox population was prone to gradual but significant declines every 8-10 years, following hare cyclical declines.

The geographic distribution of *martens* was fairly similar to that of wolves. Only one of the eight mapped sectors—Aishihik—had a small population. The seven others had large ones. They were dispersed in three of those sectors, but the environment in the four other sectors—McQuesten, Stewart, Glenlyon and Kluane—allowed for higher concentrations in certain locations. The Tutchone families who hunted in the latter zones were therefore at a slight advantage. However, as locations with high density were present everywhere; all regional groups could generate a somewhat similar volume. Trapping marten presented a few problems unlike those encountered in trapping wolf. Martens are solitary animals and entirely nocturnal. On average, there are no more than 1.5 marten per square mile and as many as 4.5 in the best of circumstances. They live high up on wooded subalpine hillsides at an elevation of between 700-1,000 m, i.e., where wolverines may be found, and also in areas far from the valleys which are the richest hunting and trapping grounds. Not only did trappers have to work independently, they also had to deal with the risks associated with travelling to regions that were otherwise poor in food resources partly because of the presence of wolverines. Marten trapping was therefore a production activity that ran counter to the requirements of food production and was an activity normally open to the only groups that could afford to assign some of their members to procuring furs, others to processing food, and still a few others to coordinating the efforts of each sub-group. Of course, some individuals would have acted without support, but it would have been necessary to work in well-coordinated groups to succeed year after year.

No systematic studies have been carried out on the subject of *ermine and weasels* in Tutchone country. Nevertheless, a few conclusions may be drawn on the basis of each species' behaviour. In a good habitat, the ermine population can expect to reach a density of 20 animals per square mile. Although this figure must be adjusted downward for the Yukon, the resources available to different groups of Tutchone were probably uneven. As for the weasel, we know that the population density of this animal was extremely low throughout all of North America. Not a single habitat seems to have harboured a concentration of weasels. We can therefore speculate that all Tutchone were on an equal footing with respect to this animal. The behaviour of both these species helps to explain the constraints associated with trapping them. Both are exclusively nocturnal and feed essentially on mice. They live in the valleys, near water bodies (ermine) and in forest clearings (weasel). The population density of each is low and, moreover, they are solitary animals. It stands to reason that trapping them would require people to spread out, but this activity had to remain compatible with food production activities which focused in part on edible mammals whose habits and behaviours must now be detailed.

At the top of the list was the *moose*, a nocturnal and diurnal animal weighing between 450 kg and 750 kg (in the Yukon) and available all year round. It was at its best, i.e., at its fattest, from mid-August to the end of September and was therefore hunted most actively during that period. Females, are tenderer and always slightly fatter, and therefore were preferred in any season to males, which from the start of the rutting period (September and October) would lose the fat they had accumulated over the summer. As regards the spatial distribution of this animal, the eight zoological maps are interesting in that they show that moose could be sighted in all the valleys and that all but one 80 x 80 mile region (McQuesten) had at least one area where they concentrated in winter and another where they concentrated in summer. However, even when concentrated, each animal lived away from all others. Whether they could be found in concentrated numbers or not, they generally lived in the marshy valleys in summer and autumn. In winter, there was no set trend. Sometimes, they would stay in one marshy zone; at other times amid second-growth vegetation on the hillsides and in subalpine zones. All Tutchone groups were thus facing similar challenges in locating and hunting moose. Chapter 5 gave an overview of these challenges. Moose did not follow a set and predictable migratory pattern. In some areas they tended to concentrate in summer and in other areas in winter. These patterns could be attributed to the availability of browse and other plant foods in certain localities at certain times. In some areas it was the summer food that was less concentrated in availability; in another and different general area, it was the winter food.

It was seen earlier that moose lived dispersed, in isolation from one another, and were capable of evading predators by running long distances over short periods. This was true even in areas where moose congregated seasonally on account of the vastness of these areas (our maps inidcate 40 miles x 5 miles; 60 x 10 miles; 20 x 3 miles; etc.). The maximum population density never exceeded two animals per square mile; even so, any animal could easily flee from the area. The only specific places where one could reasonably hope to find a moose at certain times of the year were specific areas around lakes and ponds and, according to the Tutchone, in April, wherever there was a mineral lick to attract pregnant females. But once again, such females came alone and could very quickly thwart the plans of men. The three general constraints associated with hunting moose were the following: 1) The dis-

tribution of these animals as a result of the conditions peculiar to a given region had to be fully understood—one could not make generalizations on the basis of conditions elsewhere; 2) The animal could be pursued only by individual hunters, not groups, so as to reduce the risk of noise and improve each one's chances of success; 3) Whenever possible, the hunter set as many snares as possible along the trails routinely used by the animal over as long a distance as possible. A human corollary stemmed directly from these three constraints: hunters were forced to spread out and work in isolation from one another and, depending on the season and place, they sometimes had to travel through country they would otherwise avoid, among narrow strips of land along water bodies, and sometimes in vast bogs lined with second-growth vegetation at the bottom of the valleys.

Dall sheep were accorded greater value by the Tutchone for the desirability of their meat and skins, than for the quantities they could represent in annual production. The hunting of Dall sheep also called for different work patterns altogether.

The geographic availability of Dall sheep was in marked contrast to moose. Dall sheep lived on rocky mountain peaks where they stayed all year long at an altitude of 2,500 metres above sea level. They tended to remain in the area where they were born, but if they became too numerous, they—albeit only in rare cases—split into two, three or four small neighbouring herds of between 70 and 100 animals. The weight of adult Dall sheep varied between 75 kg and 90 kg. An informant specified that they were at their prime (very fat) around the end of August and all through September when they had developed a 6-8 cm layer of fat. Their distribution throughout the territory was characterized by considerable regional disparity. On the zoological maps, only two of the eight square or rectangular mapped sectors had pockets of several hundred Dall sheep in a single zone: 1) two areas in the Kluane sector (one measuring 90 miles x 20 miles was densely populated (the other, 60 miles x 20 miles, was home to a few small herds separated from one another by long mountainous trails); 2) the Glenlyon sector with one area that was fairly densely populated (one triangle measuring 25 miles across its base and 25 miles in length) and a few isolated mountains where very small herds lived. In the 200 miles between the Kluane and Glenlyon sectors were small, widely scattered herds of Dall sheep (numbering in the dozens), located on only two or three tiny escarpments.

As seen on the zoological maps, the availability of sheep for the various Tutchone regional groups was thus quite uneven. For the people of Aishihik and the White River who had access to the Kluane sector and for the people of Little Salmon who controlled the Glenlyon sector, hunting Dall sheep was an activity capable of yielding good results. For those in the other regions, this could not have been anything but a minimally productive activity that could only be justified by the value that the Tutchone placed on the animal's meat, horn and skin. In fact, hunting this alpine animal required long expeditions outside of the regular food-production zones, namely, the valleys. And since these expeditions had to be undertaken before the snow prevented access to the mountains, several precious work days in summer and autumn would consequently be lost.

Beavers provided the Tutchone with an evenly distributed natural resource. The eight maps used show that six of the eight square or rectangular sectors had at least one and as many as three densely populated zones. These zones were long corridors 30-60 miles long and 3-10 miles wide or vast regions of 20 miles x 35 miles. In addition, wherever the terrain permitted, beavers traveled through the entire territory, even the two sectors that show no

concentration of this animal. Beavers were the most predictable game in all of the Subarctic (Speck, [1915], 1973: 61-62). These large rodents, weighing between 15 kg and 35 kg, lived in all ponds, lakes and rivers that froze only on the surface. There, near the shore, they built shelters, or lodges, which they made of tree trunks that were held together by earth in such a way that they were practically indestructible. Inside the lodge, the section that was above water level was home to anywhere from 5 to 12 beavers. Young males were expelled rather early on. If not joining an existing lodge, after mating, they would build a new lodge with their mates a few miles downstream from the parental lodge. Beavers from other colonies were generally expelled. Beavers are nocturnal and leave their lodges only at dusk by way of underwater exits. A family was composed of an old couple living with a few of their female offspring with their mates and young ones born between April and July. Equipped with very sensitive hearing and a keen sense of smell, they could easily outsmart hunters. They fed on trembling aspen, willow, white birch, balsam and cottonwood. In summer, these would be consumed on the spot or stored at the bottom of a lake so that the beavers could feed on them when the ice restricted their movements. One beaver needed an average of one acre of wood each year. Over the years, a colony would move, but only very slowly. Some lodges continued to be inhabited for many years. The move seemed to follow a lengthy cycle whereby the colony eventually returned to its point of origin. Consequently, this species might be regarded as essentially sedentary.

On the whole, their ethological characteristics had important consequences. The first was certainly that beaver trapping could be combined with other productive work being carried out in the valleys. The second stemmed from the great challenge of approaching this animal—a challenge made all the more difficult from December to March when it traveled under the ice and was rarely sighted. This made it necessary for hunters to work alone to minimize any noise or scent. The third was the need to control hunting so that each colony could continue to reproduce. The dilemma focused on which individual animal in particular was to be taken: young or old, male or female? The Tutchone say that their ancestors understood the familial composition of each lodge and planned the capture of specific individual animals at specific times of the year. Such plans could span periods of five years. Even in the 1970s, some men continued to harvest beaver in the same way.

Muskrats were not distributed throughout the territory as evenly as beavers. The zoological maps show that only four of the eight mapped sectors had large populations. The results of the map data are confirmed by the fact that the Tutchone used to call the people of the Upper White River “Rat people” because of the large quantity of muskrat they ate. This also indicates that not all groups could use this resource to the same extent. Weighing between 1 kg and 1.5 kg, this animal had interesting habits. Like the beaver, it lived in a wooden shelter, was hardly seen in winter and could readily outmanoeuvre its predators. From the onset of spring (April-May), muskrats spread out along water courses and remained dispersed until autumn when individual animals reconvened around their winter habitat, usually travelling on dry land. The population density was normally between 20 and 25 individuals per inhabited acre, but these numbers could fluctuate dramatically over a 10-year cycle. Because of their nature and habits, they could best be captured between October and April, particularly when they were in the process of dispersing (April-May) and reconvening (September-October) as they could be readily captured on land. However, the best time was autumn when the flesh was at its peak. In spring and summer, its musky glandular secretions

gave it a very strong flavour. Because of its low population density and shrewdness, this animal was most efficiently harvested by resorting to trapping without lying in wait. Of course, as was the case with the beaver, individual Tutchone could trap this animal while carrying out other production activities in the valleys.

Hares provided the Tutchone with a game animal that weighed a good 1.5 kg and was easy to capture, but which, if relied on too heavily, could lead to starvation periods as the hare population was prone to steep declines every 7, 8 or 10 years (Campbell in Wilson, 1970: 145; Bompas, 1888: 41; Tollemache, 1912: 287). As it was difficult to accurately predict the exact timing, this mysterious periodic die-off was not of minor importance. For information purposes, the following will help to illustrate.

In some regions in Manitoba where hares are particularly abundant, the population density can reach 3,400 individuals per square mile at its peak, decline sharply in just one year to only one animal per square mile, remain low for a number of years and then gradually increase to 260 or even 539 per square mile to reach a new peak only a year after that. In the Yukon, the maximum density was far lower than in Manitoba. Nevertheless (and the Tutchone are in agreement with the documents cited in the previous paragraph), the magnitude and length of the demographic cycle were just as extreme. Can one speak of regional distribution and typical behaviours in such conditions? Certainly this can be done, but only if we look at an average year and adjust for the highs and lows that might have occurred during that time. Once the necessary adjustments are made, the most important traits can then be noted.

Hares fed on the leaves of willow, birch, trembling aspen as well as on white spruce and pine leaves in summer and bark and needles in winter. These species of trees existed in the valleys throughout the entire Tutchone territory and, while there are no systematic studies on the geographic distribution of this animal, it was known to be present everywhere.

Sedentary, they lived in small colonies stretching over 7-18 acres of bush around water bodies. The average population density was 32 individuals per square mile. This animal's weight, which varied considerably over the course of the year, was at its lowest from January to April and at its highest in June. It would decrease over the summer and then increase progressively during autumn (end of August, early September) and reach a new peak in November or December. The flesh was good in all seasons. Like all hares, those of the Yukon did not live in burrows. They were active at night and slept during the day concealed in the underbrush. A few other additional observations may be in order. Hares were captured with snares while a number of other activities were being carried out in the valleys. The most appropriate technique for capturing this nocturnal animal was to set snare lines and check them the following day. As a last resort, they could be pursued by individual hunters with bow and bunting arrows. In other parts of the world, in hunter-gatherer societies like that of the Shoshone, for example, hunting *leporidae* required collective efforts in some years. The animals would be directed towards vertically hung nets where they got caught in the mesh (Steward, 1955: 106; 1977: 371). This technique does not seem to have been practiced by the Tutchone; not one person mentioned it. Perhaps the Yukon hare population was never nearly dense enough to warrant such collective hunts.

Lynx are large animals weighing between 5 kg and 12 kg. Part of the cat family, lynx fed almost entirely on hare. Like their prey, they were susceptible to sudden population declines

every 7-10 years. Here again, it is best to consider the average situation, bearing in mind the main differences between the two extremities of the cycle.

The population seems to have been equally distributed among the different regions of Tutchone country. If we trust the existing zoological maps, a fairly low-density population lived in only two of the eight mapped sectors. Of these, only one area—a triangular zone 10 miles wide at the base and 10 miles long—had a higher-than-average population density. Lynx were primarily nocturnal. They lived in the taiga and marshlands in the valleys, with only one animal per 6-8 square miles. Normally, they were solitary and sedentary but could travel more than 50 miles. Thanks to their wide paws, their movements in snow were in no way impeded. Without exception, their activities were confined to night. Because of their characteristics, the most suitable way of capturing these animals was to set snare lines and return to check them later.

Gophers (Ground Squirrel; also called prairie dogs in Southern Canada): this diurnal animal was not very large—only 700 grams on average—but because it was abundant and easy to capture, it was a very important resource for the Tutchone, especially as they could be found in every district of the Yukon Plateau. Gophers inhabited the arid meadows that cropped up amid groves of trees and forests in the valleys. They lived in exclusively sedentary colonies. One particular colony covering an area of eight square miles had a population density of 100,000 individuals per square mile. These animals lived in dens and would take refuge in them whenever alerted by the colony's sentinels. Their activity period stretched from mid-April to the end of September. From October to April they remained underground in dens. Their meat was considered delicious. The animal was fat in the first eight days following the beginning of spring, and from mid-August to the end of September, by which time it had again grown quite fat. For all Tutchone, catching this animal had three particularly important advantages. Despite its sedentary nature and the ease with which it could therefore be located and killed, this animal's young ones grew very quickly and the population was practically impossible to exterminate. Because it could react to the slightest suspicious noise and effectively protect itself, the best way to capture it was to set snares at the burrow entrances and return to check them later. Thanks to the location of its habitat, it could be captured without having to leave the usual valley production zones.

Also part of the squirrel family, *red squirrels* weighed about 200 grams and lived in the coniferous forests of the valleys. They were eaten during food shortages, but were more commonly fed to dogs. However, as we saw earlier, the Tutchone used some of the red squirrel's nesting materials and even helped themselves to its stores of dried mushrooms. As for its regional distribution and habits, anyone who is familiar with the Yukon Plateau knows that this species can be found everywhere. In fact, there are few places where tracks of this animal cannot be found. Red squirrels were diurnal and active in summer and winter alike. Their population density averaged approximately three individuals per acre, up to a maximum of 10. They would build their nests on the branches of trees and store food in the crooks. As with gophers, snaring was the ideal way of capturing them.

Porcupines seem to have been present in all the valleys in the Yukon and were worth hunting. They weighed between 5 kg and 14 kg, did not hibernate and could be captured all year round. They were solitary animals that lived in the taiga and could be easily located thanks to their penchant for salt which made them regular visitors to mineral licks. In ideal conditions, one would find 6-8 animals per square mile. Although occasionally active dur-

ing the day, they were essentially nocturnal. They were easier to capture in summer when the nights were so short that they had no choice but to go out more frequently in daylight to eat. Two other characteristic behaviours of these animals had an impact on the methods used to hunt them. Because they moved far more slowly than humans, they would immediately seek refuge in a tree as soon as they realized they were being pursued. Therefore, there was no need to set traps for them or to hunt them in groups; all one needed to do was to run them down and club them to death with a long and stout stick.

Black bears: the eight zoological maps of Tutchone country show that these bears lived on all the hillsides frequented by the natives and were sighted regularly. They went into hibernation from October to May, but could still be caught in winter. All one had to do is club one in its retreat since it tended to stretch out under a tree or under the exposed roots of a fallen tree rather than burrowing in a lair or settling into a deep cave. If its head was under cover, one woke it by shouting loudly to provoke it into charging and killing it on its way out. Because this animal was more or less nocturnal, timid and easily prone to flight, it was difficult to approach in summer and laying deadfall traps was the best way of capturing one. Although this animal was solitary and its population density low (1 animal per 6 square miles on average), it was well worth the effort. Males weighed between 115 kg and 270 kg and females between 90 kg and 140 kg; both were very fat in autumn.

In winter, *grizzly* (also named *brown bears*) normally retreated high up in the mountain zones near the tree line or even higher. Only four of the eight mapped sectors offered adequate conditions for hibernation (between December and April). However, there was no regional disparity from the Tutchone' standpoint. For one thing, even those who lived near the mountains had little interest in going into those zones which were difficult to access in winter. For another, all Tutchone could approach them in spring and autumn as the four winter habitat zones were at a distance from one another and the bears came down from the mountains in April and May to feed on bear roots and again in August and September to catch salmon. This bear species was solitary, but certain places—known to the Tutchone—tended to attract higher-than-average numbers of them during these seasons. This enormous animal (ranging from 130 kg to 525 kg) was both diurnal and nocturnal and dangerous as well. In an earlier example, we saw how it would defend itself if wounded. Other findings show that it could attack without provocation. Some Tutchone have been seriously maimed or even killed. It was, moreover, more difficult to slaughter using projected instruments (bows, flintlock guns) and even more difficult to kill using thrown instruments (spears, etc.). It took no fewer than seven shots of a 303-calibre and 30.30-calibre rifle fired from a distance of 30-40 metres to kill one in 1973. The results speak for themselves: in order to kill this animal in the nineteenth century, it was better to set deadfall traps that could be checked later. Such traps were all the more practical as bears tended to use the same trails over and over.

Marmots: as hoary marmots were by far more common than woodchucks in the Tutchone country under study, I will focus on this particular species. These diurnal mammals weighed between 4 kg and 6 kg and had to be captured between April and the end of August as they went into hibernation as early as September. They lived in the alpine tundra above the tree line. As was the case for the marten, this animal could only be hunted by travelling outside the richest food-production zones. One of the marmot's behaviours had a major impact on the way it was hunted. These animals formed small colonies, had sentinels and

would take refuge in their burrows at the first sign of danger. Once again, the best way of capturing them was to set snare lines and check them later.

7.5.4 Work Patterns Associated with Hunting Mammals

This concludes the study of the behaviours of the mammals hunted by the Tutchone. Now our focus must turn to the work patterns involved in hunting them. We have seen that for certain species, trapping (defined as including snares and deadfalls) was the most appropriate technique, although this did not necessarily preclude their being directly hunted by men and women. To find out what exactly this entailed, let us look at our available sources of information.

Aside from a single exception, all mammals could always be captured or killed in traps that were set and then left alone. Species captured exclusively in this manner included marten, weasel, ermine, squirrel and wolverine: the first three because they were nocturnal, the fourth because it was not worth hunting actively, and the last because one could rarely take aim at this animal as it was extremely intelligent, and capturing it in a trap was a feat in itself (Bompas, 1888: 60). Only porcupines were captured exclusively through active, direct hunting. The remaining mammals were captured by either trapping or direct shooting, but the volume produced through the last method of appropriation was certainly much lower. Those who have studied this matter concur that such was the case among the indigenous groups of the Upper Yukon Basin. Of the Tutchone, Johnson and Raup (1964: 194) wrote:

> Regardless of these activities [active forms of hunting], trapping or snaring animals provides a very large part of the food supply and practically all of the furs […].

McKennan (1959: 48) wrote the following about the Nabesna/Upper Tanana:

> Indeed, I believe that the importance of the big-game snare in the Athapaskan culture pattern is not fully appreciated. In the days of bows and arrows it was the most effective method for securing game.

Let us therefore begin by looking at the use of traps and snares which did not imply lying in wait. Trapping with a deadfall was intrinsically men's work. This implement was the only method used for wolverine, marten (cf. Bompas, 1888: 60, 62), weasel and ermine. Natives agreed that ermines could not be snared as they cut themselves free with their teeth. Deadfalls were also the preferred method of hunting marmot, beaver, fox, wolf and bear. These animals could certainly be caught in snares similar to those set up for moose (Chapter 6). However this was complicated. The snares had to be equipped with an intricate apparatus that acted like a spring and suspended the prey in the air, thereby preventing it from chewing through the babiche braided cord as would have otherwise been possible.[364]

Species trapped exclusively by snare included moose, Dall sheep, lynx, muskrat, squirrel, hare and gopher.[365] As a rule, the first three were hunted by men; the last four, by

[364] My information comes from the following sources: the Tutchone and Glave (1892: 875) on foxes; the Tutchone on wolves; the Tutchone and Tollemache (1912) on bears.

[365] All information comes from the Tutchone. When discussing similar topics, Tollemache (1912) confirms the Tutchone's assertions.

women. The type of snare used for moose was described in Chapter 6 based on information provided by the Tutchone. The following is a description of the method used by the Macmillan River Tutchone between 1898 and 1909 as observed and recounted by Tollemache (1912: 200):

> […] The moose are snared like rabbits, the size of the loop being three or four feet in diameter and arranged above the ground at about the height of the animal's head while the other end of the rope is attached to a stout pole, placed alongside the snare. In districts where moose are plentiful, regular moose trails are formed during the winter months, the snow along the trail being trampled down through frequent use. A spot for arranging the snare is chosen on a moose trail, where the brush on either side is high and thick, so that the snare can be more effectively concealed. The moose when walking along the trail inserts its head through the loop, which quickly tightens round the animal's neck, while the stout pole to which the rope is attached becomes soon caught and entangled amongst the trees and bushes, so that the moose in its frantic struggles to escape eventually strangles itself.

I first thought that these methods could only be effectively used all year round for females, but that they were not practicable in summer for males, for their antlers were apparently too large in summer for a snare to slide over them. However, this was not entirely true. For male moose, the Tutchone would set up a very small snare that was supposed to capture the animal by the muzzle, just below the eyes. It is not clear why, but I was told by a Tutchone that an animal captured in this way would quickly suffocate.

The snares used for Dall sheep and lynx were different in that they required no counterweight or log. They were simply attached to a rock or a tree trunk. Neither of these animals tried to free themselves from the babiche braided cord that would eventually cause them to perish. The lynx even tended to give up altogether if the snare had closed too tightly around the neck. It was often found alive and had to be clubbed a few times before it could be approached; otherwise, it could quickly grab the trapper by his snowshoes, throw him on the ground and maul him. Snares for Dall sheep were set up wherever a herd of Dall sheep had to pass through a narrow space on their trails; snares for lynx, wherever the animal had left tracks.

Snares used to capture hares and squirrels were miniature versions of those used for moose (see Diagram II in Chapter 5) and were equipped with a counterweight spring mechanism that would raise the animal into the air. Those for muskrats and gophers had a mechanism made of a green willow twig or the bent shaft of an eagle feather (for gopher snare) which, although planted in the ground, would accomplish the same purpose. The twig would be arched by hand and held in place with a catch that would lift automatically once an animal had been caught in the snare. To capture hare, a small hedge of shrub and spruce boughs would sometimes be set up in the bush. The snares would be stretched across small holes formed here and there so as to increase the chances of capturing an animal. Otherwise, the trap would simply be laid out on the paths used by the animal during its nocturnal forays. Squirrel and muskrat snares were also set up over the trails regularly taken by the animals. Snares for gophers were installed at the opening of the animal's burrow.

To understand what work patterns were associated with trapping, one need only look at a deadfall or a snare. Diagrams II, V and VI illustrate those used for moose, bear and marten, respectively, and are well suited for the purpose. While observing and reflecting on how they function, one becomes aware of the following paradox: these are in fact automated ma-

chines in that they are activated and powered by the very subject of labour they are designed to transform (i.e. kill or hold)—machines structurally more effective than contemporary industrial robots which are powered by an external source. Once the trap is constructed and set, it simply waits to be set into motion. Its work is accomplished without the presence or oversight of a human being and shuts down once its purpose has been fulfilled. It again becomes operational when it is reset. The task involves two steps: building, and/or setting up (or resetting) the trap and collecting the prey. The first falls under the category of transformation industries, and will be addressed later.

The task of setting snares, even the larger ones, was ostensibly an individual endeavour. McClellan (1975b: I, 158) cites an example of a woman setting up about a hundred gopher snares on her own in a matter of two or three days. When several women worked in the same meadow, they were simply working in each other's company; it was not a cooperative labour in the technical sense of the term. As for moose snares, it would have been ludicrous to set them up working in pairs or more, rather than go separate ways and set up several in different spots. To find out if the same logic applied to deadfalls, let us look at the type of deadfall used in bear trapping (Diagram V). It was also the largest and was made of nine pieces of wood. Anyone who would doubt that this could be installed by one person working alone should consider that the pieces of wood used in such traps did not, for the most part, even need to be cut to size. Traps dating from previous years would be left here and there throughout Tutchone country (Glave, 1892: 875) and were used season after season. Therefore, the task of setting up a trap consisted essentially in resetting an existing machine by making a few minor repairs. They were rarely built from scratch.

Collecting animals from the traps entailed a number of constraints. In summer, the flesh of small animals began to spoil 10-12 hours from the time of capture and larger animals within 24 hours. While this problem did not exist in winter, it did not preclude the need to check traps regularly (i.e., at intervals of less than three or four days) to prevent losing one's catch to other predators. Still, such work would not require the simultaneous cooperation of several individuals, nor did it call for separating the task of setting traps from the task of collecting the catch. In the particular case of bird trapping, the one who set the traps knew best where to go to collect the catch and reset the traps as needed. The logical conclusion is that all the steps involved in setting traps and collecting the catch made this work and production an individual effort.

Hunting in situations where human presence was an integral part of the process of appropriating the quarry is the last matter to consider. Such a practice was an alternative means for capturing bear, Dall sheep, moose, porcupine, lynx, muskrat, hare, gopher, fox, wolf and beaver. With the exception of porcupine, the task of hunting the above species was the domain of men.

Bears could be directly approached in one of two ways. In winter, they had to be found in their retreats; in summer, they had to be tracked down. In either case, the work required the cooperation of three or four men, and the reason why is demonstrated by one of the two techniques used in winter. One man was responsible for waking the animal by shouting and injuring it with a spear or arrows while a second man led the bear towards a third man waiting motionless with a spear poised in front of him and planted diagonally in the ground. The bear charged him and became impaled on the spear. Considering the dangers involved in such hunting, this could certainly not have been done without at least three men. It seems

that cooperation was less necessary for the second winter technique whereby the bear was clubbed in its sleep. Theoretically, this could be done by one person, but if he should miss his aim, the bear would surely charge him. If that person was working with others, they could then resort to the first technique. Tracking this animal on its trail was another matter. The two examples given above showed that, even with rifles, it was not wise to hunt alone—all the more so if the hunter was equipped with a bow, arrows and spear as the arrows only injured the animal and the hunter then had to successfully use his spear during the animal's final charge.

Apparently, two methods could be used to kill Dall sheep. In 1974, a Tutchone man told me that they sometimes built a type of miniature rock shelter with narrow openings. A man would lie down inside and wait for a Dall sheep to approach. The wait could last for hours, but once an animal came near enough, the man aimed his bow and shot at it. In 1914, Auer (1916: 115) observed another method of solitary hunting. A member of the Aishihik group was slowly approaching a ram. To trick the animal, he continuously turned his head from left to right while pretending to chew like a ruminant. Once close enough, he shot at the animal. He later told Auer: "Me fool him sheep. Think me caribou." That Dall sheep was shot with a rifle. However, after reading a number of documents about early North America, I am convinced that the technique employed was one developed at the time when bows and arrows were used in direct active hunting. Such prowess and self-control are the marks of hunters who learnt their trade without the benefit of guns or rifles. The advent of these weapons eliminated the need for the lengthy apprenticeship involved in learning such methods of approaching game. We would be hard-pressed to find a Tutchone hunter today who would be able to put them into practice.

The second method of hunting Dall sheep required a collective effort. By all accounts, it was used only where Dall sheep were plentiful. The information was provided by an elder from the former Little Salmon regional group that had access to the rich Glenlyon Mountains zone (see above). Several men would spread out in all directions at the foot of a mountain. Then, each one would choose a flank to climb. Upon noticing them, the Dall sheep sought refuge. Little by little, they were forced to the steepest peak. The men climbed to the summit of the peak where they clubbed the animals as the herd made its final retreat. It seems that this technique required only four or five men.

The methods of actively pursuing moose were covered at length in Chapter 5 where it was noted that a moose would be pursued or, in the case of males, provoked to attack. Whatever the circumstances, the hunt had to be carried out single-handedly. Rather than repeat the details here, the reader can simply refer to the chapter in question. The only point that need be added is that the time spent pursuing the animal was sometimes very long. The Tutchone spoke of one to three days. Campbell[366] gave an example of a native spending two entire days in 1848 tracking one moose.

As noted above, porcupines are so slow that they can be hunted with a club. The Tutchone say that porcupines were captured by individual hunters, which is still the method used today.

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[366] Campbell, *Lewes and Pelly Forks Journal*, June 13-14, 1848.

Only rarely would lynx be hunted actively as this "wild cat" is nocturnal. However, lynx could occasionally be sighted in daylight, in which case they were hunted on the spot. The method was simple, and was described by Auer (1916). In 1914, he and a Tutchone man from Aishihik surprised a lynx perched in a tree. The Aishihik man said he was going to capture it.

> [He] took a piece of thong, five feet long, from his pocket and tied one end securely to a willow stick of equal length, made a running noose at the other end, and drawing on his thick leather gloves began to climb the tree. The Lynx went to the very top, and the tree swayed as Albert went up to within four feet of the lynx, where he adjusted the noose and very neatly threw it over the head of the animal, and giving it a jerk pulled him out of the tree into the snow.

Obviously, taking this animal through direct or active capture could be done by one individual.

When hunted actively, gopher, muskrat and hare were captured in an entirely different manner. The technique consisted in imitating the cries of panic of a very young gopher, muskrat or hare gone astray. Any adult animals in the vicinity soon followed the distress calls. Upon sighting one, the hunter shot it with a single bunt-tip arrow. This was common practice. A similar technique was used to capture foxes and wolves, but with pointed arrows. The animal was drawn by the calls of a hare or gopher. However, as wolves and foxes were much more difficult to lure, this method was seldom used.

Beavers were hunted by various active methods. In summer and autumn, the hunter imitated the distress cries of a beaver cub. When an adult beaver approached, the hunter shot an arrow at it. In summer, autumn and spring, a net was sometimes used. It was drawn over the opening of the beaver's lodge. A pole with "bells" (moose hooves) was attached to the net. As soon as the animal was caught in the trap, the pole and bells were shaken. The waiting hunter jumped into the water, seized the four ends of the net as if to tie them together and removed the beaver from the water. He then clubbed his quarry over the head. Neither of these techniques was practicable in winter. Instead, the hunter made a hole in the ice with a chisel and inserted fresh branches of cottonwood or willow. The hole was then covered so that the water would not freeze under the opening. The hunter returned two or three days later and waited over the opening. He waited until a beaver, attracted to the bait, swam directly below the opening in the ice. Complete silence was necessary. The animal was speared using a harpoon with a detachable tip. Attached to the point was a long thong of babiche which the hunter held firmly and used to prevent his prey from escaping while pulling it out of the water.

All the above techniques for capturing hare, gopher, muskrat, wolf, fox and beaver had one thing in common. Success depended on waiting patiently for the prey and using one's intelligence to encourage the animal to come within range. Any presence other than that of the hunter could have prevented the activity from being smoothly executed. The description of the techniques illustrates this point. Moreover, it should come as no surprise that all the Tutchone consulted depicted these hunting methods as individual endeavours and therefore as examples of individual work patterns and forms of production.

I carefully pondered whether these documents give an accurate overall picture of how all these tasks were actually organized and executed in the period of 1848-1852. I am convinced that they really do. The division of labour between genders was in line with the

prevalent situation among neighbouring societies. As for the work patterns for which Campbell left no data, one need only go back in time, bearing in mind all the ethological data presented thus far, and measure the implications of the existing appropriation techniques to grasp that they could only be like those described.

This concludes the study of the techniques employed to harvest mammals. We began by listing all the animals that the Tutchone did not capture and then listed those that served one or more purpose. The examination of how those animals were used reveals a number of interesting findings. For one thing, it is obvious that, even before any European influence, the Tutchone hunted certain species exclusively for their fur and considered them far more valuable than objects of more practical use. For another, it showed that animals captured for meat were not hunted solely for food—they also provided raw materials for most of the goods produced and consumed: points for tools; ties and ropes; clothing; etc. Realizing the importance of these hunting activities in production, we then presented a regional distribution and the behavioural traits of each species. The purpose of that exercise was to find out, first, if the different Tutchone regional groups had equal access to resources and, secondly, whether the behaviour of the different species hunted presented special limitations with respect to travel and the work patterns associated with harvesting the animals. It was noted that only a handful of species were unequally distributed: wolverine, fox, ermine and Dall sheep.

The study of the habitat of each species of mammal also turned up some interesting findings. From the information reviewed thus far, the valleys appeared to be the richest environments for the Tutchone people. While essential for food supplies, they also made it possible to simultaneously carry out a great many hunting activities. Alpine and subalpine regions were found to be very poor in food sources: home almost exclusively to marmots and Dall sheep which were available only during brief periods and, in the case of Dall sheep, often only in small numbers. We noted that the subalpine regions were nevertheless home to animals whose fur was highly valued—marten and marmot—and that an animal whose fur was highly appreciated could also be truly devastating for hunters: the wolverine. A socio-economic correlation was advanced: Hunting in those regions was often unpredictable and had to be practiced by well-organized groups whose members could split up to cover mountains and valleys and coordinate their activities such that those in the valleys could provide whatever logistical support might be needed by those in the mountains.

The examination of the territorial behaviours and habits of animals also showed the work patterns and forms of production required for each species. Considering the implements at their disposal, we noted that all animals—except porcupines—were best captured when the hunter did not wait for the animal to become entrapped and that direct active hunting was not the most productive. It was shown that setting traps and checking them later was best handled by individuals working separately. As for active hunting, the different steps did not have to be broken down into tasks to be carried out in succession by different teams. However, bear hunting did require the simultaneous cooperation of three or four men. Although Dall sheep were also hunted by groups of three or four hunters working cooperatively, it was not, strictly speaking, absolutely necessary. All other animals, moose and beaver in particular, had to be pursued or lured by hunters acting alone. Our first example of a collective

work pattern was thus encountered in this chapter. Now let us see whether the harvesting of fish resources—the last branch of the extractive industries—led to new or different work patterns.

7.6 Fish Resources

7.6.1 Inventory of Fish Harvested and of their Uses

The Tutchone had access to several fish species.[367] Of primary importance were the anadromous species: chinook salmon (*gyo*; 5-20 kg); keta salmon (*θii'*; 5 kg) and, albeit very rarely, coho salmon (4-6 kg). This last variety of salmon occurred in very small numbers, and because it intermingles with chinook, no further mention will be made of it. Second in terms of production volume were the freshwater fish species: northern pike; lake trout (*mbyɛt*; 0.5-2 kg); burbot (*kun čũ*; 0.5-1.5 kg); inconnu (1.5-5 kg); lake whitefish (*ɬuk*; 0.5-2 kg); broad whitefish (*tɛžra'*; 2-4 kg); least cisco (0.2 kg); round whitefish (*sankɛy*; 0.5-1 kg); longnose sucker (*tahts'at*; 0.5-1.5 kg); arctic greyling (*ta'*; 0.5-1 kg); slimy sculpin and pygmy whitefish.

Aside from the least cisco, slimy sculpin and pygmy whitefish—all very small fish—all species were harvested regularly. They were used almost exclusively as food for humans and dogs. People ate them either dried or boiled; they were given raw to domesticated animals (frozen raw in winter). Their only productive use was as bait in traps. Although the uses and non-uses of fish are established essentially on the basis of oral tradition, I would say that the inventory is reliable. Campbell's journal[368] amply demonstrates that both types of salmon as well as lake fish were harvested. When looking at the list of uses and non-uses of fish in the Yukon drawn up by ichthyologists (Scott and Crossman, 1973), it is clear that, aside from a few insignificant species, not a single fish species was omitted by the Tutchone and, moreover, that they harvested—and continue to harvest—all that are worth harvesting. If their statements contained errors, one would have to conclude that fewer species were of interest to them in 1840. However, this assumption is quite improbable. The Tutchone had far less incentive to fish after 1972 than in the 1840s.

7.6.2 Importance of Fishing

Fishing was a very important activity during the second half of the nineteenth century considering that it accounted for approximately 40 percent of the total annual food produc-

[367] The complete inventory of fish resources was established thanks to the monograph by Scott and Crossman (1973). The Indian names were provided by the Tutchone of Little Salmon and Selkirk. The weights are average weights, provided by Scott and Crossman (1973).

[368] Campbell, *Lewes and Pelly Forks Journal, passim.*

tion.[369] Poor salmon catches were serious cause for concern. As observed by Inspector Constantine in 1894, starvation was the inevitable outcome.[370] More importantly, lake fishing was the only branch of industry that could be counted on at the most critical time of year: i.e., January-February.

By January-February, most of the salmon fish supply stored during the summer had run out. Hunting yielded unpredictable results. Gophers and marmots were hibernating in their burrows. Dall sheep ranged in high alpine regions which were inaccessible by snowshoe. Bears hibernated here and there in the subalpine forest. Muskrats and beavers took cover in the protection of their respective shelters and the frozen lakes. Depending on the year, hare and lynx may or may not have been present. Moose were difficult to approach because of the crunching noise made by hunters as they tiptoed across the snow in the wintry subarctic silence. During periods of extreme cold, animals sometimes burrowed completely, making it altogether impossible to hunt for weeks on end. Campbell witnessed as much in February 1850.[371] Only fish maintained their routines and could be readily found. This is not surprising as snow and ice-covered water bodies were relatively unaffected by the sudden changes in outside temperature that occurred at such seasons.

The strategic importance of fishing is duly attested in archival documents and in literature about the Subarctic. Campbell (in Wilson, 1970: 98) indicated, for example, that without the fish from Tatlmain Lake, he and his employees would surely have died of starvation during the winter of 1848. Bompas (1888: 41) summarized 15 years of experience with the following words: "When wild animals are scarce, the Indians are generally driven to stay with their nets at the fish lakes, where they make, perhaps, a scanty living." A Tutchone man from Aishihik reported a similar experience for his people:

> Well, these men will be hunting around you know, sometimes it gets to be a pretty poor situation. Hard to get things. Some don't have much time either: they run out of food before they store it away. [Then], they pick a hole in the ice where they think they can get fish […].

Personally, I am convinced that Casteel (1972) was correct when he stated that the maximum size of human subarctic populations was not determined by the annual production volume, but instead by the fish supply available in January and February. It is a concrete example of Liebig's law of the minimum according to which life forms adapt to the minimum, rather than the maximum resources of a given environment (Fried, 1967: 63).

7.6.3 Uses of Fish

A few food preferences and eating habits are to be noted. Chinook salmon was valued far more than the leaner keta salmon. Among the freshwater species, broad whitefish and lake whitefish were favoured. Both these species have such a fine and delicate flesh that one could eat them to the exclusion of all other foods for weeks on end without tiring of eating

[369] Arcand (1966: 29) arrived at a similarly close estimate. However, for him, fishing came first, moose hunting second and small game hunting third.

[370] *Extract from Inspector Constantine's Report*, 1894 (Indian Affairs Archives R.G10, Vol. 3906, Black Series, File 105378).

[371] Campbell, *Lewes and Pelly Forks Journal*, February 4, 1850.

them (Bompas, 1888: 65). Another noteworthy finding: the Tutchone never ate the milt or soft roe of male fish regardless of the species. It was removed and thrown into the water. Even today, the whitish presence of roe in a riverbed is a sign of a recent fishing camp. Yet, this part of the fish is edible and is in fact sold and eaten in France. It must also to be noted that the livers of large fish like salmon were rarely eaten. However, the eggs, stomach muscle, heads and oils were avidly sought. The eggs were eaten boiled as it was generally considered taboo to eat them raw. By all accounts, all types of fish roe were eaten. Only one restriction existed: young children and adolescents of both sexes were prohibited from eating salmon roe. It was believed that deviating from this rule would make young people poor swimmers. The stomachs of both species of whitefish, longnose sucker and northern pike were eaten. The stomachs of whitefish that had been caught at the time of spawning were particularly prized. Inside, they were full of soft, yellow paste made up of pre-digested aquatic plants. The flesh had the same texture as the gizzard of a small bird. Boiled, the stomachs looked like big white balls 2 cm in diameter. The Tutchone devoured them heartily. For them, the contrast between the firm, bland-tasting flesh and the soft, pungent-flavoured paste was one of the greatest delicacies. My ethnographic notes contain two examples that demonstrate the Tutchone often abandoned all other activities to obtain them whenever the slightest opportunity arose. The stomachs of longnose suckers and northern pike were less highly valued and their contents were emptied. Fish heads, particularly those of salmon, were also considered a great delicacy (Tollemache, 1912: 267). They were dried and preserved until there was enough for a meal. They were served boiled. One finding well illustrates just how much the Tutchone valued them. In 1973, one man still differentiated between the pleasures of the taste and texture of eating nose cartilage and those of cheek muscles, gills, tongue, skin, etc. Fish oil was equally highly valued. Thus, when a fish was deemed too lean, it was thrown back into the water, and when a lake regularly provided poor specimens, a piece of fat would be symbolically thrown into that lake as a measure to help improve the quality of the lake's fish resources. For at least one type of fish—chinook—the fat was rendered and mixed with berries to make a delicacy that was in great demand and was sometimes traded with the Tlingit or with other Athapaskan groups. Lastly, it should be recalled that fish was stored in dried or frozen form.

7.6.4 Limitations Imposed by Fishing

We can now proceed to isolate the work patterns associated with fishing. Once again, a few notes on the availability and habits of each species should be of great help in interpreting the facts.

First, what counted most was not so much the presence or absence of a species in a lake or river, but when the fish gathered in schools so that they could be fished most productively in relation to the amount of time spent fishing. While this criterion is not essential for sport fishing (which can yield only a handful of fish per day), it was not so for a people whose food supply depended largely on fishing. Secondly, availability depended not so much on the presence of a fish species, but on the existence of places where they could be caught, and considering the Tutchone's technical means, that implied fairly shallow waters where fish congregated for one reason or another. Lastly, one habit was of some technological

consequence to fishing: whether or not the fish would bite the hook. Therefore, in addition to indicating the place where one species or another was present, it must be shown whether the fish formed schools, paying special attention to the places where they were particularly easy to capture, and whether or not they could be lured.

The zoological maps used earlier for mammal species are also very useful in showing the geographic distribution of fish resources. They reveal that keta salmon was present from one end of Tutchone country to the other, and that chinook salmon made its way through seven of the eight mapped sectors.[372] They also show that longnose suckers, arctic greyling, northern pike, burbot, lake trout and whitefish were present at one place or another in each of the eight zones. Only a few species were not to be found in certain areas: inconnu in the Glenlyon, Mayo and Aishihik sectors; broad whitefish in the Aishihik sector; and cisco in the Kluane and Aishihik sectors. Since all Tutchone groups had access to more than one of the eight sectors, we may safely conclude that they would have had access to the same number of species in the regions fished by each regional group.[373]

We must now look at the matter of fish gathering in schools to determine the best time to fish for each species. First, most fish species, but not all of them, tend to form very dense schools when they lay their eggs. It is thus necessary to specify the spawning period for each species and whether the fish traveled in schools. Secondly, some species scattered between spawning periods while others continued to live in schools. The two categories will

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[372] Incidentally, despite the little importance that McDonnell (1975) assigned to salmon in the region of the Upper Pelly, inhabited by the Kasini, it has been duly attested that salmon was in fact an important resource. Campbell, in his Second Journal of Occurrences at Ft Selkirk, Pelly Banks, noted that salmon spawning grounds—certainly chinook considering the months—were found near Pelly Banks and stated that this species was fished (ibid.: August 13, 19, 1846). Pike (1896: 155, 178) designated Pelly Lake as the spawning grounds and, after having crossed the third lake downstream from Pelly Lake, he noted that:

> […] the huge stages for drying fish [perhaps keta salmon], and traps carefully stowed away for future use, suggested great abundance of salmon in the autumn, while the skeletons of these fish were to be seen everywhere scattered along the banks of the creeks. Every year, no doubt, the Pelly Indians camp here to gather their harvest.

It must also be pointed out that the salmon went up the Stewart River to their point of origin (Keele, [1905]), i.e., to Mountain Indian country in the middle of the nineteenth century which became Hare country after 1870. The Hare moved there after the entire Mountain band of the Upper Pelly perished (see Chapter 4).

[373] At this point, one fact must be highlighted. Thus far, I have always presented Tutchone country as draining into the Behring Sea by way of the Yukon River. This is accurate for all intents and purposes. However, it must be pointed out that a small fraction of the water bodies of this country—approximately 4% of the territory encompassing Kloo Lake, Sekulhum Lake and Aishihik Lake flows directly into the Pacific by way of the Alsek River Basin and that, while the vast majority of species in the Yukon could be found in the two watersheds, a few, such as inconnu, chinook and keta salmon, and broad whitefish, were not to be found in the Alsek watershed. This fact is not crucial for the simple reason that the indigenous people who inhabited that small zone also fished in a vast area belonging to the Yukon watershed and therefore had access to the same fish as all the other Tutchone groups. I mentioned this matter only for the purpose of accuracy and to fend off any ill-intentioned criticism of the conclusion that the territory of each Tutchone group had the same fish resources as others.

have to be distinguished from one another. Lastly, some species migrated from lakes to rivers or vice versa depending on the season. To do so, they often travelled along small water courses where circumstances forced them to form schools whether or not it was their habit to do so. Logically, it will be necessary to indicate which species were prone to travel in such a manner and when they tended to move from one place to another. Thanks to the work of Scott and Crossman (1973), information provided by the Tutchone, as well as the zoological maps of the Yukon, this can be answered satisfactorily, beginning with anadromes.

Both types of salmon prevalent in Tutchone country originated exclusively in the Behring Sea from which point they swam nearly 2,500 km up the Yukon River. *Chinook salmon* arrived first, but the dates varied depending on each region's distance from the sea. For example, they passed through Fort Selkirk around July 12, through the mouth of the Macmillan (Sheldon, 1911: 183) and the Nordenskiold (Carmacks) around July 20 and then through the farthest reaches of the territory only towards the end of July. This saltwater fish swam up the entire length of the Upper Yukon watershed to the freshwater spawning grounds essential to the development of their eggs. These spawning grounds were always in the shallow waters of small rivers. The mating and spawning period continued through to the end of August. Campbell's journal shows that this timetable has undergone no change since 1848-1852.[374] Since chinook salmon did not feed throughout the entire period, they could not be lured with bait or made to take a hook. Capturing them meant having to go where they could be counted on to pass through in great numbers. There were three such places: the Yukon riverbanks and that of their main tributaries; the lower courses of secondary small rivers that the salmon took to reach their spawning grounds; and the spawning grounds themselves. Without a doubt, the shorelines of large rivers were the least advantageous, as deep waters made it necessary to set up funnel fish traps or nets (Johnson and Raup, 1964: 195) perpendicular to the current. When salmon swam upstream, they could just as easily swim up the middle as along the shores, in which case the trap would catch only a small fraction of all the fish that swam through each day. The smaller secondary rivers leading to the spawning grounds offered far greater potential. Each day, the journey of several hundred salmon would be cut short if caught in open-work dams or fish-weirs, which could be easily set up considering the narrow girth of these water courses.

The spawning grounds were better still. They attracted extraordinarily large schools of fish and were easy to locate as the fish returned to the same grounds year after year. Thus, the small Tatchun River, which had such an area, was given a name in Tutchone that meant "see salmon's back in shallow water." In the opinion of the Tutchone, there were so many chinook salmon there that they literally piled atop one another, from the bottom of the river—one metre deep—right up to the surface. Another example: a Tutchone man who saw schools of fish spawning in the Big Salmon River told me that, over a distance of 100 metres, the fish were crowded close together, from the riverbed to the surface, and stretching from one bank to the other. Coupling began around the end of July. After laying their eggs, the females let themselves drift somewhat downstream from the spawning grounds and died on the pebble beaches a few days later. The males that had fertilized the eggs succumbed to

[374] Campbell, *Lewes and Pelly Forks Journal*, July 18, 1848; August 1849.

the same fate. The next day, they were replaced by new arrivals of both sexes and a new cycle began. The great advantage of fishing in spawning grounds rather than in the waters leading to them was that there one could simply grab the fish. There was no need to build a fish dam or weir. Fish that had only recently died were still fresh and could literally be taken out the water by hand,[375] or with a gaff without even having to take aim.

Depending on the location, *keta salmon* appeared any time between September 15 and 25. They could be captured until mid-October when mating and spawning had been completed and all the fish were going to die on the shores of the Yukon and other rivers. Once again, Campbell's journal supports the assertion that these dates did not change between 1848 and 1972-1990.[376] Aside from the differences in weight, the quality of the flesh and mating dates, there was only one difference between keta salmon and chinook salmon: in addition to spawning in small rivers, they could also be found in the shallow arms of the large waterways such as the Yukon, the Pelly and Stewart rivers. Everything was otherwise quite similar: as many fish mating per day; same abstention from food during the run, mating and spawning period; same territoriality over their respective spawning grounds; etc. It therefore comes as no surprise that keta was captured in the same types of places as chinook salmon and, in some cases, presented the same advantages or disadvantages. There is no need for further details. Suffice it to say that the findings for chinook salmon can be applied to keta salmon.

To conclude on salmon, two important facts must nevertheless be pointed out for both species. First, fish sometimes arrived two to three weeks later than usual, and it has been proven that such delays occasionally led to starvation. In 1849, for example, the chinook salmon only arrived at Fort Selkirk around the end of July or early August and a group living in the Fort Selkirk vicinity suffered as a result.[377] Secondly, the numbers of either species of fish coming to spawn were considerably reduced in some years. George Carmacks who lived a great many years among the Tagish and Tutchone before 1896 alluded to a four-year cycle. Other data[378] reveal that a poor year could be followed two years later by another disastrous year. Based on the information available, it is impossible to determine whether such ups and downs were regular or not. Nevertheless, one must suppose that the Tutchone economy was affected by such cycles.

Now let us turn our attention to freshwater fish and determine when they spawned, how each species typically behaved during this period, how they lived in the interval between spawning periods, and where each species was fished during the spawning period and during the intervals.

Inconnu spawned in the autumn in large rivers such as the Stewart, Pelly and Yukon. After spawning, these fish swam upriver to spend the winter in large deep lakes. In spring, they traveled to the streams and tributaries that flowed into those lakes, returning to the lakes in summer. As autumn approached, they left the lakes—this time swimming down the rivers

[375] Bobillet, *Journal d'un missionnaire au Yukon*, p. 838.
[376] Campbell, *Lewes and Pelly Forks Journal*, September 14-October 17, 1848.
[377] Campbell, *ibid*., July-August-September 1849.
[378] Constantine cited 1894 as a poor year and Carmacks 1896 as another poor year (*Extract from Inspector Constantine's Report*, 1894. *op. cit*).

that flowed out of the lakes—to go spawn once again in the large rivers. Capturing this fish was not as easy as one might be led to believe considering all this travel. Unlike salmon, inconnu did not have spawning grounds as such. Eggs were deposited here and there in the rivers. Winter and summer, they lived dispersed and rarely took a hook. The spring migration spanned a lengthy period and they never gathered in schools. Consequently, it was only in autumn, on their way to spawn that the Tutchone could capture them in fish weirs, nets or funnel fish traps and be at least somewhat productive.

Lake trout is a carnivorous species that lives in the deep waters of lakes. This fish spawns in autumn, but the dates vary from lake to lake, depending on the size, altitude, lighting and topography of each. Lake trout apparently returned to the same spawning grounds year after year where they gathered in rather large schools to lay and fertilize their eggs. Some spawning grounds were quite deep (10 m); others, closer to the surface of the water (only 30 cm deep). As spawning always occurred in the evening between six o'clock and ten o'clock, spears were not the best instruments for capturing them; lines and hooks were preferable. Immediately after spawning, these fish would completely disperse. In large lakes, some could be found in winter 150 km from their spawning grounds, and they continued to live alone until the next spawning period.

As a result, there was only one ideal place where they could be captured and this during only one or two days in the year. Thus, the annual catch of lake trout was quite mediocre compared to salmon, and the only reason it was an important species was that lake trout would bite in winter, i.e., during the harshest months of the year.

Lake whitefish: this insectivore and herbivore, which lives in fairly deep lake waters, was a very important resource in the Tutchone fishing industry because of the quantities that could be captured, ranking it second to salmon. In a given lake, the spawning grounds were always the same year after year, and every autumn they arrived in schools of several thousands in places that were easy to locate. The spawning date at each spawning area was as predictable as for salmon and even more so. For example, two Tutchone women fished whitefish in Braeburn Lake for 30 years as though the fish spawned like clockwork. Each year, they left Carmacks on October 5, stayed at Braeburn Lake from October 6-9 where they fished at the only spawning area of that small lake and returned to Carmacks on October 10 or 11, with several hundred fish. They told me that the spawning period of these fish has always taken place over those four days.[379]

The fact that spawning at this lake occurred on exactly the same dates each year does not mean that it took place on the same dates for all lakes. In fact, whitefish would lay and fertilize their eggs only on days when the water temperature reached precisely 46°F (7.8°C). In a small lake such as Braeburn Lake, this critical moment always occurred in early October, but in the bigger lakes, which took longer to cool down, one would have to wait an additional two weeks. Thus, as the Tutchone explained, spawning began only (but exactly) on October 20 in Frenchman Lake and Aishihik Lake, for example. This ecological detail was important as it allowed the Tutchone to visit a number of spawning grounds in the space of two to three weeks. Another advantage of harvesting whitefish was that, after the mating

[379] Scott and Crossman (1973) state that the spawning date of broad whitefish varies from year to year in a given lake as spawning occurs only when the temperature drops to 46°F (7.8°C).

season, the fish continued to live in schools and, in each lake, they moved around in a set, predictable migratory pattern. Consequently, this species could still be fished during the harsh transitional months of January and February.

Still, it should be mentioned that, in a given lake, there were few locations where this fish could be readily caught in considerable numbers. For one, whitefish could never be lured by bait, nor did they bite a hook; for another, they lived in deep waters making it impossible to use a gaff. The only technique to catch them therefore was to leave nets in the water. As seen earlier, these nets were not very long and even less high (see Chapter 6). So, this instrument could not be set where the water was very deep. As a result, between spawning, whitefish could only be captured in waters where the lake was not very wide (no more than about 50 m) and where the bottom of the lake was fairly close to the surface of the water (or of the underpart of the ice layer, depending on the season); basically, where a lake was divided into two parts by a narrows, which forced the schools of whitefish to swim closer to the surface. For the same reasons, the only other ideal fishing spots during the spawning period were the known spawning grounds.

Round whitefish: essentially a lake fish, this species also spawned in autumn. However, round whitefish did not gather into schools either during or between spawning periods. As a result, there were no ideal places to fish them and they could not be harvested systematically. These fish were caught in the nets that had been set up to capture other whitefish.

Burbot: this slimy, thick-skinned carnivorous lake fish was a fish of last resort. Yet, it was important as it spawned between January and March—a time of year when food was scarce. Moreover, sizeable quantities could be harvested and spawning dates varied from one lake to another, which meant that several spawning grounds could be harvested in a single season by a single human group. The spawning grounds were easily accessible in bays between the ice and the shallow gravel bottom. Fish gathered there in the thousands, but only at night. After spawning, they dispersed to shallow waters where they remained until the next spawning. They could therefore be captured in only one place—their spawning grounds. There, they would take a hook. The Tutchone favoured this technique since the fish spawned at night and trying to catch them with a gaff in a dark hole in the ice was not the most productive of ways. Of course, nets could have been used, but lines and hooks were quite effective, and as incredible as it may seem, burbot were so voracious at spawning time that people could take as many as 200 per hour (or so I was told). Moreover, the nets would have already been set for whitefish and it would have been pointless to move them. Outside of the spawning season, a few got caught in nets that had actually been set up for whitefish at lake narrows or, alternatively, by men trying to catch them with a line and hook.

Broad whitefish: this fish species behaved much like lake whitefish. It would never bite a hook and always lived in schools. Between spawning periods, they were captured in the same nets as those set up for lake whitefish, at the same narrows. The fact that it could be captured in relatively large quantities in the middle of winter (in lakes where it was present) was of primary importance for the Tutchone and, to them, this fish was to a great extent as important as lake whitefish. Fattier and larger, it was more highly prized. Broad whitefish spawn in large rivers where they went after leaving their respective lakes. During this pe-

riod, they had to be caught on their migratory route, i.e., where lakes empty into rivers. Most sources give the fall as the spawning season, but one gives January to March for the Yukon.[380]

Northern pike: this carnivorous species is one that spawned when the ice melted, very early in spring. Its spawning grounds were located in the very shallow bays of lakes (no deeper than 17 cm) or in adjacent streams. Spawning lasted two to five days, but during that period the schools of fish were extremely large and dense with as many as 6,000 individual fish in a single spawning area. The rest of the time, these fish lived dispersed but preferred bays full of aquatic plants. Outside of the mating season, they were only caught coincidentally, either in nets set up for whitefish or with hooks. The fact that the latter technique could be used undoubtedly bailed out the Tutchone from time to time, but that practice could not have been particularly productive.

Arctic greyling: the spawning period of this species coincided with or immediately followed the spawning period of northern pike. Spawning took place in small rivers precisely when the water temperature reached between 40°F and 50°F (7°C to 10°C) when the ice began to melt here and there. It would take place on April 4 at Tatchun Lake, but only on April 20 in the Nordenskiold River. This was an important factor as it enabled some Tutchone to fish in a number of different places at different times in a single season. Fish that had spent the winter dispersed in the deep waters of lakes and large rivers converged in small water courses in schools of 6,000 or even 10,000 fish. Deep-water spawning grounds were not the best places for fishing and as the fish there were too small to be captured in the large-mesh fish nets used by the Tutchone; they could only be captured in large quantities by setting up fish weirs or funnel fish traps on riverbeds where the topography made this possible. This technique was very effective. In some streams, the catches numbered in the several thousands. After spawning, arctic greyling returned to the large lakes and rivers where they lived in relative isolation from one another. They could be fished with lines baited with grasshoppers or ant eggs that had been preserved for this purpose. As fish rarely bit during the day, this had to be done either at dawn or at dusk. This fish was more difficult to catch in winter. In Chapter 6, it was shown how it could sometimes be caught by placing a snare in the water through an opening made in the ice. The snare was watched and drawn out of the water just as soon as a greyling unwittingly swam through it. Once again, only one type of place was truly productive and only for a short time: in arctic greyling rivers where fish weirs could be set up during this species' spawning period.

Longnose sucker: this fish spawned from mid-April to mid-June in small water bodies or in the shallow waters along the sides of lakes. During five days of spawning, large schools gathered every evening in these places where they could be fished either by net or with a line and hook. After spawning, the schools dispersed to deep waters. A few could be captured by line and hook in summer. This was not at all possible in winter. Consequently, as for other fish, the only places where this species could be fished in great quantities were

[380] Normally, in other parts of Canada, broad whitefish leave the lakes in which they have been living in July or August to go spawn in the great rivers in the fall. As strange as it may seem, it has been reported that in the Yukon spawning occurs between January and March (Scott and Crossman, 1973: 279), however, other informations may indicate that they spawn in the fall.

their spawning grounds. However, this fact was less important than for other species as these fish were less sought after than others. They carried parasites that were dangerous for dogs, and while they could safely be eaten if boiled, people hardly enjoyed their muddy flavour.

Let us now recap the data concerning the various places where fish could be captured and examine the impact of their distribution on the geographic distribution of human beings. This geographic distribution was a determining factor in the size of the local groups, and determining the size of these local groups will make it possible to determine what work patterns could have been employed. Next, we will examine whether each type of place where fish could be captured productively did in fact exist in each of the regions where the various Tutchone groups fished and whether all groups enjoyed the same fishing conditions.

Among the least favourable fishing places were riverbanks and lakeshores where sucker and char could be caught with hooks in summer, and trout, pike and burbot all year long. At best, the catch from these localities were enough for one or two meals; most places would therefore have attracted no more than one worker. While a group could fish in such a place, individuals necessarily had to spread out somewhat.

The second least favoured type of place was along the banks of large waterways where chinook and keta salmon could be captured by net where river eddies were present. Although not negligible, daily fish production was not impressive in such locations. Campbell, while fishing in such a place in September and October 1848, recorded the following keta catches: 17, 27, 36, 46, 42, 43, 47, 53, 54, 34, 54, 30, 46, 39, 38, 30, 35, 46, 20, 25, 37, 11, 3, 38, 11, 4, 4.[381] As the Tutchone are no longer permitted to fish using weirs on smaller tributaries (with spawning grounds) and must now rely on nets stretched perpendicular to riverbanks, their daily catches are roughly the same as what Campbell recorded. With this same technique, the daily chinook salmon catches varied from 20 to 30 fish. In other words, even in such cases, a given work place would attract only a few individuals. In the 1970s, production in such places satisfies the needs of two or, at most, three or four nuclear families, and this was undoubtedly the case in the past as well (cf. Chapter 8). This also means that large groups that went to such fishing locations would split into smaller groups, at least a few miles away from the other group members, i.e., the distance between two large bends where eddies could form.

Highly productive fishing spots included large brooks and small rivers where the topography of the riverbed made it possible to set up fish weirs (for chinook in July and August, inconnu and keta in October and arctic greyling in spring) or nets for broad whitefish during spawning season. Daily production volumes were much higher in such places. The fish weir at Little Salmon consisted of six cages, each one capable of holding between 40 and 60 chinook per day for a daily total of between 240 and 360 fish. I do not have statistics for either keta or inconnu, but the production volumes for both might have been as high. In the Subarctic, as many as 400 arctic greyling could be captured daily in this manner (Lawrence, 1965: 72-73) and even as many as 22,000 in one month as reported by Scott and Crossman (1973: 304). In 1848-1852, broad whitefish from Tatlmain-Mica Creek provided the main

[381] Campbell, *Lewes and Pelly Forks Journal*, September-October 1848.

fish supply for the Tatlmain Tutchone and the trading post employees at Fort Selkirk.[382] That same river (Mica Creek) provided such good catches in winter that a small commercial fishing operation sprouted up in the 1940s. Unlike the other sites, these places could provide for the immediate and long-term needs of several nuclear families. As long as fish went to those places, people would gather in sizeable groups: according to figures provided by the Tutchone, anywhere from 6 to 10 or even 12 nuclear families, or 30 to 60 people. We will see in the next chapter that the figures that may be inferred from archival documents for the period 1848-1852 match those reported by the Tutchone.

Spawning grounds accounted for the second type of popular fishing site. There, the production volume was at least comparable to the volume at places where fish dams had been erected and, more often than not, even better. During the 45 days when the fish swarmed around in the chinook and keta spawning grounds, catches were limited only by the 10 minutes or so (depending on the experience) needed to prepare each chinook for drying, the two minutes needed to partially dry or freeze each keta and the boredom experienced by the women responsible for carrying out these tasks for hours on end. These places could provide work for quite a few individuals and in fact, if the Tutchone are correct, for as many as were needed around fish weirs.

The spawning grounds of lake whitefish, burbot, pike and suckers also yielded sizeable catches: at least 300-400 broad whitefish daily; easily 400-600 burbot daily (Scott and Crossman refer to people who, using today's means, have caught up to 50,000 pounds of fish by net over three days (1973: 642)); 400-600 pike in two days by five women who filled two long toboggans; and, in all likelihood, an equally large catch of suckers. Of course, a single spawning ground could attract up to five people as seen above in the case of pike, but the spawning period was far too short for a community to build up around these workers; groups were formed for each species for only two to five days at a time. Moreover, the spawning period was never more than an opportunity for a brief gathering of producers belonging to groups whose size and place of residence were determined by other activities. True agglomerations or permanent local groups did not form at these spawning grounds.

The last type of popular fishing area was located at lake narrows where fish could be caught day after day all year long. Fish nets were set up specifically for lake whitefish and broad whitefish, but inconnu, round whitefish, burbot, trout and pike could also be caught by chance. The daily production volume was not extraordinary:[383] depending on the site, only 10-30 or 30-60 fish would be taken—just enough to feed up to around 10 nuclear families.

However, because this production was guaranteed day in and day out, these sites prompted the formation of residential groups, and these were the only relatively sedentary groups that there were. Here is what one Tutchone man from Aishihik had to say about one of these sites:

> This is a lagoon you know. It's narrow. That's where we had fish there. There was time when people wanted to stay, you know—settlement year round like, you know—and these days this place was worth it you know. Then, we can't [get white man grub].

[382] *Ibid*., December-February 1848, 1849, 1850, 1851, 1852.
[383] *Ibid*., February 17, 1852.

To help me grasp the great importance of these locations, another Tutchone old man told me that in his grandparents' day, these sites were held in the same regard as white people regard gold mines. As reported in oral testimonies, there were up to ten permanent lean-tos in these camps, in which some 50 people settled from October to June, year after year. In Chapter 8, we will see that these figures are confirmed by a close scrutiny of documents written by Campbell between 1843 and 1852. For those who gathered around lake narrows, other production activities, such as moose hunting, beaver hunting, fishing at other spawning grounds, salmon fishing, and so on, were perceived as seasonal outings outside a main camp.

At this point, we have a fair picture of the types of human grouping or spreading in the Tutchone's' various types of fishing zones and, by extension, the demographic context in which fish were harvested. Equipped with this knowledge, we may be tempted to proceed directly to analyze work patterns. However, this would be premature. In fact, we must still query whether the various types of fishing zones described above existed throughout the territory and whether all Tutchone enjoyed the same fishing conditions.

For a look at both types of salmon, I will refer to the eight zoological maps of Tutchone country and archival documents. The maps reveal that only the Aishihik sector had not a single chinook spawning ground and only the Glenlyon sector had scarcely any keta spawning grounds. However, the following three facts derived from ethnohistoric documents must be highlighted. First, there might have been more spawning grounds than those indicated on current-day maps. The Tutchone claim that there were at least three very large spawning grounds in the Yukon between Carmacks and Fort Selkirk: one approximately 15 km upriver from the site of the Fort, another 3 km downstream from Minto and yet another at Yukon Crossing. None of these are indicated on the maps. Yet, their existence in the nineteenth century was duly attested (MacBride, 1962: 44) and they still exist today. Similarly, the smaller Nordenskiold River had two spawning grounds for chinook and one for keta, neither of which appears on the maps. They are located 2 km, 18 km and 45 km, respectively, from the point where the Nordenskiold drains into the Yukon River.

Second, each sector had, in addition to spawning grounds, at least two or three sites that were well suited to the construction of fish weirs. Thus, Constantine noted in 1894 that:

> The Indian met along the river … are scattered along the river from the foot of the Lake La Barge to Forty Mile, camping chiefly at the mouths of the smaller streams flowing into the Lewis [*sic*, i.e. the Yukon] and Pelly and are engaged in salmon fishing.[384]

Schwatka (1893: 200, 233) who explored the Yukon in 1883 and Cairnes (1915: 22-23) who followed in his footsteps in 1907-1908 made similar remarks. Pike (1896: 203) noted in 1893 that, along the Pelly "[salmon] drying stages may be seen at every suitable spot." Similar facts were reported for the tributaries of the White River Basin—Klotassin, Nisling and Tincup rivers—by Dawson (1888: 202 B), Hayes (1892: 122) and by the Tutchone themselves.

Third, some spawning grounds and fish weir sites were much richer than others. The Tutchone of Little Salmon-Carmacks say for example, that the chinook spawning grounds

[384] *Extracts from Inspector Constantine's Report*, 1894, p. 5. op. cit.

of the Nordenskiold, Little Salmon and Klotassin rivers were less productive than those of the Tatchun and Big Salmon rivers. They say the same of the keta spawning grounds of the Nordenskiold compared to those at Big Eddy (in the Yukon, at the mouth of the Big Salmon River) and Minto. In 1888, Ellington[385] commented that the fish weir on the Klondike produced only 10 fish per cage daily. By comparison, the Tutchone claim that, at that time, the fish weir on the Little Salmon River was producing between 40 and 60 fish per cage daily.

Using the zoological maps and taking into account these additional sites leads us to conclude that there were no more than one or two high-yield fishing places per 80 x 80 miles sectors. The geographic distribution of propitious salmon fishing zones was as follows. Each sector had sites where fish weirs could be set up in addition to chinook and keta spawning grounds. However, in a territory measuring 80 miles x 80 miles there was one site that always tended to yield more than all the others. This meant that one location could attract and sustain a larger group than others. Campbell's journal reveals that this was in fact the case in 1848-1852 (see Chapter 8). This does not mean that some regional groups fished salmon under different conditions than other regional groups. However, it does entail that each regional group had to have fishing camps of different sizes. Thus, within one regional group, the task of capturing salmon was conducted with only a few nuclear families working together at several locations, whereas in one location, this work could be carried out in a camp of up to 50 members or so.

What about the spawning grounds and fish weir sites for freshwater fish? Did they exist in every region? Were they all equally bountiful? If not, did that result in regional disparities? The answers to these questions must be based solely on information provided by the Tutchone as the Canada Wildlife Service does not provide relevant information.

First and foremost, the rivers and lakes were differentiated from one another by the number of species they each could provide. Some, generally the smaller ones, had no fish at all. Others, like Coal Mine Lake near Carmacks, had only one or two species: lake whitefish and pike, for example. Yet others hosted all but one or two species, the exceptions generally being trout and broad whitefish. The latter lived in Tawata, *łuk' da čo*, Tatlmain and Drury lakes, but not in Frenchman, Little Salmon, Mandana, Tatchun lakes, nor, according to Armstrong (1937: 134) in the Macmillan River. Lastly, there were those where all the different species harvested by the Tutchone could be found. Yet, this disparity of resources did not lead to regional disparities. Each sector had rivers and lakes that were more or less sterile as well as rivers and lakes that contained every possible variety of fish.

The second important fact mentioned by the Tutchone can be summarized as follows: aside from the number of different species, the rivers and lakes could be differentiated from one another by the number of fish in each. Some contained only a few of each species, such as one lake that the Tutchone designated by an expression meaning "lake where you can fish a whole day for only one fish." Other lakes and rivers not only had all species, but in great numbers as well. This was true; for example, of all the lakes in the triangle delineated by Carmacks, Big Salmon and Fox Lake where there existed, in particular, large populations of lake trout, arctic greyling and whitefish. Similarly, some small rivers such as the one flow-

[385] J. W. Ellington, "*Letter from the Upper Yukon,*" July 20, 1888, *Georgian*, 1888.

ing from Mandana Lake had a huge population of greyling as well as a number of good locations for constructing fish weirs.

Once again, these disparities had no impact at the regional level as each sector has its fair share of bountiful rivers and lakes (as well as its fair share of good and poor fish-weir locations, rich and poor spawning grounds, etc.). It can be seen, therefore, that whether fishing at spawning grounds or with weirs, each regional group fished under similar conditions, and with approximately equal access to fish resources. As a result, in all sectors, people organized themselves in the same small groups of varying sizes.

All that remains to be discussed are the lake narrows. This is an important consideration since lakes with an abundance of fish but no narrows could be completely unproductive in winter, whereas a lake possessing such a topographical feature, no matter if relatively small, ensured that the daily subsistence needs of several nuclear families could be met.

Campbell had the opportunity to observe this during the 1840s in Kaska country. For some time, he tried fishing at Frances Lake, a large lake with no suitable narrows and a few other similar lakes. The results were catastrophic and the people at Fort Frances experienced a serious shortage of food. Then he discovered Finlayson Lake; a rather small lake, but one with narrows. After fishing there, he observed that "[Finlayson] has yielded more fish this season than *ten collectively* did the last between this and Frances Lake" (in Wilson, 1970: 90, emphasis added). One must query whether all Tutchone groups had access to such places, whether productivity was equal throughout the territory and, consequently, whether local groups were of equal size throughout. Once again, we must rely on information provided by the Tutchone. They claim that Aishihik, Drury, Hutshi, Tatlmain, Tatchun and Von Vilczek (*Łutsäw*) lakes all have narrows. In addition to those sites, there is the Talbot Arm of Kluane Lake which, archaeologists surmise, must have attracted a rather large group if the numerous vestiges of shelters concentrated there are any indication. The Tutchone also mentioned the existence of numerous lakes that, while full of fish, were impossible to fish on a daily basis because they lacked suitable topographical features: Little Salmon, Tadru, Mayo, Ess, Earn, Ethel, Big and Little Kalzas, Glenlyon, etc. They even pointed out that fishing in vast sections of large lakes like Aishihik and Kluane also was out of their reach for precisely the same reasons.

Statements made by the Tutchone brought a second fact to light. While some narrows could not keep more than one or two nuclear families supplied in fish, others could provide for as many as 10 or 12 families of the same size. Von Vilczek (*Łutsäw*) Lake was a perfect example of the former; Tatlmain Lake of the latter. How many lakes had highly productive narrows? By all accounts, there were barely enough. The Tutchone cite Tatlmain, Hutshi and Aishihik lakes.[386] Archaeologists add Talbot Arm (Kluane) to the list. There certainly

[386] The shoals in Aishihik Lake were part of the river that connected the lake to Sekulhum Lake. "The river […] is believed to provide important spawning and rearing grounds, and habitat for several fish species. Spawning grounds are utilized by greyling, pike, longnose sucker, lake whitefish and probably round whitefish. Lake trout utilize the shoal area at the mouth of this river for spawning purposes." *Aishihik Lake, Map of the Land Use Information Series.* Indian and Northern Affairs, Ottawa.

were others still, and we can suppose that each regional group had at least one very good lake narrows but probably not much more.

One conclusion comes to the fore. Fishing conditions at narrows differed from one place to another. In most cases, two or three nuclear families formed a group, but in some cases as many as ten or so families would group together as one residential unit for a long period.

On the whole, we have seen that capturing freshwater fish at spawning grounds and such species at weirs had different productivity, but that temporary small groups nevertheless formed in each case. Moreover, we noted that capturing salmon at their spawning grounds or in weirs was very different from fishing freshwater fish and could result in the formation of groups of different sizes, not from regional group to regional group, but within each regional group. Of course, these differences in productivity had an impact on the relative prosperity of the various local groups within a regional group. Now that we understand the demographic context in which fishing activities were carried out, there remains to describe the work pattern, or patterns involved.

7.6.5 Work Patterns Associated with the Fishing Industry

The Tutchone explained that fish were mostly—if not entirely—captured in traps left unattended, fishnets counted among them. Species captured exclusively in this manner included lake whitefish, broad whitefish, inconnu and round whitefish. Species fished mainly, though not exclusively, in this way included arctic greyling, longnose sucker, chinook salmon, and keta salmon. Only lake trout, burbot and northern pike were almost always fished with the active participation of those fishing.

Of the fish traps, the most important was the fish weir with cages. This apparatus was used for chinook, keta, inconnu and arctic greyling. As regards the work pattern used, it will be recalled that traps left unattended meant that the workers did not participate directly in the capture. Their only tasks were to set the traps and later collect the proceeds delivered by these automatic machines. Building traps is best categorized as a transformation industry, but just as we did for hunting, let us now look briefly at the work patterns associated with fish traps. We saw earlier that these work instruments were built at very specific places, always the same, year after year. When the season came to an end, the frame and the openwork cages were dismantled and carefully stored near the site. That is why archaeologists continue to find traces of this type of apparatus around ancestral fishing grounds (cf. Johnson and Raup, 1964: 195). All that would be abandoned were the 7-10 cm diameter posts that had been driven vertically into the riverbeds. That way, there was little work to do each season.

The Tutchone mentioned that the only work required was to repair any damaged panels and cages, re-set posts in the riverbeds, re-position the cages and panels and then block the gaps between the base of each panel and the riverbed. The repairs were made with roots and branches. The posts were driven into place with a large stone hammer. Roots were used to attach the panels and cages to the posts. The gaps were blocked with pebbles pushed into place with the feet. All these tasks were carried out by men, and based on accounts by the Tutchone, it seems that it took between two and five, but never fewer than two, as one man alone could not drive the posts into the riverbed without the assistance of another who either

held the posts in place or drove them into the riverbed. I was surprised to learn that these construction teams were not larger than they were, especially at places where the salmon were particularly bountiful and would have attracted a large group of people. I was reminded that the month preceding the arrival of salmon was always a lean one and that men and women would have necessarily been occupied with finding food, and therefore only a few people could be assigned to reconstructing the fish weir. It was also brought to my attention that even these few individuals could not be totally spared the task of amassing food stores. As a result, they could devote no more than two or three hours a day, on and off, to this rebuilding task. This is why they had to convene at the weir site one month early so as to be able to complete the work on time.

The size of work teams still seemed quite small to me. I wondered whether setting up such a device could really be performed by only two to five individuals. What finally convinced me was that, in the case of inconnu or arctic greyling, for example, no more than two or three men were ever needed, and the weir was in fact built by as few workers. Thanks to McClellan (1975b: I, 187), we know how long it took to assemble a double-cage salmon weir. She witnessed five men set one up at Klukshu in an hour and a half. That probably did not include the time spent repairing the panels or cages. The total work time required was therefore longer. However, even if returning these structures to good working order were to take five times longer (it is hard to imagine it taking much longer) it would have only amounted to nine hours of work for five men or 22½ hours for two men (9x5÷2). The job could easily be managed by the teams of two to five workers, just as the Tutchone say, especially as the workers allotted one month to complete the work.

The second task involved—emptying the cages—was simpler. Rippling water (caused by the fish caught in the cage) indicated that the cage was full. Someone would walk into the water up to the cage, grab and club the fish trapped within and carry them back to shore either by hand or in a basket. This task was handled by the men that built the weir and was carried out individually. They were assisted (or replaced if called on to go hunting) by a member of their immediate extended family: the elderly father of his wife, an adolescent son, a future son-in-law, etc. Once back on shore, these workers handed the dead fish to the women waiting to gut them and prepare them either for drying or freezing, depending on the season (Campbell, 1883: 443). On the whole, *harvesting* from a fish weir (not building it though) only gave rise to a pattern of individual work and individual production.

Fishing with funnel fish traps and nets was the second method of trapping fish. It was used for inconnu, lake whitefish, broad whitefish, longnose sucker, chinook, keta and, occasionally, round whitefish and pike. With this method also, there were only two tasks: setting the traps and collecting the catch. For the funnel fish trap, which was sometimes used in place of nets, my data are very sketchy. The only specimen I saw was made of metal grate. Johnson and Raup (1964: 195) saw an old salmon fish trap measuring between two and three metres in length. The Tutchone reported that it was used by men. I failed to collect any further information. However, the work involved in fishing with such devices can be described as there are not countless major ways of using them—only two. Leroi-Gourhan (1945: 90) explains that:

> Some are designed to capture the fish at the opening of a dam; they are like filtering bottles […]. The others are true traps consisting of an access funnel with sticks poised in opposed directions so as to let the fish in but not out and bait. The bait is dispensable: suitably placed in

a narrows, which would be the equivalent of the paths used by game animals on land, funnel fish traps work much like snares, intercepting animals on their normal path.

In the first case, one simply builds a fish weir, and that is all. In the second case, the work consists of simply placing and anchoring the funnel fish trap to a specific spot. Having set some in my youth, I can confidently state that this task can easily be undertaken by one person alone. It was impossible to determine whether the Tutchone were familiar with both methods. However, considering that their neighbours fished the same species, under the same conditions and probably in a manner not very different from theirs, an extrapolation is possible. The example of the Ingalik is undoubtedly the most appropriate as documentation for this group of Athapaskan people is the most extensive. Osgood (1940: 226-236), who lists their methods, indicates only traps set up without fences and traps set up with fences no more than two to three metres long (one-quarter or one-eighth the size of the fish weir) and an installation requiring no more than one worker. If the Tutchone used the same methods—which is more than likely—they probably set up their funnel fish traps individually also. If we suppose that they used them with complete fish weirs, then the work pattern must have been the same as for building fish weirs with cages: cooperation involving two to five workers. Therefore, we can safely state that funnel fish traps were set up by individuals for the simplest work pattern and by cooperative teams of between two and five individuals for the most complex work pattern. As for collecting fish caught in such an implement, the traps were simply opened and the contents seized by hand or with a hook-like tool. One individual was sufficient for this work.

On the subject of nets, we must determine how they were set in summer and in winter and how the catch was collected. It must first be specified that this work was carried out by men or women. In summer, two methods were possible. On a lake or in a small river, workers would go, on a hastily assembled raft, to a spot where they wanted to place one end of a net. There, they would set a post to which they attached the rope of the upper portion of the net. While unravelling the net, they then went to the spot where the other end of the net had to be placed. At that spot, a second post was planted and the net line attached only after ascertaining that it was properly stretched out. I saw this work done via raft and boat. One person can do the job on his own. However, the Tutchone noted, as I did as well, that it is more easily done in pairs especially the stage during which the net is being unravelled while being brought to its second mooring. The second method was practiced in large rivers with strong currents. A long dry tree trunk, 5-10 cm in diameter, was brought to the riverbank. The upper portion of the net was tied to the entire length of the trunk. The lower portion was weighted. One end of the trunk was placed in the fork of a longer pole. The fisherman then took hold of this forked pole and pushed the free end of the trunk against the current (see Diagram X).

The forked pole was then anchored on shore with a rock and thus firmly held in position the trunk outfitted with the net. Although this work could be carried out by one, the entire job was best done by two workers. That way, while the trunk was being pushed against the current by one worker the other could make sure that the net did not get tangled. I saw two boys, aged 13 or 14, proceed in this way. The catch was collected in the same way. The holding forked pole was removed from its anchor and, while the workers backed up slowly,

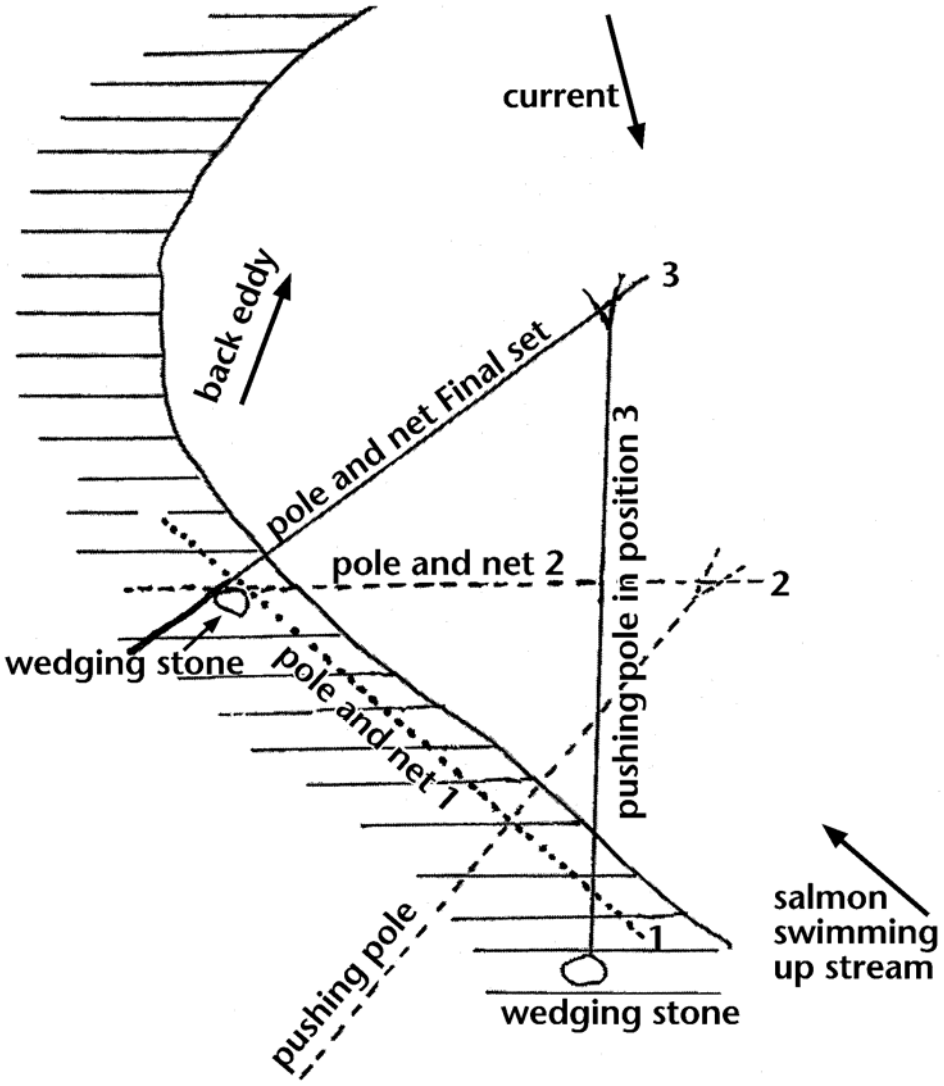

DIAGRAM X. SETTING UP A NET IN A LARGE RIVER

the current pushed the net-bearing trunk to shore. The fish caught in the mesh were clubbed with a single blow before being removed from the net and thrown onto the shore. This job was generally done in twos, although—once again—it could be easily done single-handedly.

Only one method existed in winter: the net was set up under the ice, usually in November when the ice was still fairly thin and transparent. A hole was bored in the ice some 10-20 m from shore so that, even in the middle of winter, workers did not find themselves at a spot where the water froze right to the bottom. Then, they took a long, dry wooden pole (5-

8 m long) and attached a length of babiche equal to the length of the net to be placed under the ice. One end of the net was tied to the line while the other end was attached to a post driven in the bottom of the lake or river through the opening in the ice. The long dry pole was inserted into the hole, but left to float horizontally to the underside of the ice. Once it was entirely submerged, the worker took hold of the end still accessible through the hole and, aiming in the right direction, projected it with all his might towards where the net was supposed to be outstretched and set. That done, and with the pole still visible through the ice, he walked to the other end of the pole, opened a second hole, grabbed the pole and recommenced the entire operation until the entire length of the net had been stretched out. A final opening was made and the pole removed from the water. The babiche line was untied and pulled. The net, left in the first hole but attached to the babiche line, was thus drawn under the ice. This operation continued until, at the final hole, the worker could pull on the net to stretch it and keep it in place by attaching it to a post that had previously been set through the hole and driven into the lake bed.

As we might have guessed, the work pattern for this task was cooperation between two people. To carry out the task properly, one worker had to pull on the babiche while the other, standing at the initial hole, had to make sure that the net unravelled properly. It could be done by a single worker, but the job was too complicated to make this common practice. The same applied to collecting the catch. In this case one worker had to remove the net through the first hole while another, standing at the other end, unravelled the net and applied enough tension to ensure that the net—now full of fish—didn't sink or get tangled up in submerged tree trunks, for example.

As for patterns of active fishing, it will be recalled that line and hook were used to catch lake trout, burbot, pike, greyling, and suckers; that snares were used for greyling and that the salmon spear or gaff was used to capture chinook and keta. Fishing with a line and hook consisted simply in casting a line and drawing up a fish. This method was practiced by men and women alike. In summer, a pole was used. In winter, a hole was cut into the ice and one needed only to hold the line by hand. Sometimes, the hook was baited; other times, it was not. When baited, fishing with a line and hook was as we know it. When the hook could not be baited, the method of fishing through a hole in the ice was quite interesting. A white object—probably white birch bark—was placed deep in the water. When a fisherman saw the silhouette of a fish outlined against the panel, he brusquely pulled up the hook that he had suspended in the hopes of catching a fish. Catching fish with snares, a method practiced by very young adolescents, was derived from this technique. After cutting a hole in the ice, the fisher would lie across the ice and look through the hole to see what was happening under the opening where the snare had been placed. When a fish swam through the snare, the snare was closed with one swift tug.

Spear fishing was generally practiced only by men. It was used in spawning grounds, i.e., where fish were dense and less likely to be missed. The task consisted in standing knee-high or waist-high in water, just off shore, among the fish and aiming at any fish within reach of the spear point. Because light refracts in water, it is not easy for a novice to hit his mark, but for the Tutchone who were "most expert in the use of the [fish] spear" (Campbell, 1883: 443), this activity was no more complicated than splitting wood is for a lumberjack.

What work patterns did these three active extraction techniques call for? The Tutchone spoke to me not only of activities that could be carried out alone, but of activities that had to

be carried out alone. In fact, with these methods of appropriating natural resources, capturing animals depended above all on the extremely complex "extraction machine" which consists of the worker's brain, his neurological system, his osseous and muscular structure and whatever tool he is using. Clearly, cooperation was not necessary. People could gather in a central location and work in each other's company. But all other things being equal, each one's success, or failure, was not determined by the presence of other workers.

Overall, in fishing, as in hunting, one finds a single pattern of cooperative work involving two to five individuals. This work pattern was imposed by a very limited number of work phases in the production process: building a fish weir; setting and removing fish nets and, perhaps, installing some funnel fish traps. The numerous other tasks related to harvesting fish resources only called for individual work. The data were sourced primarily from the Tutchone's ethnohistorical knowledge, but given the techniques and implements used, the content of their oral accounts may be considered accurate.

7.7 Conclusion

The examination of each of the branches of extractive industries—gathering of minerals and plants, hunting and fishing—resulted in an inventory of usable resources and specifics about work tools that were actually used. I have listed, in a series of tables, all the types of products that existed in the Tutchone culture, including items used in rituals and products that may have appeared to have been of no use at all. I provided explanations for those uses which would have been most peculiar and most surprising to Euro-Canadian readers.

As the material composition of these products was known, the list of final products was used to circumscribe the body of natural resources that were turned either into semi-finished products or directly into finished products. When this list is compared with the natural science data for the Yukon, it becomes apparent that a certain number of perfectly usable natural resources were not used at all. Since it might seem surprising that certain resources were not exploited, I presented additional ethnographic data for corroboration. I then drew up a comprehensive inventory of natural materials used in the extraction industries circa 1840-1850.

My next step was to analyze the types of workers involved in each of those industries. All work phases were considered. This analysis was done in the following manner. I first ascertained whether each Tutchone regional group had access to all the natural materials used and under the same conditions. I showed that, aside from a few negligible exceptions, access was equal for all Tutchone regional groups. Then, I described the types of minerals and vegetation that were used, the spatio-temporal habits and behaviours of the mammals and fish that were captured and, lastly, the impacts or effects that the extractive tools, implements and methods outlined in Chapter 6 may have had on the necessity of forming work groups.

At the end of that examination, I highlighted the actual work patterns in those industries. I noted the following two points: 1) The vast majority of extractive tasks, including those involved in hunting, were by and large individual endeavours; and 2) Only a very few instances of production required simultaneous cooperation and these involved from two to five workers at the most: hunting bear in their retreats, hunting Dall sheep by surrounding

them, building fish weirs, setting and harvesting fish nets and perhaps even setting funnel fish traps. These were the only instances. Through the same process, I fulfilled the main purpose set out for this chapter, which was to identify what the extractive industries involved in terms of work patterns, simultaneous cooperation and individual labour before direct permanent contact had been established with Euro-Canadians. In chapters 8 and 9, a similar analysis will be done for the transformation industries, beginning with a recapitulation of why this is necessary and including an outline of the procedure.

8 SPATIO-TEMPORAL CONSTRAINTS GOVERNING THE TRANSFORMATION INDUSTRIES

Extraction industries were the focal point of the previous chapter. We reconstructed the forms of appropriating raw materials in these industries circa 1840-1850. We must now reconstruct the work patterns and forms of production in the transformation industries, for it is obvious that production was not limited to extraction processes, and that it also encompassed a great many tasks related to transforming extracted natural materials into either means of production (e.g., tools, containers, means of transportation, etc.), or items for personal or individual consumption (e.g., ornaments, clothing, shelters, cooked food, etc.).

The present chapter addresses the preparatory issues for assessing what were these forms and patterns. Our inquiry will first lead us to a review of the annual production schedule in the extractive industries, highlighting where men and women had to go and work on a monthly basis. Next, we will examine the resulting local camps, camps sizes and geographical locations on a seasonal and even on a monthly basis. And finally, we will distinguish between winter, spring, summer, and fall camps, since these where not only in different locations but also of different sizes. At that stage of the review, we will know how many adults, men and women, lived in these various camps, how often they had to move, and as a result the extent to which production could be divided into specialized tasks in the transformation industries.

This matter of the eventual parcelling out of work phases will be addressed in the next chapter (Chapter 9), which will finally provide a complete picture of the various forms of appropriation or frameworks of techno-social (relations of dependence and independence between individuals) that characterized Tutchone production and society circa 1840-1850. On this basis, I will be able to consider, one by one, each of the factors that might have altered those relations and determine their true impact. We will then know whether there were any changes in the techno-social framework of production from 1840 to 1920 and, by extension, whether or not the Tutchone's socio-cultural organization is likely to have been altered during that period as a result of these changes.

Chapter 9 will also lead us to evaluate the rate of demographic decline and we will finally be able to answer the last outstanding question: Was the Tutchone population decimated to the point where people had to abandon certain societal institutions, such as clan organization, as they would have become demographically impracticable? Once this has been addressed, all the historical questions raised at the very beginning of this book will

have been answered, and in particular, that of the stability or instability of the cultural context of the period 1890-1920, during which nineteenth century ethnohistorical knowledge was passed down to our oldest informants whom we first met in the early 1970s.

8.1 Methodological Issues in Reconstructing the Forms of Appropriating Materials in the Transformation Industries

The forms of appropriating in the transformation industries must be reconstructed differently than those used in the extraction industries. The main reason is as follows. Very often, a product of a transformation industry, such as an adze, for example, is the product of several phases of work: making the handle, making the blade, assembling the two parts, etc. It then follows that production in the transformation industries is organized both synchronically and diachronically.

The notion of *synchronic* organization of labour refers to the way in which labour is organized in each of the transformation phases leading to the finished product. In the case of the adze, there is the work pattern used to make the handle, the work pattern used to make the blade, etc. The notion of *diachronic* organization of labour refers to an entirely different phenomenon, i.e., whether or not the various work phases were distributed among several specialized individuals or groups. To again take the example of the adze, there is one type of diachronic work pattern if all work phases are carried out by the same person and another type of diachronic work pattern if the three phases mentioned are divided among different specialists.

Classifying the forms of appropriating materials that existed in the transformation industries at the beginning of the period of this study consists in identifying all synchronic patterns and all diachronic patterns in existence around 1840-1850. How can this be done? Unfortunately, none of the available information is sufficient. Campbell and his assistant Stewart, the only people to have described the Tutchone of that period, disclosed virtually nothing. We must therefore rely exclusively on the information passed down orally since that period, i.e., from 1883 to the present. Although memories of techniques are less likely to have become altered than that of cultural aspects, how can the information be confirmed?

The task is challenging, but not impossible. Indigenous recollections can be tested for internal consistency. Moreover, we have a body of information on hunter-gatherer societies with which to draw a general comparison. Our starting point will be a review of the organization of transformation labour in societies around the world that were economically similar to Tutchone society and, more pertinently, information about Athapaskan societies that were geographically close and culturally similar to the Tutchone. In this way, facts conveyed through oral literature can be compared with facts presented in written literature devoted, at least in part, to the organization of transformation labour in hunter-gatherer societies in general (e.g., Morgan [1877] 1971; Durkheim, [1893] 1966; Thurnwald, 1932; Leroi-Gourhan, [1943] 1971, 1945, 1964, 1965; Childe, 1951; Herskovits, 1952; Steward, 1955: Udy, 1959; Service, 1962; Fried, 1967; Lee and DeVore, (eds.), 1968; Harroy, 1970; Coon, 1971; Bicchieri (ed.), 1972; Steward, 1977; Service, 1979; Lee, 1979). Comparisons can also be made to factual information on the same subject, but exclusively about indigenous populations

that were culturally close to the Tutchone and who worked in similar demographic and ecological conditions. At the forefront of the latter category is the richly-detailed research by Osgood (1940) on the organization of transformation labour among the Ingalik and the work of McClellan (1975b) on the Southern Tutchone, the Tagish and the Inland Tlingit. Less detailed, but no less relevant, are studies of the Gwich'in (Osgood, 1936b), the Han (Osgood, 1971), the Upper Tanana/Nabesna (McKennan, 1959; Guédon, 1974) and the Kaska (Honigmann, 1954).

Based on criteria of internal consistency, the means by which the Tutchone's assertions can be confirmed hinge on the fact that the diachronic and synchronic work patterns involved in the transformation industries cannot be chosen arbitrarily. In fact, as detailed in Chapter 6, Section 6.1, a *diachronic* pattern (i.e., how the work is distributed over time among specialized teams of individuals) is always closely determined by the size of the local groups, their degree of permanence, their geographic distribution, as well as the number, types and means of communication and transportation, not to mention their effectiveness. A *synchronic* pattern (i.e., the organization of a single phase of work) is determined by the type of object to be transformed and by the type of means used to do so. Therefore, the reported facts can be supported by comparing the facts conveyed orally against what was entailed by these types of limitations.

This approach nevertheless calls for a digression, for while we know what means of labour were used in the transformation industries (Chapter 6) and what raw materials were to be transformed and, by extension, the limitations on *synchronic* work patterns (Chapter 7), we do not yet fully know the prevailing conditions for the *diachronic* division of labour. The description of the means of transportation (Chapter 6) and of the largest possible groupings for a given spatial concentration of certain resources (Chapter 7) provides only the broadest of the preliminary constraints. Before undertaking a detailed discussion of *diachronic* production patterns, the geographic distribution of the Tutchone population must be examined, month by month and in more details.

8.2 Yearly Schedule of Extractive Tasks and Variations in the Geographic Location of Production Sites

For this task, we need to turn to the calendar of extractive industries and to the journal that Campbell kept between 1848 and 1852 at Fort Selkirk. Both sources of information help fairly accurately define the seasonal variations at that time and even justify our using detailed data from later periods when the journal entries are vague.

This procedure is necessary as it was never Campbell's intention to write a textbook about the nomadic lifestyle of the Tutchone. He was a fur trader who kept a merchant's journal. Although it appears replete with details at first, the data might nevertheless be incomplete. To find out if they really were incomplete, oral accounts must be compared with the calendar for extractive industries. Nevertheless, Campbell's journal proves that the Tutchone managed only with great difficulty to satisfy their food needs despite the fact that they built up reserves in summer and autumn and engaged in intense extraction activities in winter. Thus, each year consisted of a long period of food shortage, and even famine for some families. During the winter of 1848-1849, hardship persisted from January to mid-

March followed by another food shortage in June 1849. The winter of 1849-1850 was marked by a famine with several deaths between November 22 and April 15. In the winter of 1850-1851, there was famine in September and again between January 25 and April 12. The same occurred in the winter of 1851-1852, between November 24 and, this time, May 9.[387] We can therefore be certain that the spatial and temporal limitations imposed by the extractive industries had a direct impact on the geographic distribution and seasonal migratory movements of the population.

We know with certainty which resources were harvested. We also know when, where, in what quantities and under what conditions they could be found and harvested. Consequently, if the calendar for extractive industries indicates that people needed to relocate to another area at a given time despite Campbell's failure to mention this, the presumption is that information is missing and has to be filled in. Here again, and for the same reasons, there could be no better explanation for these movements than the Tutchone's immediate dependence on the calendar for extractive industries. And finally, Campbell's journal being what it is, it not only lacks information, it also lacks details, forcing us to resort to data collected after 1848-1852 to describe with greater precision what would have been involved in a trapping expedition or a moose hunt, for example.

This last aspect of the research procedure is justified on two levels. First, the core research is largely based on factual period documents, not on a reconstruction of the data using documents subsequent to the period under study. Such information is needed mainly to fill in the missing tidbits. Secondly, filling in the gaps is not a matter of citing any available reference; on the contrary, it is a matter of reporting the only facts that continued, by all accounts, to be determined by the same calendar, the same ecological constraints and the same distribution of resources as during 1848-1852. It is certain, for example, that the environment and the behaviour of marten remained unchanged and that a detailed relationship of the socio-spatial consequences of trapping this mammal in 1910 can be applied to 1848-1852. Overall, such an endeavour is not prone even to the narrow margin of error that characterizes the task of an art curator who must recreate the shape of a missing hand of a sculpture with no more information than the positioning of the muscles of the arm. The task is just as credible as that of the archaeologist who must establish the type of stone used to make a particular axe based on knowledge of the axe itself and fragments left behind in known quarries where the tool would have been made. Let us therefore put the procedure into practice.

The calendar of extractive industries was outlined in the preceding chapters. In this chapter, it is systematized in Table X, which first of all, differentiates between the primary extractive industries (represented by black lines) and complementary extractive industries (represented by grey lines). An industry that takes priority over any other extraction activity that could be undertaken at the same time is considered to be a primary industry. Of course, a number of industries can be given priority all at the same time.

[387] Campbell, *Lewes and Pelly Forks Journal*, 1848-1852.

These then would be considered concurrent primary industries. The types of black lines used to designate primary industries are as follows:

Primary Industries	
Period during which a given material or resource can be appropriated with the **best** quantitative and/or qualitative results	
Period during which a given material or resource can be appropriated with **average** quantitative and/or qualitative results	
Period during which a given material or resource can be appropriated with **poor** quantitative and/or qualitative results	
Period during which a given material or resource can be appropriated with **marginal** quantitative and/or qualitative results	

Period during which a given material or resource was **not appropriated**.	

When a period is indicated as being the most productive for a particular resource or material, it simply indicates that the extraction or harvesting of the material or resource yields the best results at that time of the year, regardless of the production volume of the material or resource in relation to other materials or resources that are also considered to be principal industries. In this way, it is admitted beforehand that some primary industries yield far more than other primary industries. Nevertheless, these lower volume primary industries remain more important than extractive industries that are deemed to be complementary. This last term is understood to mean the activities related to natural resources that require only periodical efforts to appropriate them and are generally carried out during whatever spare time is afforded while pursuing primary industries. The different types of grey lines used to designate complementary activities are as follows:

Complementary industries	
Resource to which the **greatest** time is devoted of all the complementary industries	
Resource to which an **average** amount of time is devoted	
Resource to which **little** time is devoted	
Resource to which **no** time is devoted **unless** all other extractive industries cease to be productive	

Period during which a given material or resource was **not appropriated**.	

Four other distinctions are made in the first column: 1) alpine and sub-alpine vs. valley; 2) food staples vs. non-food staples; 3) geographically unrestricted access vs. geographically restricted access; 4) cyclical vs. non-cyclical. It is necessary to distinguish between valley regions and alpine/sub-alpine regions as some individuals worked in the mountains while others kept busy in the valleys, and it also bears examining whether the extractive industries carried out in the two different types of region required the same type of geographic distribution with respect to work centres.

The purpose of differentiating between food staples and non-food staples is to clarify further what was briefly noted in the previous chapter, which is that alpine and sub-alpine regions were not rich enough in resources to fully meet the food requirements of those who hunted and trapped there, and that these people had to rely on surpluses from branches of industry carried out in the valleys. In winter, only black bear, moose (in some areas only) and three varieties of dried frozen berries were available in the alpine and subalpine areas (see Chapter 7). Furthermore, these already limited resources were rarely able to provide adequate yields.

Differentiating between unrestricted and restricted geographical access to resources is necessary for the following reasons. A resource that is equally accessible to all is a resource that can be found and harvested practically anywhere, whether it is abundant or rare. We therefore have resources that are both equally accessible to all and abundant (e.g., berries), as well as resources that are equally accessible but rare (e.g., wolverines). Such scarce resources are distributed equitably in all areas but not easily found. At the other extreme are resources to which access is geographically limited and which can be obtained in limited number and only in clearly delineated areas. In some cases, the presence of the resource is effectively linked to certain predetermined areas (e.g., Dall sheep, grizzlies in the mountains, or copper and straight birch tree trunks in rare localized sites). In other cases, the resource extraction or harvesting can only be implemented in very few areas (e.g., fishing whitefish under ice with nets in winter at productive lake narrows). Here again, the abundance or scarcity of the resource is irrelevant for the purpose of classification. There can be restricted access to a resource which can nevertheless be abundant wherever there is an appropriate area (e.g., salmon in reproduction zones) or rare even in places where it can be found (e.g., large tree trunks suitable to be made into dug-outs). The importance of distinguishing between resources to which access is balanced/unrestricted and those to which access is limited/restricted is that if a resource of the latter type is a main extractive industry for a fairly lengthy period of time, the people who harvest that resource are tied to the area where that resource is found, and that place necessarily becomes the site of their principal residence during that period. Resources to which geographical access is unrestricted and which are primary industries (e.g., firewood, water, moose, etc.), are entirely devoid of this characteristic and by definition, they can be extracted or harvested everywhere, including places where there are resources with restricted access. With this distinction, we can quickly draw an inventory of activities which, at any time of the year, required people to locate or relocate to other areas.

The classification of cyclical resources and non-cyclical resources does not fit into annual cycles. In this respect, all resources harvested by the Tutchone were annually cyclical. Instead, cyclical and non-cyclical is synonymous with the existence or absence of long-term cycles, i.e., periods spanning three to twelve years.

Table X — Cycle of extractive industries

Resources and where found	November	December	January	February	March	April	May	June	July	August	September	October
1. ALPINE AND SUBALPINE AREAS												
1.1 FOOD STAPLES												
1.1.1 Unrestricted access												
– water												
– grouse, ptarmigan												
– black bear												
– currants												
– blueberries												
– soapberries												
– rose hip												
– raspberries												
– crowberries												
– lowbush cranberries												
– highbush cranberries												
1.1.3 Restricted access												
– Dall sheep												
– moose												
– marmot												
– grizzly bear												
1.2 NON-FOOD STAPLES												
1.2.1 Unrestricted access												
– firewood												
– wolverine												
– marten												
2. VALLEYS												
2.1 FOOD STAPLES												
2.1.1 Unrestricted access — Non-cyclical												
– water												
– bear root												
– currants												
– blueberries												
– soapberries												
– strawberries												
– rose hip												
– raspberries												
– stoneberries												
– crowberries												
– lowbush cranberries												
– highbush cranberries												
– mushrooms												
– sap and cambium												
– resin and leaves												
– grouse, ptarmigan												
– moose												
– beaver												
– porcupine												
– gopher												
– squirrel												
– black bear												
– grizzly bear												
Cyclical												
– willow grouse												
– lynx												
– hare												
– muskrat												
2.1.2 Restricted access —Non-cyclical												
– swans, goose, ducks, etc.												
– eggs												
– lake trout												
– burbot												
– inconnu												
– lake whitefish												
– broad whitefish												
– round whitefish												
– longnose sucker												
– grayling												
– northern pike												
Cyclical												
– chinook salmon												
– keta salmon												
2.2 NON-FOOD STAPLES												
2.1.3 Unrestricted access — Non-cyclical												
– charcoal												
– firewood												
– moss												
– medicinal plants												
– tree trunks and branches (fish traps, smokers, sweat-houses, deadfalls, drying stages, lean-tos,												
– tree trunks and branches (rafts, skinboat, fish weirs, etc.)												
– spruce bark, birch bark												
– crow (feather)												
– eagle												
– Loon (amulets)												
– wolf												
– weasel, ermine												
Cyclical												
– fox												
2.1.4 Restricted access — Non-cyclical												
– stone for tools, copper, pyrite, ochre												
– tree trunks (dugouts)												
– birch (tool handles, planks, snowshoes, bows, arrows, toboggans, ladles, etc.)												

8.3 Size and Geographic Distribution of Tutchone Camps: Spatial Constraints Prevailing for the Transformation Industries

8.3.1 Winter

The systematized presentation of data in Table X shows that extractive tasks varied little over a period spanning nearly six months, from early November to mid-April. In the valleys, the only resources for which access was restricted (but which were much sought after) were the two types of whitefish and burbot; on the mountain slopes, it was moose. Primary resources to which geographical access was unrestricted were more numerous. In the valleys, such materials included firewood, water, grouse and ptarmigan, moose, beaver and, under normal conditions, willow grouse, lynx and hare. These were supplemented by complementary activities which were carried out either in tandem with the primary activities, during spare time, or even in place of primary activities whenever these did not yield good results. Complementary activities included looking for wood to be used in handicrafts, crow feathers and berries (under the snow); pilfering bear root from the reserves built up by voles, mushrooms stored by squirrels, and even the lining of squirrel nests; catching porcupine, trapping squirrel, wolf, weasel, ermine and fox. In upland areas, besides moose hunting, which was possible but not very productive, and collecting firewood, people could only turn their attention to trapping marten, looking for black bear dens and, as a lower priority, hunting wolverine, grizzly bears, and, if necessary, collecting dried frozen berries. To find out how such limitations to extractive industries affected population distribution, let us look at Campbell's writings and supplement it with additional relevant data, as necessary.

The journal kept at Fort Selkirk indicates first and foremost that, from early November to mid-April, Campbell saw only Tutchone people and, even then, only a few nuclear families from the regional Tatlmain group (see Map 6, Chapter 4).[388] As this occurred year after year, a conclusion may be drawn. From early November, each regional group broke from the other regional groups and retreated to their traditional hunting and trapping grounds where they remained until mid-April or later.

The same document also reveals that it was largely thanks to the fish caught in lakes in the winter and fish cached in summer and autumn that the members of a regional group, such as the one at Tatlmain survived.[389] In winter, hunting for large mammals yielded paltry results. Hunting moose—except in March—or beaver was truly unpredictable and could not be relied upon.[390] It was during this period that some unfortunate Tutchone sometimes had to fall back on foraging for bear root stored underground by voles.[391] The journal also shows

[388] *Ibid*., November 5, 7, December 9, 12, 1848, *passim*.

[389] *Ibid*., January 9-10, February 1-21, 22-28, March, December 8-20, 1849; January 6-February 3; February 8, March 15, Apr. 20, November 29, 1850; January, February, March, April, November-December 1851; January-April 1852.

[390] *Ibid*., *passim*.

[391] *Ibid*., February 17-27, 1850.

that a regional group splintered into local groups of varying sizes and that they were seldom able to help one another in the winter months. The regional group of Tatlmain thus divided itself into five to eight local groups. Explicit mention is made of its largest local group:[392] the sub-group that lived at Tatlmain Lake.

The situation among the local groups of the larger Tatlmain regional group is revealed in Campbell's journal entries. Each year, Campbell sent some of his hunters (Métis from the Mackenzie) to fish at Tatlmain Lake where they worked alongside the members of the local group of Tatlmain Lake. They sent a large portion of the fish that they caught themselves to Fort Selkirk by toboggan so that Campbell would have something to eat. During the winter of 1849-1850, fish production was good for Campbell's men and for the local Tutchone group. That same winter, however, several *local groups* not residing at Tatlmain Lake but belonging to the Tatlmain *regional group* arrived at Fort Selkirk, in a state of total starvation, begging for food: 1) first, a single nuclear family in early December; 2) then between the fourth and ninth of February, 3) a small group of what seemed to be three closely related nuclear families; 4) two days later "more Indians" of what appeared to be one nuclear family related to the former three; 5) two more nuclear families (unrelated to the other sub-group) two days after; 6) one nuclear family (unrelated) one day later, and; 7) "more Indians" a month later of what may be one nuclear family (unrelated to the other sub-groups).[393] As Tatlmain Lake could adequately meet the needs of the Fort's people and that of the local Tatlmain group which lived on the shores of the lake, it is certain that the six Tatlmain local sub-groups that came to the Fort had not come from the lake itself and that they lived separately.

Furthermore, there is every reason to believe that the six local groups did not have access to Tatlmain Lake. In fact, when the two small local groups comprising three and two families arrived at Fort Selkirk, they saw from Campbell's food supplies that fish production at the lake was good. Yet, while the lake was only a three or four-day walk away, they preferred to send four of their men to hunt in the vicinity of Fort Selkirk, where they failed. Then, ten days later, they dispatched two other members to *Łútsäw* (Von Vilczelk) Lake in search of jackfish. While waiting for them to return, the other members of the various sub-groups left at the Fort subsisted on the bear roots that the women were able to unearth from the voles' reserves.[394] *Łútsäw* Lake was only a day's walk from Tatlmain Lake. It is a lake with one good narrows for under ice fishing, but its productivity is minimal compared to that of Tatlmain Lake. Since we know that the Tatlmain local group tolerated Campbell's men fishing at their lake, we can only conclude that some of the *local* groups that were part of the so-called Tatlmain *regional* group were not allowed to go to the lake and harvest its fish resources. There were undoubtedly customs in the matter of lake usage, and in all likelihood rules governing access to the lake.

What were the sizes of these various Tatlmain local groups? The journal and other writings by Campbell reveal the size of the small groups and we can estimate the size of the

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[392] *Ibid*., October 31, 1848.

[393] *Ibid*., December 7, 1849; February 4, 6, 8, 9, March 23, 1850.

[394] *Ibid*., February 4-27, 1850. Campbell did not give the identity of the lake. I deduced it from specifications provided by him.

large local group residing at Tatlmain Lake by removing the members of the other local groups from the total number of individuals within the whole Tatlmain regional group. Assuming that the six arrivals at the Fort mentioned above consisted of only four or five people per nuclear family, this would amount to five local groups ranging from 4 to 5 members, 8 to 10 and 16 to 20 for the largest one. The total number of people that came to the Fort would thus be ranging between 28 and 35 individuals. If we assume that two or three other small local groups (four nuclear families) managed to satisfy their needs that year without coming to Fort Selkirk, the total number of people belonging to the regional Tatlmain group, but not living close to Tatlmain Lake, would have totalled between 44 and 55 individuals.

As for the size of the Tatlmain regional group, we know that in 1852, "50 Indians and any number of women and children"[395] travelled together to Fort Selkirk to do business with Campbell who was expecting to receive his outfit. Assuming four or five people per family and one man per family, the total number might have been as high as 200 to 250 individuals—the largest gathering of Tutchone people ever noted by the Scotsman. It was a group of Tuhin-tatinnat (i.e., from Tatlmain and the Lower Macmillan) accompanied by a family of Knife (Upper Pelly/Kasini) and three families belonging to the "tribe from far inland" (White River or Aishihik; see Map 3, Chapter 4). As the journal hardly mentioned any Han or people from Selkirk, they were presumably not among this large group as Campbell never neglected to mention them whenever they visited his store. Perhaps the Han waited for the men of the fort to go do business with them in their region, close to the mouth of the Stewart and further down the Yukon River.

In fact, Campbell's men did exactly that as soon as the Tuhin-tatinnat who had gathered at Selkirk left the Fort, each going their own way. The Selkirk people no doubt went up the Yukon River to meet up with the Tlingit rather than wait for Campbell's outfit—something they had been doing for years. We can also presume that the Tuhin-tatinnat of Little Salmon were not among the group. Geographically closer to the Pacific Coast than to Fort Selkirk, they almost always traded with the Tlingit and did not wait for Campbell to receive his trade goods. If we remove the four Upper Pelly/Kasini families from the White River (or Aishihik Lake area), the Macmillan and Tatlmain people totalled anywhere from 180 to 234 members and thus, assuming that each of the two regional groups were of equal size, between 90 and 117 members each. These figures seem entirely realistic since we know that another regional group—the Selkirk group—consisted of 55 adults, 24 of whom were men (Campbell in Wilson, 1970: 70-71) and, using the same method of calculation, a total number of between 96 and 120 individuals. Now, if we remove the 44 to 55 individuals who lived dispersed in small local groups for the estimated 90 to 117 individuals belonging to the regional Tatlmain group, the largest local group to fish at Tatlmain Lake would have been 46 to 62 members in all (the median figure of 54 being most likely closest to the actual numbers).

The journal also reveals that with approximately 54 mouths to feed, the fish resources of Tatlmain Lake were being harvested to the maximum. Thus, in 1851, the additional catches made by Campbell's men irritated the Tatlmain Lake people so much that they tried to pil-

[395] *Ibid*., July 22, 1852.

lage them.[396] Furthermore, Campbell indicated that the number of people resident at Tatlmain Lake made it difficult to hunt successfully in the surrounding taiga.[397] Nevertheless, this larger *local* group was still better off than the other Tatlmain local groups. Campbell's journal reveals that the Tatlmain local group suffered a food shortage only once in four winters—in 1852—and aside from this exception, its members never had to split up and go their separate ways. In contrast, during the same period, the small local groups suffered terribly from hunger each winter[398] and were forced to move frequently, from one resource area to another.

While bearing in mind that the above figures are only approximations, we may say that a regional group was generally divided in winter into four to six local groups or sub-groups of varied sizes. Two consisted simply of two nuclear families each, another may have counted three, another one four. One large local group of about eight to twelve (40 to 60 members) settled around a lake narrows that was particularly well suited for net fishing under the ice. The various local groups were a few days' walking distance from each other. The local group that fished in the best fishing lake was not only the largest, but also the one that could afford to be relatively sedentary for a long stretch of the winter. Only during winters that were particularly difficult would their members have to split up and go in different directions. The local groups that fished and hunted in less productive areas were not only smaller but also had no stable camp site. They often had to travel from one secondary lake to another and were therefore more dependent on hunting small and large game. Each year, a great many of them suffered from hunger and even famine.

A number of questions must now be raised from the conclusions drawn from Campbell's journal. First, did every regional group experience fairly similar conditions? Second, did trapping have an impact on the basic geographic distribution of the population? Third, might some spatial repercussions of certain activities not be discernable from Campbell's writings? I am referring to activities such as collecting firewood and water; hunting and trapping grouse, ptarmigan, willow grouse and hare; trapping lynx, weasel, ermine, wolf and fox; hunting moose, black bear, beaver and porcupine; fishing burbot during the spawning period; and performing secondary activities. Lastly, how was the population distributed during food shortages?

The following series of data can be helpful in answering the first question. Frederick Johnson's archaeological research (Johnson and Raup, 1964) in the southwest Yukon revealed that, between 1840 and 1900, there had been small sites—comprised of one to three brush camps (*ibid*.: 174-189, *passim*)—as well as much larger sites with as many as 10 brush camps (*ibid*.). In a legend related by a Carmacks Tutchone to Fry (1971: 50-144), the Tatchun winter group, as it was around 1840-1850),[399] included several nuclear families that gathered at a fishing camp at a particular lake, but that this group was not nearly so large as that which would gather when the Tlingit came to trade at Tatchun. The following was

[396] *Ibid*., April 18, 1851.
[397] *Ibid*., November 21, 1849.
[398] *Ibid*., *passim*.
[399] Fry did not identify the exact location of the events, but a man originally from Tatchun told me the same legend.

specified: "Ketsi's parents joined no one. They had *no rights*, fishing only *by sufferance* a shallow bay *scorned by others* on a remote lake" (*ibid*.: 105, emphasis added). From 1910 to 1920, the members of the Little Salmon regional group still divided themselves among Drury Lake, Frenchman Lake, Mandana Lake and a few other areas. A local group of six or seven nuclear families camped at the first lake; local groups of as many as three families and as few as one camped at the other lakes for shorter periods. From Armstrong's viewpoint (1937: 1-21), the regional group of the Lower Macmillan subdivided in 1908 into three local groups which could be referred to as "three different tribes."

The last two observations do not date from the period we are trying to reconstruct, but they are relevant for our discussion. From 1910 to 1920, the Little Salmon group consisted of 108 members, not including children under the age of six (see Table II, Chapter 4). However, it was seen in Chapter 3 that, at that time, the Tutchone had to survive almost entirely from their resources and that they were therefore subject to the same constraints as the Tatlmain regional group in 1848-1852. The same was true for the group along the Lower Macmillan which, while smaller, did not have access to lakes as rich as Tatlmain Lake or Drury Lake.

Overall, it is to be noted that available data present the regional groups as tending to fraction off in winter into local groups separated by substantial distances, with the largest local unit made up of eight to twelve families and the smallest ones, only one or two. It can therefore be presumed that the population distribution established for the Tatlmain regional group was representative of all regional groups. In passing, these data correspond to the ecological imperatives of that time. We know that lake fish were an indispensable resource in winter and that the best lake narrows could feed about 10 nuclear families and that such locations were not in sufficient numbers. To feed all the members of a given regional group, it therefore seems logical that any regional group consisting of more than 60 members had to split up into smaller groups and that one of those sub-groups, fishing at a good lake narrows, would be be larger than the others.

As for the second question concerning the spatial impact of trapping we must distinguish between the impact of trapping carried out in the mountains (essentially marten which were not trapped for food) from the impact of trapping carried out in the valleys (e.g., grouse, ptarmigan, willow grouse, hare, lynx, beaver and moose for food and for most of these, hides or furs), and wolf, weasel, ermine and fox (for furs only). Available data from the period discussed which can be used to tackle one aspect of the question are as follows. First of all, Campbell (in Wilson, 1970: 98) confirmed that the Tutchone had to prioritize hunting for food and had to give second priority to trapping animals for their furs only. Secondly, his journal reveals that a few individuals still managed to amass a sufficient number of marten skins to purchase several flintlock guns in a single season.[400] Overall, the average production volume per individual was very low, but there were some great differences between a few Tutchone and the rest of the population. Although such information is very limited, a conclusion may still be drawn because in the Yukon, the same type of results continued until 1950 and the causes of this overall situation are known. While the arrival of general stores—after 1900 and especially after 1920—simplified the matter of food supplies, the

[400] Campbell, *Lewes and Pelly Forks Journal*, October 24, 1850.

vast majority of Tutchone still had to work to ensure that most of their sustenance needs were met. Most could venture to marten-trapping zones only briefly and rarely. In 1945, men would occasionally leave their local groups and return only four or five days later.[401] Only a few Tutchone people were able to isolate themselves in the mountains each winter, an isolation which was necessary for hunting marten. Euro-Canadian trappers who had no families to feed could easily do this.[402] Knowing that food provisions were particularly difficult to obtain in 1848-1852, we can extrapolate that this must have also been so for other periods as well.

The fact that a few individuals, at that time and in subsequent years, systematically trapped marten is easily explained by the risks inherent to this type of undertaking. To better grasp the risks, let us consider the following description of the way of life associated with this activity. Since it dates from 1950, it will then be immediately transposed to the context of the nineteenth century for a full understanding of the implications.

> In mid-January Jimmy Johnny and his wife, with their two small children, had gone out on the trapline. Their outfit consisted of four good dogs and a strong toboggan that easily carried their few belongings and two kiddies.
>
> Bad luck seemed to hound them from the time they left Minto. The weather was cold, the snow was deep, and the fur-bearing animals were scarce. A wolverine, the most dreaded of any animal in the North, followed the trapline, too. Unless it was killed the trapper might just as well abandon his line […].
>
> As if this trouble were not enough, Jimmy suffered from a nagging toothache. Anger and frustration at having a wolverine on the trapline made matters worse. And, one bitterly cold day, Jimmy and his family started out to check on the traps that for the past few weeks had been found empty, dragged out of place or containing mutilated carcasses.
>
> From out of nowhere the wolverine appeared. For perhaps three seconds it was there, a target the size of a small dog, running like the wind, and well over two hundred yards away. In desperation, born of pain and anger, Jimmy jerked the gun to his shoulder and pulled the trigger. The loathsome animal rolled over in the snow.
>
> The wolverine was skinned that night. Its fur, soft and silky, is the only fur that does not frost over with a person's breath in the cold weather. Mrs. Johnny would use it to trim the hood of her husband's parka.
>
> However, the bad luck of the family didn't end there […]. The trapping part improved, but Jimmy's toothache got worse. Finally he could stand the pain no longer and decided that the tooth would have to come out. But how? They did not even have a pair of pliers.
>
> First, they tried to pull it out with snare wire. A loop was put around the tooth and Mrs. Johnny pulled with all her strength, but it would not budge. Then they used Mrs. Johnny's strong scissors for a pry. The points were pushed between Jimmy's gums and the tooth. A branch from a tree, whittled down until it was smooth, was held against the side of his lower jaw. Next, the handles of the scissors were forced down against the wood. The tooth was literally gouged loose.

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[401] Bobillet, *Journal d'un missionnaire au Yukon*, December 3; 1946, *passim*.

[402] Z. T. Wood, *Report of the Assistant Commissioner, Report of the RNMP 1909, Sessional paper* No. 28, Ottawa, p. 217.

> Again one end of the wire was tied around the tooth. The other end was tied around the branch of a tree overhead so that there was no slack. Jimmy jumped off the ground, and landed on his knees in the snow. The tooth dangled from the branch above him, a tooth without a flaw. The pain grew steadily worse, and the family now realized that they must get out to civilization and get medical aid.
>
> The traps had to be collected. This took some time as there now was a good catch; no wolverine had ruined the pelts. The toboggan was packed and the two little children were tucked in. A regular little nest was made in the blankets, and they snuggled down where the wind could not reach them, warm and cosy […].
>
> By now, a full week had elapsed since the tooth had been extracted. Jimmy was sick and irritable. Pain in the whole side of his face kept him awaken most of every night, and it was evident that he would have to ride at least part time on the sled [toboggan]. His wife, heavy in her seventh month of pregnancy, trudged behind if the going was good or ahead if it was poor, always carrying the gun. After three days of this kind of travel, nature called a halt. Mrs. Johnny went into labour.
>
> Jimmy put up a windbreak of blankets and in that shelter his wife gave birth to a tiny, dead child. The little body, wrapped tightly in one of their few blankets, was hung high up in a tree for the two days they stayed in camp. They had no shovel, no pick, and it was impossible to dig a grave in the frozen ground. Besides, they didn't want to leave the baby there.
>
> On the third morning the little party started out again. The small, solidly frozen corpse was packed on the sled during the day and hung in a tree at night to keep it from the dogs that were now getting thin and ravenous. Occasionally the man or the woman shot a grouse or a rabbit, if the game were on their trail. Neither one had the strength to go far from camp in search of food. As a result, the dogs went hungry much of the time. This in itself told much as the Johnny family had good dogs and was proud of them. It was almost the end of March when they reached their home camp at Minto. The first thing to be done was to bury the baby.
>
> Then Jimmy went at once to the Indian medicine man. There he was given some vile-smelling ointment that was put in a small, birchbark container. This was to rub on the badly swollen jaw. He was also given a necklace to wear. It was made up of the claws of the bear, lynx, and the talons of the eagle, all strung on a buckskin thong. This was hung around his neck with great ceremony and incantations by the old medicine man.
>
> In return for this medical attention, Jimmy had to hand over the pelts of the wolverine, three red foxes, and two mink. It took a sizeable slice out of his little pile of furs, but he did not begrudge it. He was sure he would be cured (Wilson, 1955: 49-52).

In those days, Jimmy Johnny could undertake such an activity alone since, in the event of catastrophe, he knew he would be able to get credit at the store. However, one can hardly imagine his great grandfather doing the same without the support of the members of a prosperous local group to which he would have belonged. Knowing just how critical the situation of most local groups was at that season, it is easy to see that few individuals would have been able to go spend much time alone in the mountains. We can therefore understand why very few could have devoted an entire winter to such activities.

For the second question—the spatial impacts of trapping in the valleys, there is almost no document from the relevant era or any other for that matter. We must therefore rely on oral testimonies much of the time and examine whether these reports could have also applied to 1848-1852. Let us begin by recounting some of them and citing their sources.

If we accept oral accounts, women looked after the routine trapping of grouse, ptarmigan, willow grouse and hare. To do so, they left their camp in the morning, setting out in different directions. They were often accompanied by sons and daughters under the age of 10. They returned to their camp at the end of the afternoon after checking the vertical snares and ground snares over an area that would have taken a total of four to six hours to cover on foot. On the way back, they collected whatever firewood was needed at camp. With plenty of snow all around, they did not need to travel any distance to obtain water.

The same source indicated that most of the valley trapping carried out by the men (lynx, moose, wolf and fox) involved a far longer circuit—three to six days round trip—and probably more for members of large local groups which had "over-harvested" their immediate surroundings in the past. Traps and snares would have been set during a previous excursion, wherever animal tracks suggested good yields. If encountered on the trail, porcupine, moose, hare and willow grouse would always be actively pursued. Beaver trapping was the exception. In such cases the entire local group camped on a lakeshore not far from the beaver houses. The men did not have to overnight outdoors, away from their camp, and could instead return home at night.

Campbell provided details about moose hunting and jackfish fishing. To hunt moose, the men would spread out in the taiga in the vicinity of the camp. Each one returned to camp immediately upon killing an animal, or empty-handed four or five days later if unsuccessful.[403] The Tutchone interviewed in the 1970s gave similar descriptions and added that the snow greatly facilitated transportation and that a hunter could bring back as much as 100 kg of meat to camp on a toboggan made of skins which he could pull by himself. In the 1970s, the women used dog teams and wooden toboggans to go fetch and transport the remainder of the carcass in the subsequent days. They simply followed the hunter's tracks to where the animal had been slain.

Fishing species in faraway spawning grounds was similar to hunting moose. Campbell[404] wrote that a few men would leave their local group's base camp for the spawning grounds and fish over three or four consecutive days. They would carry back the fish. Once again, oral tradition concurs with archival documents, adding the following details: 1) the size of groups involved in this kind of periodic or intermittent activity depended more or less on the size of the local group itself; and 2) this type of activity was not carried out solely by men but, on occasion, by women also.

For a description of hunting black bears at their dens, we have only the collective memory of the Tutchone. My informants stated that this activity was similar to moose hunting in terms of the duration of the expedition, but different in that several men set off in search of the den of an animal that would have been sighted earlier by one of them, generally while out hunting marten, as described above.

Lastly, oral tradition can be used to assert the following: 1) The individuals who engaged in a production activity that took them several days away from their local group camp site, alone in the taiga, often slept under the stars or, if it was really too cold (below -25^{o}C), in hastily built shelters or under a layer of snow; and 2) Secondary activities, such as collecting

[403] Campbell, *Lewes and Pelly Forks Journal*, February 11-16, 27, 1850.
[404] *Ibid*., February 27, 1850.

"cotton" from squirrels' nests to fashion diapers or trout fishing with a line and hook, were carried out while pursuing principal activities and did not call for any special expeditions.

These oral accounts very likely reflect the general practises of the past. First, it is worth noting that the kind of journeys undertaken for the various types of activity are not only compatible with the imperative of having the local group based at one of the rare good winter fish lakes, but are also the only type of secondary movements which remain feasible once the group decides to focus on winter lake fishing. Second, the imperative of lake fishing in winter is well documented in the archival record. Third, whenever I was able to compare archival documents with oral accounts, they were in agreement. Lastly, the precision of certain details confirms that the accounts are unlikely to have been transformed over time. Using the example of a moose hunt, the Tutchone people say that the hunter would bring back about 100 kg of meat, not with a dog team, but on a toboggan made of skins and pulled by hand. It might seem at first that the Tutchone are exaggerating the stamina of their ancestors. After some reflection, however, it becomes clear that no other way could have been possible. In order to be able to bring back the meat on a dog-drawn toboggan, a hunter would have to take the dogs with him. That would be ridiculous as their barking, even their breathing noises, would prompt a prey such as moose to run off. A hunter would have had no alternative but to use the skin as a toboggan and to pull the latter himself. It all makes eminent sense.

Using Campbell's journal to reconstruct the way in which the territory was occupied requires that a few details be filled in from the oral histories. Oral accounts illustrate that, in the large area where one *regional* group hunted, fished and trapped, there were, in addition to several separate local groups, a very small number of marten trapping camp sites where the members of one single nuclear family gathered for a time, and a larger number of small temporary camps occupied either by men hunting or fishing alone or in small groups, or by women out fishing on their own or in small groups. The territory was not as unexploited as some would presume. The taiga around the camps of the various local groups was always traveled and inhabited to a certain degree by some men and women who would set out from their respective base camps.

Let us now turn to the last question: What happened during periods of general food shortages? The question is best answered by resorting to Campbell who observed such an unfortunate situation during the winter of 1851-1852. In summary fashion, this is what his journal reveals.[405] First, the largest local groups would necessarily split up into several smaller units—two or three nuclear families—which would look for food everywhere, not just around lakes with narrows. During such periods of starvation, the caches belonging to the most fortunate were even pillaged. Some individuals would go to where other regional groups were hunting, fishing and trapping to find out if the situation was any better there and ask if they could join them. The nomadic pace intensified for everyone, with some local groups moving every two or three days.

What happened to the elders who could not keep up? Campbell offers no answers, but the matter can be addressed nonetheless. Around 1900, Tollemache (1912: 170-171) witnessed a similar situation at Tatlmain:

[405] *Ibid*., February 1851-May 1852.

> We came across two very old Indian women, and a small boy about eleven years old, who were spending the winter encamped among the spruce trees. The men of their tribe had departed to another locality for the winter, and as these two women were too old to accompany them, they were left alone by themselves with a small boy to look after them. They were sitting in front of a camp fire without any tent or covering, while behind them was a flimsy brush shelter, about three feet high, which acted as a partial protection for their backs from the cold atmosphere. A roasted rabbit was lying near them on the snow, and as they were devoid of plates and knives and forks they were tearing it asunder with their fingers. They possessed no food whatever except rabbits, which the small boy snared for them […].
>
> We told them [about the wolves we had seen], but they did not appear frightened, and simply pointed to the campfire, which would probably be sufficient to keep them at a distance. The weather was not then very cold, about -25°F, but cold snaps of -50°F and -60°F would occasionally occur, and it is extraordinary that these two old women could exist exposed to an Arctic winter under such conditions.

Tollemache and his companion set out on an expedition far from that camp. During their brief absence (a few days), the temperature had dropped to -60°F. On their way back, they noted that the two old women had not been affected by the change in temperature.

> On our way back to the Pelly River, we again passed the two old women and the small boy crouching before the campfire. They were now engaged in roasting a rabbit by means of a stick pierced through its body like a spike (*ibid*.).

As the context seems to have been similar to that in 1840-1850, and as there are other documents (McClellan, 1975b) for other groups that describe the same attitudes, we can logically presume that the same must have been true during food shortages between 1848 and 1852.

Overall, in times of crisis, the occupation of the territory was characterized by the existence of only small, very mobile local groups made up of two or three nuclear families and a few elders who stayed mostly in one place and were forced to subsist on such basic food resources as hare or even bear roots stored in voles' caches. This form of geographic distribution was not the most common, but it must be considered when analyzing the conditions for any diachronic and synchronic division of labour, because, even in very difficult times, the Tutchone needed finished products and thus had to be in a position to carry out tasks related to the transformation industries. With this overview of the geographic distribution in winter complete, let us now turn to the following season.

8.3.2 Spring

Spring began in mid-April. For the people who had to set off to build a salmon weir, it ended around the end of June, while for those who simply went to salmon spawning grounds, it extended into early July. Table X reveals a number of major changes for that time of the year. Production ceased in the mountain zones and became limited almost exclusively to the valleys. Some winter activities were abandoned (e.g., fishing of broad whitefish; trapping of wolf, fox and lynx; etc.) while others were continued (e.g., hunting of moose, willow grouse and hare; fishing for lake whitefish; and collecting firewood). There was still one resource with restricted access (e.g., lake whitefish), but also some new ones, such as lakes with migrating waterfowl, pike, greyling and longnose sucker spawning

grounds, and many new conditions or possibilities for production. Thus, beaver, water and wood for making implements could be obtained in entirely different conditions in spring than in winter. Gopher, muskrat, bear root, stone for tools, copper and bark were added to the list of resources that could be harvested in spring. Opportunities for engaging in secondary activities increased: collection of sweet sap, cambium, bird eggs, medicinal plants, eagle feathers and moss; hunting of black and grizzly bear; capture of bear cubs; etc.

Did such changes to the timetable of primary industries alter the way in which the territory was occupied? If so, what spatial distribution resulted? To answer this question, I will analyze the documents left behind by Campbell and supplement them, as needed, with data collected since Campbell's time.

The journal kept at Fort Selkirk shows, first of all, that the last days of winter did not necessarily augur abundance. Over a period of four years, there were three food shortages during the last two weeks of April (1850, 1851, 1852) and two in May (1851, 1852). It was not until June that food shortages could be discounted as a threat.[406] The journal also reveals that the Tlingit sometimes came to trade with the Tutchone in May.[407] During the spring season, occupation of the territory varied from one month to another.

The last two weeks in April: The journal shows that almost all the members of the Tatlmain local group remained encamped at their lake,[408] but we do not know what the other local groups were doing; we can only presume they were still away in the bush. The only notable change from winter was that some local groups would send some of their members to go trade a few goods with Tutchone in other regions or with other Athapaskan groups. In April 1850, four Han came to Tutchone country and some of the Tatlmain group went to Han country, where a few of them were killed.[409]

Oral testimonies provide additional details to Campbell's writings. According to the Tutchone, the local groups of Tatlmain Lake and Drury Lake (Little Salmon regional group) remained around their lake in April. Other local groups, however, proceeded differently. Although blessed with a lake abundant in fish, the Aishihik group nevertheless split up into several sub-groups. Some members stayed at the lake, while others left in groups of two or three nuclear families in search of beavers on the Klotassin River (some 120 km away from their winter camp), where they were joined by other local groups of the Aishihik regional group. Moreover, the Tutchone spoke of formations of small local groups of one, two or three nuclear families; not in the muskrat zones, but around weirs that had been set up to catch arctic greyling. In reference to the nineteenth century, the Tutchone interviewed spoke of an era "way back" in time. Considering that their recollections might refer to the early twentieth century or to the late nineteenth, we must establish whether the information provided also applied for 1840-1850.

To do so, we will suppose for a moment that the facts recounted referred to the first decade of the twentieth century and consider the timetable for the primary industries that explain them. We know that from 1900 to 1930 or even 1940, the Tutchone subsisted almost

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[406] *Ibid*., April 1850, 1851, 1852; May 12-14, 1851; May 10, 1852.
[407] *Ibid*., May 3, 1850; May 17-30, 1851.
[408] *Ibid*., April 1-2, 6-30, 1849; April 24, 1851.
[409] *Ibid*., April 20, 1850; April 24, 1851.

entirely on the natural resources available in the Yukon (see Chapters 3 and 6). After a visit to the general store in September, they were not seen again before May or even June.[410] The little flour that they purchased in September would have been used up long before April. To determine the resources on which they would have relied for their food supplies and the spatial constraints associated with those resources, we will examine whether the same constraints would have existed around 1840-1850.

By spring, ptarmigan, spruce grouse and broad whitefish could no longer be trapped or captured on a large scale. Of the winter activities, there remained only trapping of willow grouse, wolf and hare, hunting of moose and fishing for lake whitefish. These were supplemented with collecting bear root, fishing for pike and greyling in their respective spawning grounds, and trapping gopher, beaver and muskrat. Not to be forgotten is the fact that although beaver was a valuable fur-bearing animal, it was equally, and certainly more importantly, a food source. To give an idea of the number of beavers that could be caught let us note that in the time of steel traps a good output would be around 27 beavers per trapper for 20 days of trapping (Johnny Taku Jack quoted by McCandless, 1985: 174-175). If we keep in mind that such a trapper used traps with sinkers to drown the animal and thus killed it before it could escape, we must conjecture that earlier the number of beavers caught with traditional implements (deadfalls or nets) was less than that per hunter. Alternatively, the trapper had to work much longer hours to obtain similar results. At any rate, around the mid-nineteenth century, the availability of beaver was sometimes low and in times of hardship, even the skin was boiled and eaten (Peake, 1966: 124).

For each local group, the problem of availability of food in relation to where one could live may thus be summarized as follows: If beaver, muskrat and whitefish were available, people could neglect fishing greyling, especially as it would have only added another variety of fish to their diet and what they wanted most after winter was red meat. It was therefore worthwhile to go after beaver which, under normal conditions, also provided them with pelts which could be used as trade goods. If not, or, more precisely, if they were not available in great quantity, it was better to build a fish weir and catch greyling, a far more productive activity and one which yielded more certain results than hunting muskrat and beaver. If there were lakes with narrows where lake whitefish were plentiful and in the vicinity of muskrats and beavers, then there was no need to relocate elsewhere to a new camp. Such was the situation of the local groups at Tatlmain Lake and Drury Lake. Now, if fish-rich lakes with good narrows were far from the muskrat-hunting zone, then it was better for the group to split up. This was the case for the large local group at Aishihik where there were few muskrats and beavers in the immediate surroundings, but many on the far away Klotassin River.

Can the same logic be applied to 1840-1850? In a word, yes. We have seen that certain local groups had fewer natural resources at their disposal than others and these that less prosperous groups often suffered from food shortages, mainly in April. We also know that, traditionally, beaver furs were objects of prestige and trade commodities and that beaver meat was an important source of food. We can thus presume that the local groups not men-

[410] *Northern Lights*, Vol. II, No. 1, 2, 3, 1914; Vol. III, No. 1, 2, 3, 1915.

tioned in Campbell's journal moved around in April, just as the Tutchone oral accounts indicate.

For the month of May, the data contained in Campbell's journal provide a fairly detailed picture. On May 20, 1850, Campbell reported that all camps lit great fires to signal their respective positions with smoke.[411] A forerunner group of Tlingit that arrived at Selkirk on May 3, but which had already sold its merchandise at Tatlmain, almost certainly informed them that others would be coming in a fortnight.[412] Campbell described the sight of the smoke columns as "Signal fires blazing in every direction." Since he surely would not have been able to see beyond a 20-25 mile radius from Fort Selkirk, and since the regional group at Selkirk consisted of no more than about 120 individuals (women and children included), we can confidently deduce that this regional group had fractioned off into smaller groups of two, three, four or, at the most, five nuclear families during that season; that these small local groups were separated from one another by short distances of between five and fifteen miles; and that the zone in which this regional group hunted, trapped and fished was somewhat smaller than in winter. This plausible interpretation is confirmed by other entries in the journal, which reveal that for the same month of the following year, the leader of the Selkirk group—Thlinikit-thling—had one camp and that his son, Hanin, had another,[413] and also that those who lived with Hanin in winter did not live with him in spring.[414]

The same held true for the Tatlmain regional group. A local group continued to live at Tatlmain Lake in spring. In 1850, two members of the Selkirk group paid them a visit. In 1851, five people from Tatlmain went to Selkirk.[415] However, as the journal indicates that there were many camps along the Pelly River between the Macmillan River and Fort Selkirk[416] and that the Tatlmain regional group consisted only of about one hundred people, it therefore seems probable that the *local* Tatlmain group had split up and that some of its members had gone as far as the Pelly just as other *local* Tatlmain groups had done.

The phenomenon of each regional group splitting up into smaller local groups that remained near one another is supported by another finding. In spring, the Tlingit trading parties would split up into smaller groups so as to reach as many people as possible in a short period of time. Campbell learned that one such trading party, which arrived in early May, had sent some of its members to Tatlmain, five others to the camp of a certain Tunaetah Itun Etha and, the journal shows that three others went to the camp of Hanin.[417] In August, however, the Tlingit travelled in groups of between 15 and 20 people.

Another important phenomenon must be highlighted. Over a period of three years, almost no indigenous people passed through Fort Selkirk during the last two weeks of April. Over the same three years, eight, nine, and as many as 14 groups passed through Fort Selkirk in May. Campbell sometimes described the composition of the passing groups.He writes that there were three individuals travelling alone, four groups of two, two groups of

[411] *Ibid*., May 20, 1850. Campbell, *op. cit*., May 20, 1850.
[412] *Ibid*., May 3, 1850.
[413] *Ibid*., May 12, 19, 24, 1851.
[414] *Ibid*., May 12-13, 1851.
[415] *Ibid*., May 27, 1850; May 17, 18, 1851.
[416] *Ibid*., May 28, 1848.
[417] *Ibid*., May 18-19, 1851.

three, five groups of five, one group of 11, one group of 12 and some seven different parties of—probably—fewer than 10 people.[418] This information tends to confirm the existence of small local groups, living apart from one another, and is also interesting in that it suggests that, at that time, local groups moved from place to place more frequently than in winter. Oral accounts mesh with these data.

Table X shows that from the end of April to early May, hare, willow grouse, moose (albeit more difficult to capture than in April), muskrat and beaver were still available. Bear, grizzly, waterfowl, sap and cambium were added to the list of usable natural resources, while greyling, lynx, bear root, pike (at their spawning grounds) were subtracted. With these resources no longer available and the limited number of additions (i.e., there not being a great abundance of bear) and the difficulty of hunting moose, food was often in short supply in May. This led to the greater importance of waterfowl then, as well as an increase in the trapping of muskrats and beaver in relation to April.

Campbell's journal attests to this. Each year, his people would begin hunting waterfowl just as soon as the winged creatures landed on the rivers and lakes: on April 28 in 1850 (exceptionally early), May 9 in 1849, May 28 in 1851 (very late) and May 4 in 1852.[419] Year after year, beaver pelts were brought to Campbell between May 17 and 25 at the latest,[420] which means that the beavers had been captured in late April and early May as a certain amount of time would have been necessary to dress the pelts for sale to the H.B.C.

Waterfowl, beaver and muskrats were available only in small colonies in long narrow riparian corridors, forcing the regional groups to divide into smaller production units, often miles apart, and to disperse to specific, well-delineated zones. The other primary industries—based on sap, cambium, gopher, black bear, grizzly, moose, and willow grouse—could always be carried out in the vicinity of the camps that were set up near water bodies. We know from Campbell's journal that bears were slaughtered in May[421] and that some Tutchone, once past the first three difficult weeks of the month, managed to produce small surpluses of meat which they sold to the merchant: 130 lbs, 57 lbs, 25 lbs, though usually much less if any at all (see Chapter 2).

There was an added advantage when waterfowl and beaver could be hunted near a lake with a narrows, but it was not a serious drawback if not. Broad whitefish no longer swam by the narrows; only lake whitefish did. This provided a subsistence advantage but not as great a one as in winter. By this time, the ice on most of the lakes and rivers that were home to beavers, muskrats, ducks, geese and swans would have been partly thawed, making it easier to fish in these water bodies.

For the 30 days of June, we have two documents—Campbell's journal for the years 1848-1852 and an account of Campbell's first expedition on the Pelly undertaken between June 11 and 19, 1843 (Campbell in Wilson, 1970, 68-79; Campbell, 1883).

In 1843, while canoeing through on the Pelly River in Upper Pelly/Kasini country, Campbell came across only two men travelling together and a nuclear family at their camp.

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[418] *Ibid*., April 1849, 1850, 1851; May 1849, 1850, 1851, 1852.
[419] *Ibid*., May 4, 1852.
[420] *Ibid*., May 17-18, 1849; May 21, 24, 1850; May 24, 25, 1851.
[421] *Ibid*., May 24, 1851; May 9, 1852.

At the junction of the Pelly and Yukon rivers, he discovered a large local group of Tutchone made up of all the members of the Selkirk regional group: between 90 and 120 people. Some had donned their finest apparel: clothing made of leather and richly trimmed in beads, ivory from tusks, nose rings and bead necklaces weighing approximately four to five pounds. Campbell spent an afternoon "speaking" with the members of this group, but because they opposed his continuing his voyage, he was forced to turn back that same day. He and his men went back up the Pelly River by canoe. Three days later—60 miles upriver and in the Tatlmain Indian sector, where he had previously seen no one—"[he] noticed on both sides of the river, fires burning on the hill tops far and near" (1883: 439). "[He] conjectured that as in Scotland in olden-times, these were signals to gather the tribes so that they might surround and intercept us (in Wilson, 1970: 72)." In fact, the very next day, a large group attempted to attack his camp. A few years later, after he had begun trading with the Tutchone and gained their trust, he learned that the men of the large local group he had met at the confluence of the Pelly and Yukon rivers had spread out and followed his trail. Once they had arrived in the Tatlmain district, they called on the local group there. Most of the fires sighted by Campbell were from the camps of the Tatlmain regional group responding to the signals from the Selkirk group. Here we have an indication of two forms of occupation of the territory: large local groups (Selkirk) and small local groups spread out in the taiga (Tatlmain).

From the Fort Selkirk Journal, we learn the following:[422]

> June 22. Thlingit's party went across the Lewes and is to return soon to go below [probably for Salmon fishing preparation]. Nittsee and his boys went to their camp across the Pelly.
> June 25. Auni and party arrived.
> June 28. Polson and a lot of wives and children arrived from Tatlmain.
> June 29. Indians went off: one old fellow [back] to Tatlmain and Polson across the Pelly to join Auni.

Thlingit and Auni were another way of writing Thlinikit-thling and Hanin, the two leaders of the local group he had encountered in 1843. Nittsee was apparently another member of the Selkirk group. That year, the Selkirk regional group had fractioned off into several local groups. The journal entry for June 28 shows that a local group was still living at Tatlmain Lake. Campbell went to Tatlmain from June 5 to 15, 1850, and on June 25, 1852, two Tutchone men brought Campbell some fish from Tatlmain.[423]

Another noteworthy finding: People travelled frequently in June. Each year, the Han, the Upper Pelly/Kasini and Northern Tutchone from elsewhere visited the groups at Selkirk and Tatlmain.[424] The Selkirk and Tatlmain people also travelled frequently within their own districts. Over the five springs spent at Selkirk, Campbell noted the passage, in June, of three individuals travelling alone, two groups of two, six groups of three, three groups of four, two groups of five and one group of six. But he also encountered eight groups of between

[422] *Ibid*., June 22-29, 1851.
[423] *Ibid*., June 25, 1852.
[424] *Ibid*., June 4, 25, 1848; June 2, 1849; June 10-15, 25, 1850; June 2, 8, 1851; June 14, 1852.

nine and thirteen people[425]—far more than the two similar groups he had encountered in the month of May during those same five seasons.

What is one to make of all this? Many findings lead to a preliminary observation. The camp of between 90 and 120 people seen in 1843, the "lot of wives and children" who came from Tatlmain in 1851, and the frequent comings and goings of groups of nine adults indicate that some Tutchone occasionally met in camps comprising between 20 and 25 families (1843) and that others formed large local groups consisting of at least five or six nuclear families here and there most likely near lakes with good narrows or shoal formations.

For some groups, such as the 90 to 120 people at Selkirk in 1843, their clothing and adornment suggested that they had gathered for a ceremony, perhaps a funereal potlatch; other groups, such as the one consisting of a "lot of wives and children" from Tatlmain, would have been mere local groups.

A second observation may be drawn from other findings. The splintering in 1843 of the Tatlmain group into numerous camps "far and near" the Pelly, the division in 1851 of the Selkirk group into several camps, and the fact that small groups of two to five people tended to move from place to place indicate that many more indigenous people continued to live dispersed in the taiga in much smaller local groups.

Overall, there was no set pattern in June. At times, an entire regional group gathered in one place—undoubtedly for a brief period of celebration. The rest of the time, the regional group split into several local groups of various sizes, with some units as small as one or two nuclear families, while others consisted of as many as six or seven families.

These data are clear enough that we need not resort to oral tradition nor discuss its relevance, but the phenomenon nevertheless merits some explanation. What went on in June? Certain resources that were important to the food extraction industries would disappear: willow grouse, muskrat, waterfowl, and grizzly bear. These resources were replaced by little else: only currants, eggs, porcupines and longnose suckers at their spawning grounds. There remained gophers, black bears, moose, beavers, and whitefish in lake narrows, but large game (bear and moose) could no longer be brought back to camp. Instead, the people had to go where the animal had been captured so that the women could begin drying the meat then and there before it started to spoil. In this case, it was the beavers, or the whitefish, or the moose that was killed that determined where these groups set up camp. When people had no access to lakes with narrows, they stayed near beaver colonies in small dispersed camps, but if a moose was killed, they were prepared to move camp for as long as necessary. Once the meat was dried and cached adjacent to the capture site, the people returned to the beaver zone.

That moose was hunted intensely is not mere speculation. The Selkirk journal shows that in June, a number of Tutchone would deliver their venison surpluses to Campbell—360 pounds of this meat on one particular occasion.[426] This then explains the existence of small local groups and their frequent moves. Those who had access to good whitefish narrows faced different challenges. In June, the beaver zones no longer offered much in the way of waterfowl or muskrats and therefore became less important. Conversely, whitefish narrows

[425] *Ibid*., June 1848, 1849, 1850, 1851, 1852.
[426] *Ibid*., June 4, 6, 7, 15, 17, 20, 1849; June 25, 1850; June 1, 13, 21, 1851; June 1, 5, 14, 1852.

took on strategic importance and the fish was harvested more intensely than in May. Here again, this is not just logical deduction. In the journal kept during the years 1848-1852, it was noted that Tatlmain Lake in particular had produced fish surpluses in June.[427] The Tutchone who had left their lake narrows in May returned in June and joined with members of their groups who had remained there since November. This explains why there was such a large local group at Tatlmain, for example. At the same time, moose hunting always prompted one or more families to break away from their local group, thus accounting for the group's smaller size than in winter. Lastly, the relative abundance of resources in June (as opposed to winter) may explain why all members of a regional group sometimes gathered in one place to partake in celebrations or ceremonies.

8.3.3 Summer

First, Campbell (1883: 443) noted that salmon fishing was by far the activity to which the most time was devoted in July and August. This is demonstrated by way of a journal entry concerning a group of Tutchone with whom he was not yet familiar, who spoke to him about salmon as early as June 29, 1848. That year, the fish were to arrive on July 18.[428] Obviously, the arrival of this food resource was greatly anticipated. Second, summer was a time of relative bounty, but food was sometimes in short supply during the two weeks before salmon fishing, which was expected around mid-July. In Campbell's day, this occurred once in five summers: on July 1 and 17, 1849 in two different camps (one from the Pelly and the other, the Tatlmain camp).[429] However, as some Tutchone sold meat to Campbell during the same month,[430] we would be correct to presume that the food shortage did not affect all Tutchone, but only a few camps. Third, the Tutchone were visited by large groups of Tlingit traders in July or August, and sometimes throughout both months. Such was the case in 1848 and 1849 when parties of Tlingit came through on many occasions, in groups of as many as 45 men. In 1850, a war among the Tlingit curbed the commercial activities of this people, with the result that only three Chilcat passed through Fort Selkirk. In 1851, all summer visits took place between July 10 and 31; in 1852, they only began on August 18.[431] Fourth, July and August were very similar in terms of the extraction activities to be carried out. Table X shows that the natural resources exploited were the same in both months: berries, moose, some porcupines, gophers, black bears, hares, medicinal plants, stone for use in tools, copper and, above all, chinook salmon. How did this affect the geographic distribution of the population?

The only document that Campbell published of his sojourn at Fort Selkirk (1883: 443) contains a very general initial response. On the subject of the salmon spawning period, he wrote:

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[427] *Ibid*., June 25, 28, 1851; June 19, 1852.
[428] *Ibid*., June 29, July 18, 1848.
[429] *Ibid*., July 1-17, 1849.
[430] *Ibid*., July 21, 1849.
[431] *Ibid*., July 15, August 17, 1848; July 9, 15, August 1849; August 1850; July 10-31, 1851; August 18, 1852.

> And then comes a busy harvest-time for the Indians, who assemble in large camps along the river, and are most expert in the use of the spear. Large numbers of salmon are killed, some for present use, some for winter use (*ibid*.).

An analysis of certain events related in the journal allows for somewhat greater precision. The following is an analysis of an early incident. On August 3, 1849, Thlinikit-Thling (the main leader of the Selkirk group) and his followers were camped in the Yukon valley, some distance downstream from Fort Selkirk. Between August 23 and 25, 37 Chilcat arrived at Fort Selkirk. They immediately set off in search of Thlinikit-Thling's camp. Twenty-seven of the 37 Chilcat who had left on August 24 returned to Fort Selkirk on August 26, furious at not finding more than a few Tutchone and not being able to obtain more than some dressed leather (moose hides) and a few furs. Fourteen of them set off for the Pacific Coast that same day. A few hours after their departure, two Han arrived at Fort Selkirk by canoe. They had stopped by Thlinikit-Thling's camp. On hearing the news, the 13 Chilcat who were still at the fort went back down the Yukon River. They returned on August 30 "with loads of leather and furs"—the equivalent of "about a [H.B.C.] boatload" and promptly departed for the Pacific Coast. Two days after that, Thlinikit-Thling himself arrived at Fort Selkirk. Campbell complained that he "traded nothing but a gun" and that he, Campbell, would not be seeing the Han that year.[432]

What had probably happened was that the Tlingit who had left on August 24 encountered a few small Tutchone camps but not Thlinikit-Thling's large camp, which was undoubtedly farther downriver than usual. Discouraged, a number of them set off on the return trip only a few hours later, as their return on foot on August 25 would indicate. Meanwhile, some Han and the rest of the Tlingit arrived at Thlinikit-Thling's camp from opposite directions. Only because they had a canoe (see Chapter 6) and could travel quickly, two of the Han were dispatched to catch up with the Tlingit who were leaving for home. Thirteen of them were reached and they hurried back to Thlinikit-Thling's camp, where the Tutchone had just been joined by the Han. In all, 23 Tlingit traded with the Han and the members of Thlinikit-Thling's group. These 23 outsiders could not fully satisfy the needs of their Athapaskan clients as Thlinikit-Thling had to go to Fort Selkirk to buy a flintlock gun, but they must have almost completely satisfied their needs for Thlinikit-Thling bought nothing else.

An initial deduction can now be made. As the Tlingit were on the last leg of their trip, we can presume that there was one Tlingit trader per male Athapaskan client (this was the normal practice) and conclude that there were just over 20 mature men (Han and Tutchone) at the camp. Since we know that the Han often travelled up the Yukon River in groups of 10 or more,[433] we must speculate that there were about 10 men—and, no doubt, an equal number of nuclear families, for a total of about 50 people—at Thlinikit-Thling's camp. Since the Tlingit encountered a few small camps between August 24 and 26, we can further conclude that some of the Selkirk people had been divided into one large salmon fishing camp (50 people) and a few small camps, each one consisting of five or six people.

Another finding is worth noting. Late in the afternoon on July 23, 1851, Thlinikit-Thling arrived with seven companions. The next day, one of his sons went to his eldest brother,

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[432] *Ibid*., see August 1849.
[433] *Ibid*., April 4, 1849.

Hanin's camp. This shows that Thlinikit-Thling and Hanin lived in separate camps. Since we know that the Selkirk group to which these individuals belonged consisted of about 24 nuclear families and that some of these families lived in camps of four or five families, we can deduce that the 19 or 20 remaining families lived either at Thlinikit-Thling's camp or Hanin's. The result is, once again, a large local group of 50 people or so.

Campbell's journal allows for inferences on the use of space not elicited at all in his published document indicated above. The fact that the Tuhin-tatinnat (Tuchni Tatinnah) travelled as a group together in the Yukon valley, upriver from Fort Selkirk was clearly indicated in the Fort Selkirk manuscript. They traded with the Tlingit.[434] From other journal entries,[435] we learn that these Tuhin-tatinnat (the Tatlmain and Lower Macmillan regional groups) numbered in all, some 46 men; and probably between 180 and 234 individuals, women and children included. This clearly indicates that summer salmon fishing could be abandoned and that large assemblies of about 200 individuals from two regional groups (or more in certain instances) gathered for trading or other purposes. How long would these gatherings last? The journal states that in 1852, one group waited seven days for the arrival of Campbell's merchandise and then set out in different directions after the goods had arrived and been bartered.[436] Other examples of similar meetings with the Tlingit were just as brief.[437] Thus, if it can be stated that groups larger than the largest salmon fishing camp gathered in summer, it must also be noted that it was not for production purpose and only for very brief periods.

At this stage, further details must be added to the spatial distribution for we have yet to see how activities other than salmon fishing were conducted and whether we overlooked any particular aspects of population distribution during summer. Such work included harvesting berries and medicinal plants, looking for copper as well as stone suitable for tools, trapping gopher and hare, trapping or hunting bear and moose, and hunting porcupine. Campbell's journal suggests that these activities existed, but it makes no mention of spatial consequences. Yet, they could in theory have had some impact, and it is necessary to address this matter.

We already know from Campbell that salmon fishing was of prime importance in July and August and that it was the main determinant of geographic distribution. From Chapters 3 and 6, we know that salmon fishing was still fundamentally important in the 1970s. There is hardly a doubt that the complementary activities carried on parallel to salmon fishing continued to be determined by the same constraints and continued to produce the same results with regard to geographic distribution and that these activities can be identified by resorting to the oral tradition. Therefore, we will first examine the data in relation do the degree of freedom of movement left by the spatio-temporal constraints of salmon fishing.

Oral accounts reveal that salmon fishing had to provide sufficient reserves to last six to eight months. It involved two distinct tasks: 1) capturing the fish, which was always the responsibility of the men; and 2) immediately thereafter, preparing the fish for drying, a task

[434] *Ibid*., August 17, 1848; July 22, 1852.
[435] *Ibid*., July 22-30, 1852.
[436] *Ibid*., July 21-27, 1852.
[437] *Ibid*., August-September 1850.

always carried out by the women. The former was the least taxing. Wherever a fish weir was set up, one needed only collect the fish that was caught in the trap, club those still alive, and bring all of them to the riverbank. The work itself took approximately one half hour. It was done twice a day: around nine o'clock in the morning and four o'clock in the afternoon. Only a few men were needed. More were required to spear salmons in spawning places, and the work was also more time-consuming—perhaps one or two hours at a time.[438] The Han, who fished for salmon from canoes until they could fish no more, worked in shifts around the clock. The Tutchone, however, did not engage in this practice as their environment was such that they could fish much more effectively without birchbark canoes, which they did not even have (Chapter 6).

Preparing the fish for drying was far more exacting. It was not uncommon to see all the women of a camp working for three or four hours straight, cleaning and cutting salmon that had taken a few men only a half hour to bring in. This was, in fact, the reason why the fish was collected twice a day and why the men limited their catches. It would have been pointless to take in more than the women could clean, cut, and prepare for drying in the subsequent seven or eight hours. It is worth noting that the Han and Gwich'in both needed to store fish and worked at the same pace (Bompas).[439] There is therefore nothing extraordinary in the Tutchone's claims.

What were the consequences of the various spatial constraints that salmon fishing imposed on the men and women? How did each carry out her or his supplementary duties?

The Tutchone say that the women collected berries and plants (a task made very unpleasant by swarms of mosquitoes (Bompas, 1888: 67-68) and trap hare and gopher, usually near camp, during the little spare time they had between salmon catches. As a result, snares were checked only in the first part of the afternoon.[440] Most of the time, each woman worked on her own, and would only occasionally be in the company of one or two others. If few or no salmon was caught for a few days—which could happen from time to time—all the women banded together to trap gopher for a day or two, wherever these animals were known to gather in densely populated colonies. This continued through the 1940s. Father Bobillet witnessed it firsthand.[441] Glave (1892: 878), who saw a similar expedition in 1891, gave a fair description of the work done by these women:

> The women leave camp at about five o'clock in the morning, and return home at night with several hundred [ground] squirrels, the skins of which are patched into robes, and the meat one of their favourite luxuries.

We know from oral literature and other sources (Campbell;[442] Bompas, 1888: 67-68; Bobillet;[443] Wilson, 1965: 10, 49, 64, 67, 79-80) that berries were part of the daily summer diet,

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[438] The Han fished salmon from canoes, taking turns, day and night, until exhausted (Sim, V. C., *Journey on the Upper Yukon River*, June 30-July 8, 1883). However, this practice did not exist among the Tutchone as their environment allowed them to use much more effective means of fishing than from birchbark canoes, which they did not even have (see Chapter 6).

[439] *Ibid*., June 30, July 8, 1853.

[440] Bobillet, *Journal d'un missionnaire au Yukon*, p. 718.

[441] *Ibid*., p. 839.

[442] Campbell, *Lewes and Pelly Forks Journal*, June 23, 1850.

[443] Bobillet, *Journal d'un missionnaire au Yukon*, pp. 403, 541.

that plants and moss (necessary to make diapers) needed to be stored in quantities that would last into June of the following year. Despite the time limitations, we can see that significant volumes had to be produced.

As for the work carried out by men, the Tutchone say that men tended to travel about the same amount as the women in the summer season. They hunted and trapped almost daily. Moose was the main object of the hunt. All other hunting and trapping activities (e.g., bears, a few porcupine, eagles, etc.) were carried out while pursuing moose. Yet, they could not venture too far from camp because the meat from the hunt needed to be transported back to camp where the women could prepare it for drying. Let us remember that at this season the women had to remain at or very close to the fishing camp all day long almost every day. Therefore, large game would not be hunted nor would snares and traps be set up more than a day's walk away. This practice is borne out in archival documents, namely, a manuscript by Sim dated 1883 and the manuscript by Father Bobillet dating from the 1940s.[444] The first describes two men setting out in search of a slain moose while the second describes a case in a small camp where all the adult men and young men set out to do the same.

The only exceptions were whenever copper or stone was needed for tools, and when no extraction site could be found in the vicinity. Four or five men had to set out on long expeditions to procure a supply of such materials. The only description from the past of such an undertaking—by Hayes (1892: 122)—confirms this practice.

One conclusion is that summer activities other than salmon fishing had very little determining effect on the geographic distribution of the population. It is not through omission that Campbell's documents lack such details. In summer, just as the Scot wrote and just as can be deduced from his journal, the Tutchone population was divided into several different salmon fishing camps of as few as five or six individuals or, more often, as many as some 50 individuals (men, women and children included). Most of the camps were dozens of miles away from other camps. There were no other types of local groups apart from the temporary local groups of a few men camped around a stone or native copper quarry.

8.3.4 Autumn

The production timetable was very complex in the fall months (September-October). Starting in September, a dilemma arose. Dall sheep, black bear, gopher, willow grouse, ptarmigan and moose were at their fattest. This time of year was also the rutting period for moose. Male and female moose alike were then easiest to lure within bow and arrow range. While the highly prized Dall sheep were perched atop the highest peaks, the other animals could be found on the slopes of the valleys (see Table X). Around mid-September, when Dall sheep were still at their best, other very important species supplemented the wildlife inventory in the valleys: keta salmon and migratory waterfowl. In early October, Dall sheep became less and less sought after, but the Tutchone's timetable remained complex nevertheless. Lake trout and whitefish spawned in lakes (waterfowl zones); inconnu and keta in rivers. Low night time temperatures made the rare thickets of straight birch tree trunks suitable for split-

[444] Sim, *op. cit.*, Bobillet, *op. cit.* p. 541.

ting into wooden staves (to be further processed as bows, snowshoes, etc.). Meanwhile, willow grouse and hare were added to the list of species to be hunted (moose, black bear, ptarmigan, etc.). Autumn was also the very last period during which stone and copper could be obtained before the ground froze solid.

How did the Tutchone respond to these occasionally contradictory constraints? What was the resulting geographic distribution pattern? The answer will again be based primarily on Campbell's documents and complemented with data which, though from a later period, are nonetheless relevant.

According to the Fort Selkirk journal (1848-1852), some Tlingit were still visiting the Tutchone[445] during part of this period—from September 15 through October 7. Autumn was usually a time of relative bounty, and all Tutchone were described as having numerous caches brimming with dried meat.[446] A number of journal entries reveal that all the men partook in hunting and that hunting was very productive: many bears caught (even one by a boy);[447] an old man who by October 10 had killed 29 moose on his own (with bow and arrow); two men who had some 50 *cervidae* in their possession by October 11; a hunter with 2,040 lbs of meat by October 12;[448] etc. Similar quantities are recorded for keta fishing and fishing on lakes.[449]

Only the first two weeks of September could prove to be difficult. Campbell reported a general food shortage that lasted from early September to September 13, 1851.[450] However, this seems to have been rare as nothing of the sort occurred during September in any of the other years that he spent in the Yukon.

Let us now look at what the journal offers on the subject of the geographic distribution pattern during this season. Data for the first two weeks of September are only indirectly significant, but interesting nonetheless. It will be recalled that during chinook season in August, a number of small groups of men would stop by Fort Selkirk, and also that the Tlingit trading parties were in the country with up to 40 individuals. All such trading activities halted from the first to the fifteenth of September. Every year, Campbell saw no Tlingit arrive from the Pacific Coast and practically no Tutchone during those two weeks.[451] It was not until after September 15 that some Tlingit would resume their commercial expeditions and the Tutchone started visiting the fort again.[452] Another remarkable fact is that the Tutchone who reappeared at Fort Selkirk after September 15 had enough meat that they could leave some to Campbell.[453]

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[445] Campbell, *Lewes and Pelly Forks Journal*, September 19, October 6, 7, 1848; September 3-8, 23-27, October 7, 1849; September-October 1851.

[446] *Ibid*., October 10, 11, 1848.

[447] *Ibid*., September 27, 1848; September 27, 1851.

[448] *Ibid*., October 10, 1848; October 11, 1849; October 12, 1851, *passim*.

[449] *Ibid*., *passim*.

[450] *Ibid*., September 13, 1851.

[451] *Ibid*., September 1848, 1849, 1851. The September 3 entry is part of the passage about three Tlingit, but these three individuals arrived in August and departed for the coast.

[452] *Ibid*., September 15-30, 1848, 1849, 1951.

[453] *Ibid*.

These facts reveal two important things. From September 1 to 15, the Tutchone had to have been far from the rivers, or else they would have travelled on them as they had done in August. They moreover hunted intensively. Otherwise, how could they return to Fort Selkirk laden with meat surpluses after September 15? While these data do not in themselves resolve the matter of the geographic distribution of the population, they are useful. They reveal that the Tutchone hunted far from the shores of the major rivers, and since we know that Dall sheep and moose lived away from the main rivers at this season, we can surmise that the people pursued both these species. This suggests that they worked on the valley slopes (moose) or in the mountains (Dall sheep).

What types of camps existed in these zones? It is impossible to deduce anything on this matter from Campbell's journal. Nevertheless, knowing what the Tutchone did during those two weeks and knowing that they continued, until 1950, to concentrate on the same activities during that period, it would be logical to use documents written after 1848-1852 and relate these to cases where the conditions for extracting resources were similar to those in the days of the original Fort Selkirk.

Luckily, such cases do exist. In 1891, Glave (1892) encountered a salmon fishing camp of some 50 people from Aishihik who were still wearing leather clothing (*ibid.*: 876, 878). Two indications reveal that the camp was probably located in the valley of the Klotassin (*ibid.*: map, 878). The hunting instruments used by these Tutchone were still the same as those used in Campbell's time:

> There were a few muskets […] but they killed a great deal of their game with bow and arrows, some of which were pointed with iron and copper, others with bone. Even the little boys were very expert with these weapons (*ibid.*: 877).

As Glave arrived at the end of the fishing period, this is what he had occasion to observe:

> A few days after our arrival the band of Indians divided into two parties and took the trail for new hunting grounds. Nanchay was going in search of moose in the grassy hilltops to the north. He marched off at the head of a cavalcade of women, boys, and girls, all carrying heavy loads of blanket, old cooking-tins, fish nets and poles, parcels and baskets of dried meat and fish, bundles of hides, and a goodly sprinkling of babies lashed securely on the packs. Nanchay himself carried a very light load, and was the only man in the procession, which included two wives, three daughters, various mothers, mothers-in-law, grandmothers, aunts, and nine dusky youngsters of different shapes and sizes, with about sufficient apparel distributed among them to render one ordinary human being decent. The remainder of the band were going to hunt sheep on the mountains around Lake Tloo Arny [Kluane], which lay to the southwest (*ibid.*: 878).

Nanchay was returning from a long expedition to the Pacific Coast and Glave had used him as his guide. Judging from the above text, Nanchay was arriving much later than his planned return date. As a result, the husbands of the mentioned unaccompanied "mothers" had probably decided not to wait for him any longer, had almost certainly already left for the hills where they expected to find moose. If this interpretation is correct, we may then deduce that there were some 30 individuals (6 nuclear families) in the moose hunting camp. Now let us examine what a Dall sheep hunting camp would have been like.

The salmon camp sub-group which Glave joined was led by the only other man present on his arrival: an elder by the name of Goo-shoon-tar. Glave recounted the following:

> […] We agreed to carry their loads for them [on our horses] so as to benefit by their guidance. These Indians bundle very undesirable freight, being composed of semi-dried meat, stale fish, unwashed rags and rancid fat. The natives were shrewd enough to take advantage of circumstances; they marched slowly, snared the small animals *en route*, and gathered armfuls of herbs and roots, all of which we piled on our horses. By the time we reached the big lake, each of our animals was loaded down with their rubbish […]. Having reached the lake, the Indians made their camp on the hillsides […]. The old Indian urged us to return to the coast. "Winter is near," he said, and, pointing to the freshly whitened mountain-tops, warned us that the snow would soon be falling in the valleys (*ibid*.).

The approximate size of the camp can be estimated. When Glave arrived at the salmon fishing site, there were almost certainly between 40 and 50 people gathered near the Klotassin, only two of whom were men. I have calculated that the moose hunting expedition probably took about 20-25 women and children away from the fishing camp and that these 25 individuals caught up with from 4 to 6 men who had already set out hunting for moose. The rest of the fishing camp—anywhere from 15 to 25 individuals—formed the hub of the Dall sheep hunting group. Now, if for the same reasons as before, two to five men might have gone ahead of the group led by Goo-shoon-tar, the total for a Dall sheep hunting camp would vary between 17 and 30 people. These indications are very important as they mesh with those given in oral accounts and, at the same time, they lend credibility to those accounts.

The Tutchone said that the moose hunting camps changed locale every three or four days. In the morning, the men would leave independently, each one heading in a different direction in pursuit of moose. If unsuccessful, they would return to camp that night. However, if one of them managed to slaughter a moose, he would set fire to a live green tree, using the smoke to signal his position. The people back at camp and the other hunters would immediately abandon their old camp and join him at that spot. Shelters would be set up and a new camp established. The next day, the women would cut the meat into strips and dry it. Meanwhile, the men resumed their hunting activities from the new camp. If another moose was killed before the women had finished cutting and drying the first, the camp split up and then band together again at the next opportunity, and so on.[454]

A report dating from 1911,[455] indicates that there were at least five adults in any Dall sheep hunting camp and, according to Auer (1916: 187-6), those in the vicinity of Kluane Lake, were camped fairly close to one another. Father Bobillet, who had the opportunity to observe one such camp in the Macmillan region in 1943, reports that they were located above the tree line, in the cirques of very high mountains; production with rifles seemed good as six of these animals were brought back to camp.[456]

As this analysis provides a satisfactory portrait of how moose hunting and Dall sheep hunting affected the geographic distribution in early fall, we will look at what subsequently happened when the keta salmon returned up the rivers of the Yukon Plateau to spawn. This

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[454] Information provided by Sam Williams of Aishihik and corroborated by all the Tutchone consulted.

[455] *Report of Constable C. H. Hill, Kluane District, January 1911. Report of the Northwest Mounted Police*, Ottawa, 1912.

[456] Bobillet, *Journal d'un missionnaire au Yukon*, p. 418.

can be determined on the basis of the Fort Selkirk journal. Campbell directly referred to the high volume yielded by moose hunting or bear hunting, as well as to lake fishing throughout the rest of the fall, but year after year, he implicitly situated all of the Tutchone camps near major rivers where keta salmon could be fished. The importance of moose hunting or bear hunting was obvious from the entries, some of which have already been partly cited. The Tutchone stopped by with "10 skins in meat," a bear, etc.; they killed two moose in another case, 29 on another and seven on another; "several animals" on another occasion; they had "lots of mooseskin" in a number of cases; and so on.[457] Lake fishing (very certainly whitefish and lake trout) comes up in three entries,[458] but in each case, these activities do not seem to have resulted in anything but the formation of bivouacs. The products that the Tutchone obtained were brought back to the keta fishing camp where the fish were either dried or immediately stored if the ambient temperature was cold enough for them to freeze. The fact is so striking that we could correctly conjecture that activities that were not mentioned but which must nevertheless have been carried out—trapping hare, gopher, waterfowl, willow grouse; collecting firewood, stones, etc.—had no effect on the basic geographic distribution. In short, the dilemmas related to the timetable for extracting resources were resolved just as they were resolved for chinook salmon fishing.

Were the groups identical in size and distributed in the same way as in July and August? Once again, the Fort Selkirk journal helps in suggesting an answer. Campbell reveals on a number of occasions that the people of Selkirk were distributed around Fort Selkirk in a series of camps.[459] Another group of camps could be found more than two days upriver on the banks of the Yukon River.[460] How big was each camp? The fact that the Selkirk group was divided into several camps indicates that they were smaller than those formed for chinook fishing (in fact, when the latter activity was being carried out, many of the members of the regional group belonged to two large camps only). When keta was being fished, the standard groups consisted, so it seems, of only two families. The largest camp seems to have been composed of only six families.[461]

8.4 Conclusion

The inventory of the territorial occupation patterns is now complete. The initial question concerning the spatio-demographic conditions conducive to a synchronic and diachronic division of labour in the transformation industries has thus been answered. In brief, under normal conditions, from November to mid-April, half of the population lived in camps around good whitefish narrows in groups of eight to twelve nuclear families. It was not uncommon for these larger local groups to be separated from each other by distances of a hun-

[457] Campbell, *Lewes and Pelly Forks Journal*, September 27, 28, October 10, 13, 1848; September 30, October 15, 22, 25, 1849; October 1, 1851, *passim*.
[458] *Ibid*., September 30, 1849; October 27, 1850; October 29, 1851.
[459] *Ibid*., October 17, 28, 1848.
[460] *Ibid*., September 17, 28, 1848.
[461] *Ibid*., September 15-17, 1849.

dred miles or more (see location of Drury, Tatlmain, Hutshi, Aishihik lakes and others). In the expanses between these relatively stable camps were many smaller camps where the rest of the Tutchone population lived. These camps were made up in part of families that had split from one of the large local groups mentioned above (whether to hunt, trap or fish at a particular spawning place), as well as of families that did not have access to any good lake fishing site and who therefore had to find their sustenance wherever they could, rather than in one locality known in advance. In poor years, when resources became very scarce, the larger local groups would split up and the entire Yukon Plateau became inhabited by very tiny groups, living dozens of miles apart from each other, each looking for food wherever it could.

From mid-April to the end of June, the situation became more complex. At the end of April, some of the large local groups splintered into smaller groups while others remained intact. In May, the entire population fragmented into camps of two to five nuclear families settled near muskrat and beaver locations. Camps that belonged to one regional group concentrated in a single ecological zone, but they nevertheless remained about 5-15 miles apart. The zone occupied by one regional group was far away from those where the other regional groups hunted and fished. In June, the geographic distribution changed again. A number of beaver hunting camps stayed put, whereas the members of certain others left and returned to the whitefish lake narrows where they used their old dwellings and formed new camps of about five or six nuclear families. Although this is what occurred most commonly, sometimes all the members of a regional groups—around 100 individuals—gathered at one site for a brief celebration.

From July to August, new kinds of camps would form. The members of one regional group would split into two very large chinook fishing camps of 40 people or so and into a few small camps of one or two nuclear families. These large camps were separated by some distance.

In September-October, the distribution of the population would change yet again. Until mid-September, the population was split into nomadic moose and Dall sheep hunting parties or about 25 to 30 people, including men women and children—parties on the move which could split temporarily into smaller camps. From mid-September until the end of October, the people of each regional group migrated back to the rivers where they set up keta fishing camps, each group consisting of two to six nuclear families. The campsites of groups belonging to one regional group were relatively close to one another, but the distances between the campsites of different regional groups were great.

At this point, it must be specified that the distances separating the many different types of camps throughout the year do not reveal everything about the nature of the dispersion. In a compelling example, Glave (1892) shows how contact was complicated by the frequency with which people moved around. Nanchay, the Tutchone from Aishihik who accompanied him on his first exploration of the Klotassin, had left his camp some two months earlier. Nanchay worried that his family might have moved on. The following account describes what happened:

> Nanchay said he was anxious to reach his family again, and he endeavoured to convince us that his wife and children would be mourning at his prolonged absence. We tried to coax the old fellow, but he remained obdurate, and asked for his pack, so that he might go alone […].

> For the next three days we tramped over valleys of rocks, threaded our way amidst a labyrinth of pools and finally ascended to a table-land and tramped along a ridge of thickly wooded foothills through which in places we had to cut a trail. This part of the land is known to the Indians as Shak-wak, being an immense valley […]. This low-lying area has within its limits range of hills, forest, swamps, lakes, and streams, and throughout its whole extent travelling is very tedious and difficult. We saw but few signs of Indians there. The land is seldom visited even by them. Indians wandering in search of game adopt roads as their judgement guides them […].
>
> Every time we reached exposed position our Indian would set fire to trees, but no column of smoke replied to the signal; we were the sole occupants of this vast region […].
>
> He began to get concerned that no signal could be obtained conveying tidings of friends. At the next camp, though we had had a hard day's work, he decided to go on, leaving his son Tsook behind with us […]. After a few hours' travel next day we caught up to the old Indian again […]. He said his wife had moved camp from where he had left her, and really he did not know where she was. He began an incessant signalling by burning trees and by and by the keen eyes of Tsook spied a faint curl of smoke creeping up from the wooded brow of a hill about ten miles away which told of the whereabouts of the missing family (*ibid*.: 874-876).

Not only does this description give an accurate account of migratory conditions, which would have certainly been the same in 1840-1850, it also shows that the people did not always know the exact position of their neighbours or even close family members. Contact between local groups was therefore not simply a matter of closing the distance between camps. Given such obstacles to contact, the *best* conditions for division of labour were basically those where groups of 50 people or so (20 adults and 30 children) gathered around a lake with narrows or a good location for fishing chinook.

9 CHANGES IN THE EXTRACTIVE AND TRANSFORMATIVE PATTERNS OF WORK

This chapter's purpose is twofold. The first part will undertake to reconstruct the work and production patterns or division of labour that prevailed in the transformation industries circa 1840-1850 (in the making of all the implements and personal goods used by the Tutchone: tools, containers, housing, clothing, etc.). This analysis, together with that of the work and production patterns in the extractive industries conducted in Chapter 5 and 7, will complete our reconstruction of the total number of *structurally different* work and production patterns involved in the Tutchone overall economy (individual work vs. diverse types of cooperative labour in various work phases, and in the organization of the production steps in the transformation industries).

In the second part of the chapter, each of the factors that might have altered those work patterns or techno-social relations from 1840 to 1920 will be considered. We will then know whether there were any changes in the techno-social framework of production from 1840 to 1920 and, by extension, whether or not the Tutchone's socio-cultural organization may have been altered through such changes during that period.

Finally, we will examine the techno-social and socio-cultural impact the population decline might have had.

We will then be in a position to answer all the historical and methodological questions raised at the beginning of this work, including its most salient question: Can Tutchone oral tradition be used to clarify and complement the written record of the socio-cultural features of Tutchone society and culture between 1840 and 1890?

9.1 Work and Production Patterns in Transformation Industries Circa 1840-1850

In this section, I first relate what the Tutchone report regarding the making of the means of labour and of individual consumption circa 1840-1850; and second, to assess these production patterns by comparison with those of adjacent indigenous peoples in the context of the spatio-demographic conditions of 1840-1850. This exercise proceeds on the assumption that neighbouring Athapaskan groups generally faced the same constraints as those faced by the Tutchone, and that similar tasks entailed fairly comparable work and production patterns

among them. At this point, understanding the spatio-demographic context is very useful. We recall that this context was reconstructed essentially on the basis of period documents from around 1840-1850. The work and production patterns described in oral testimonies can thus be extrapolated back to see whether or not they make sense in this spatio-demographic context.

For the first task, I proceed by developing an inventory of the types of industries that existed in the mid-nineteenth century: for example, quartering of game, hammering and scraping, among others. Each work phase associated with each finished product will then be classified as belonging to this or that type of transformation industry. In the end, this will provide a complete inventory of all the tasks that were carried out in each type of industry. At that point, based on what the Tutchone have reported, I will define the types of synchronic work *patterns* in each industry (individual vs. collective undertakings, male vs. female tasks) and then divide the various tasks involved in a given industry between the types of work patterns. Presented in this way, the diachronic work patterns can then be specified as we will know who undertook what step in the production of each finished product.

9.1.1 Description of some original means of consumption and fabrication procedures

Although Chapter 6 contains adequate descriptions of the means of appropriating natural resources, Tables V, VI, VII, VIII and X are, in contrast, spare in terms of details about the means of individual consumption (shelters, clothing, body ornaments, meals, delicacies, etc.). A few additional remarks are therefore in order—at least for the more original objects.

Grouping the various tasks by type of industry presupposes, moreover, that a certain number of fabrication techniques are known. I believe that many techniques (e.g., cutting wood with a knife or with an adze, cutting and polishing stone, etc.) are fairly well documented, but the essentials of certain others, such as tanning skins, shaping wood with the use of steam, etc., which are rarely mentioned in the ethnographic literature, are not as well known. The general principles of these techniques should therefore be presented before proceeding further.

For goods consumed on the individual level, we lack adequate information for the following: clothing, dwellings and a dozen or so objects. All in all, Campbell's writings contain only two descriptions of clothing. One is in reference to the Gwich'in; the other, to the Tutchone themselves. The description for the Gwich'in is more detailed than that for the Tutchone. However, this does not pose an insurmountable problem as Campbell (in Wilson, 1970: 78) explicitly states that Tutchone clothing was similar to Gwich'in clothing. The details provided for Gwich'in clothing are as follows.

> Most of the men wore their hair long in a queue. Their dress which when new is pretty & picturesque, is made of the skin of the moose or the reindeer, principally the latter. The shirt or coat is finished in a point, both before & behind, & reaches down to the knees, being frequently ornamented with coloured beads, porcupine quills or long hair. The coat has a hole, large enough to admit the head, but does not open in front, & is provided with a hood which can be used, when wanted, as a head-dress. The trousers or leg covering, & shoes are made of the same material & trimmed in the same way. The winter costume is the same, except that the skin is dressed with the hair inside for warmth. Their socks in winter consist of grass

> & hair, over which is drawn the shoe. The women's dress is very similar to the men's only the leather garment comes down square to about the ankle like a gown. These Indians are very fond of ornaments of any kind, such as ear-rings, & also decorate their dress freely with ermine or squirrel skins or tails, duck wings, long hair, &c. They also often daub their faces with red earth or ochre, &c (Campbell, in Wilson, 1970: 112-113).

This description of Gwich'in clothing was written 40 years after Campbell left the Yukon. The following description about Tutchone clothing dates from 1843:

> Their dress is all leather; say trousers en boot (boots and trousers all in a piece) reaching to the band, the upper garment shirt-like but tipping to a point behind and in front and reaching down near the knees. The hair very large tied behind and reaching down near the girdle like a bushy tail and abominably mixed up and closed together with red earth. They have their noses all pierced and generally ornamented with a ring. They appeared to look at and examine our clothing and shirts etc. with much surprise. We saw nothing of the kind with them except the blankets in the party we met above the forks, and nothing of civilized manufacture (?) with them except the four guns, two of which were fine twist barrels, Russian knives and axes (Campbell in Wilson, 1970: 78).
>
> Some had belts or bands of beads of at least 4 to 5 pounds (weight) and of some yards long, and thrown loose around the necks and reaching the ground as trappings to decorate their persons for their festive dances, of which those at the forks showed us a specimen, and a pastime of which they are I believe passionately fond (*ibid*.: 77).

Elsewhere (*ibid*.: 70), Campbell adds that Tutchone clothing was trimmed in beads of all colours and made of porcupine quills.

The excerpt about Gwich'in clothing poses a few minor problems. For one thing, based on the sketches found in the Fort Yukon journal (Murray, [1847-1848], 1910), the tunic worn by Gwich'in women was cut square only in the front, the back forming a point like the men's garment, and in length came down only to the calf. For another, based on documents drafted by Campbell at the time of his residence among the Tutchone, we know that the Tutchone did not use caribou skins (see Chapter 5) and although the description of Gwich'in clothing mentions caribou skins, moose hide must be substituted for caribou skin when applying this description to the Tutchone. Aside from these corrections, the above descriptions give a fair idea of Tutchone dress. Considering that a recollection of traditional Tutchone dress in keeping with Campbell's description has been passed down orally through the generations, the few additional details provided by the Tutchone themselves in 1972-1974 can be added here: Dall sheep skin was often preferred to moose skin, particularly for children's clothing; some formal tunics were made from the breast feathers of swans all sewn together;[462] only mittens were worn on the hands; three or four eagle feathers were used in prestige hairstyles; tattoos existed and generally consisted of vertical and oblique lines imprinted on the chin.

Period documents describing mid-nineteenth century Tutchone dwellings are quite adequate. From the journals and letters written by Campbell in 1843, we know that the Tut-

[462] I once saw, in a museum in the Yukon, a tunic made with feathered skins. The piece was too poorly identified and therefore not relevant enough to warrant description.

chone lived in huts rather than tents.[463] We know from the Tutchone that there were two types of huts—lean-tos and conical houses in winter. Ruth Gottdhart (personal communication, 2004), an archaeologist, has been given to understand that, when needed, snow was packed over these lean-tos or conical houses for added insulation. I was also told by an old Tutchone that the conical house could serve in addition as a protection against a grizzly bear who had not found a proper place to hibernate. Although the case was rare, when it occurred it created a very dangerous situation for such an animal roamed the taiga all winter long in search of food, became very hungry and terribly aggressive. In such a case the conical house was plastered with snow and ice and its smoke hole served as its entrance. The way down was with a notched ladder. When necessary, temporary shelters could be fashioned by digging a sleeping place in a snow bank. Thanks to Frederick Johnson (Johnson and Raup 1964), we have a description of a lean-to and a conical house dating from about 1850 and thanks to Schwatka (1893) we have a description of the lean-tos he saw in 1883. First, let us look at the archaeological data provided for lean-tos and conical houses circa 1850.

The Lean-to:

> House number four had collapsed to a considerable extent but enough of the roof and other parts of the structure remained so that reconstruction of this type of house, which was unknown to us and to our Indian companions, can be made with some confidence. The plan was rectangular with the long axis extending northeast and southwest. It was about twelve feet long and eight feet wide. To make the roof, poles extended from the eaves which may have been a log or two lying on the ground, or simply from the ground to a ridge pole which was not positively identified. This ridge was estimated to be four to five feet above the ground. Lying at right angles to the rafters were small poles averaging perhaps two inches in diameter. On the west side the lowest logs were larger, two of them being about ten inches in diameter. Slabs riven from logs were piled on the poles, roofing in parts of the western side.
>
> The front and back of the house was made by piling up small logs to a height estimated to have been about thirty inches. These walls were carefully made, the upper edge being levelled by laying the butt ends of the logs alternately to the right and left. A doorway about three feet wide was located near the center of each of these walls. In this house, there was no special support for the ends of the logs at the doorways as was found in a few other houses.
>
> The floor of the house lay beneath about ten inches of silt, the result of at least two serious floods since the houses were abandoned. A hearth zone about five feet across extended from door to door. The red-colored ashes of the hearth included pieces of charcoal and many fragments of charred and unburned bone. This was chiefly from rabbit and gopher but there were two pieces of bone from larger animals such as sheep or even moose. The mass of bone, ash and charcoal made a mound above the original floor one or two inches high. A fire-cracked hammerstone was found near the edge of the ash mound. Two logs some eight to ten inches in diameter and several feet long lay each with one charred end on the ashes and with their butts out the doors. It is probable that these logs were pushed through the doors so that a fire could be kindled where their ends met in the middle of the house. The floor of the house

[463] *Campbell to Lewes, 1843* (Hudson's Bay Archives). Letter quoted in part in Wilson (1970: 76-79). In his memoirs, written some forty years later, Campbell (in Wilson, 1970) mentioned Tutchone tents. Yet, we have already seen that, in this text, he confuses the Han—who did in fact have tents—with the Tutchone who, according to his original writings, did not.

> to the west and east of the hearth had been covered with spruce boughs. The occupants had been careful not to lose a thing in the house (Johnson and Raup, 1964: 174-175).

The conical house:

> House number one lay twelve feet northeast of house number three. This had a pyramidal roof of poles supported on low log walls. Around the western half of the house a "sill" log, some ten inches in diameter, had been laid down. On top of this there were piled untrimmed spruce logs to make a wall estimated to have been originally four feet high. The north wall was peculiar in that there was not enough wood in the ruin to fill up the space on each side of the door. A tree now fifteen inches in diameter had been incorporated into the south wall to form one side of the doorway. The east wall was made up of courses of logs. At the corners the logs were notched carefully. Logs were laid alternately from one side and then the other in a real "hog pen" finish. Long poles lay diagonally across the ruin. These were probably rafters which supported a roof of poles some of which may have been laid horizontally. The floor lay under about ten inches of silt, the accumulation from at least two floods. It consisted of spruce boughs which had covered the areas on each side of the fireplace. The latter extended across the house from door to door. Investigations and excavations of this house revealed only the structure of it. No artefacts appeared (*ibid*.: 174).

Johnson also noted the following:

> The remainder of the houses in the area we surveyed were of similar types. That is, many had pyramidal pole roofs analogous to house number one, and others had the pole gable roofs, comparable to house number four.
>
> There was some variation in the number of logs used in gable roof construction. The greatest variation seemed to be in the walls. Some were higher than others. Some were made of trimmed logs and some of small trees with the bushy branches left on. Some walls had had only one or two logs in them and some were made of eight or ten or more. As in house number one, trees were frequently incorporated in the walls of the structures. In one interesting case a tree had been cut off about four feet above the ground and the stump used as a door post.
>
> We are by no means certain of the covering for the roofs of these houses. Some of the pyramidal roofs appeared to give little or no shelter and it would seem necessary, at least from a European point of view, to cover these with skins. Other roofs had more brush on them and the gabled roofs appeared to give more protection. Thus, a small amount of chinking with moss would keep out the worst of the precipitation (*ibid*.: 175).

We can suggest that this community existed about 1850. We have no idea when it was first established or how long it lasted (*ibid*.: 178).

Now let us report what Schwatka says about the lean-tos he observed in 1883:

> *Kit'ah'-gon* (meaning the place between high hills) [the present Minto between Carmacks and Pelly Crossing] consists of a score of brush houses usual in this country; that is, three main poles, one much longer than the rest, and serving as a ridge pole on which to pile evergreen brush to complete the house. This brush is sometimes replaced by the most thoroughly ventilated reindeer or moose skin […]. Such are the almost constant habitations of these [… people]. When I first saw these rude brush houses, thrown together without regard to order or method, I thought they were scaffoldings or trellis work on which the Indians […] used to dry the salmon caught by them during the summer […] (Schwatka, 1893: 200).
>
> The village, which they call *Kah-tung* [the headquarters of the Selkirk natives] seemed to be of a semi-permanent character; the houses or huts made of spruce brush, over the top of

> which there was […] a skin. These brush houses were squalid affairs, and especially so compared with the bright intelligent features of the makers, and with some of their other handicraft […]. One could hardly stand up in these brush houses, they were built so low, and any attempt to do so was frustrated by the quantities of odoriferous salmon hanging down from the squat roofs, undergoing a processing of smoking in the dense clouds that emanated from spruce-knot fires on the floor. These ornaments, coupled with the thick carpeting of live dogs upon the floor, made the outside of the house the most pleasant part of it. The houses were generally double, facing each other, with a narrow aisle a foot or two wide between, each one containing a single family, and being about the area of a common or government A tent. The ridge-poles were common to the two houses, and as both leaned forward considerably this gave them strength to resist violent winds. The diagram (below) gives a ground plan of an Ayan double brush-house (*ibid*.: 228-229).

It can be safely assumed that Schwatka witnessed traditional homes; his description quite closely matches that of Johnson for the Kluane Lake region and is absolutely identical to the one given by Glave (1892) for the lean-tos at Aishihik in 1891 and that of Tollemache (1912: 170) for the shelters at Tatlmain in 1900. Tutchone oral descriptions of traditional houses correspond very closely to the descriptions written by Johnson, Schwatka, Glave and Tollemache.

As regards the grave enclosures mentioned (but not described) in Chapter 7, Schwatka made the following observation in 1883 while among the Selkirk people:

> The grave's enclosure or fence is constructed of roughly-hewn boards, standing upright and closely joined edge to edge, four corner-posts being prolonged above, and somewhat neatly rounded into a bedpost design […], from which they seldom depart. It is lashed at the top by a wattling of willow withes, the lower ends of the boards being driven a short way into the ground, while one or two intermediate stripes of red paint resemble other bands when viewed at a distance. From the grave itself is erected a long, light pole twenty or twenty-five feet in height […]. Not far away, and always close enough to show that it is some superstitious adjunct [note Schwatka's ethnocentrism] of the grave itself, stands another pole of about equal height, to the top of which there is fastened a poorly carved wooden figure of a fish, duck, goose, bear, or some other animal or bird.
>
> This second pole may be, and very often is, a fine young spruce tree of proper height and shape and convenient situation, stripped of its limbs and peeled of its bark. The […] figure at the top may thus be easily placed in position before the limbs are cut off. It is sometimes constructed as a weather-vane, or more probably it is easier to secure firmly in its position by a wooden pin driven vertically, and so as the green wood seasons and shrinks it becomes as it were a sepulchral anemoscope without having been so intended. These poles may be horizontally striped with native red paint, and the outside pole has one or more pieces of cloth suspended from its trunk. These graves are always near the river shore, generally on the edge of a high gravel bank which is in course of excavation by the swift current, and when fresh and the boards white are visible from a distance of many miles. There is no tendency, as far as I could see, to group them into graveyards, beyond the fact that they are a little more numerous near their semi-permanent villages than elsewhere, the convenience of interment being evidently the controlling cause of location (Schwatka, 1893: 216-219).

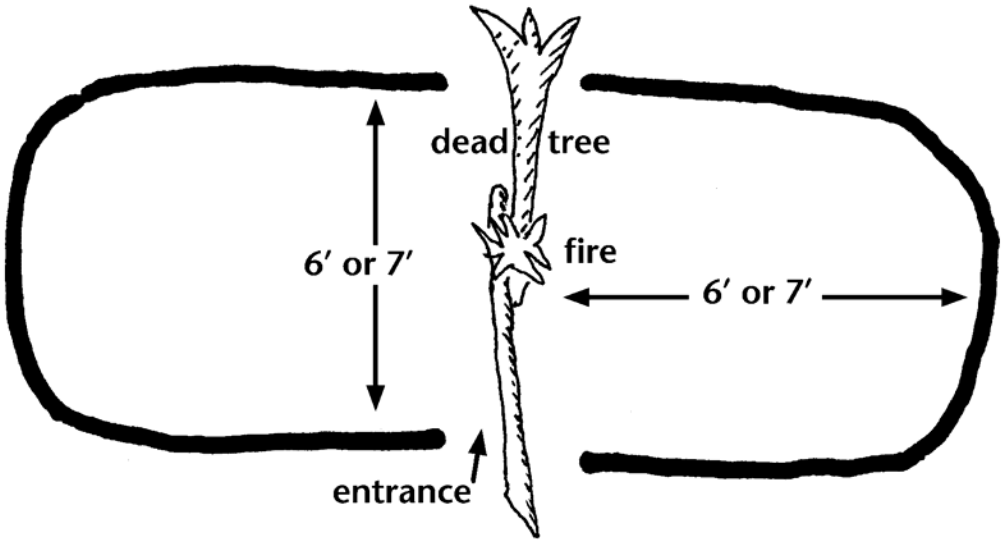

DIAGRAM XI. FLOOR PLAN OF A DOUBLE LEAN-TO
as represented by Schwatka (1893: 229)

Photo J
Two canvas tents set face just like the old double lean-to (circa 1900). Tutchone reported that they used to set their tents just like in this photography.

The above description[464] matches those of the graves seen by Dawson during the same period (1888) in the Pelly River valley and with the ruins of ancient graves seen by the Tutchone in the vicinity of Little Salmon, Big Salmon, Tatlmain and Aishihik.

A few other means of individual consumption are described in historical documents. Campbell (in Wilson, 1970: 112) depicted the baskets of woven spruce roots. His comments have already been reproduced. While mentioning the existence of birch ladles in passing, Schwatka (1893: 327) gave a few details about the birchbark baskets and the large ladles made of Dall sheep horns (which the archaeologist Johnson (in Johnson and Raup, 1964) attested were used in 1850):

> Their household implements were of the most primitive type, such as spoons of the horn of the mountain goat [sheep] very similar to those of the Tlinkits, but by no means so well carved; an a few buckets, pans, and trays of birchbark, ingeniously constructed of one piece so as not to leak, and neatly sewn with long withes of trailing roots. (The finer thread-like spruce roots, well-boiled, are, I believe, generally used by them in sewing their birch-bark […] utensils) (Schwatka, 1893: 229).

The same author described the following technique for carrying babies:

> The Ayan [Selkirk Tutchone] mothers, instead of carrying their babies on their backs with their faces to the front, as is usually done by savage women, unless when using a cradle, turn them around so as to have them back to back, and carry them so low as to fit as it were into the "small of the back" (*ibid*.: 231).

Cross-checked against oral accounts, the above description would appear to be in reference to the leather strap used to carry children over two years of age, and in no way refers to the way in which infants were transported. Infants were carried in a baby carrier made of birchbark similar to the one used by the Gwich'in circa 1850 in which the child sat with his or her back to that of the mother (cf. Murray, [1847-1848], 1910: 92, illustration).

Other means of consumption for which a description would be in order are not mentioned in period documents. Such goods include drum frames, sun goggles, bedding, plates made of moose antler, "cups," oil for drinking, chewing ashes, ritualistic objects, medicinal remedies, sweathouses. For these, we must rely exclusively on oral tradition.

Drums were made of cylindrical birch frames about 60 cm in diameter and only 6-7 cm in height with moose hide on one end of the opening. Campbell mentioned the use of drums in 1851.[465] Sun goggles were simply a piece of birchbark with two narrow slits through which to see. Bedding consisted of two moose skins. Dall sheep were preferred if available. The skin was softened through tanning and placed, fur side in, on a floor of spruce boughs; the Tutchone slept between the two hides, one used as a groundsheet and the other as a covering. The plates made of moose antler were nothing more than rudimentary serving plates.

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[464] The grave enclosures described by Schwatka (1883: 216-219) includes speculation as to a purported totemic system with respect to the origins of these grave enclosures, etc. As Schwatka spent only a few hours among the Selkirk Tutchone, and as this part of his reports totally contradict what the Tutchone report, there is no reason to believe that these words reflect the results of interviews with the Indians. The passages in question have therefore been omitted. However, everything directly observed and recorded about appearance and materials used in grave enclosures has been reproduced.

[465] Campbell, *Lewes and Pelly Forks Journal*, July 14, 1851.

Cooked meat was placed on these plates and people helped themselves from these plates by hand and ate on plates simply made from freshly collected spruce boughs and set before them. Cups used for drinking (made from the paws of porcupines) were more unusual objects. They were used in the rites of passage of boys between the ages of 12 and 15. The paws were removed from porcupines after the animal had been grilled over a flame. They could hold the equivalent of two soup spoons—the maximum amount of water that boys were allowed to drink daily during their first hunts for large game. Oil was derived from moose or bear fat that had been rendered and was drunk from ladles made of Dall sheep horns. Chewing ashes were made from a fungus (hardwood like) that grows on birch trees and were used both to stretch tobacco supplies, to intensify its flavour and to give a light mood altering effect. The objects used in shamanism were often pieces of skins, furs from small animals, down and bird parts, etc. which the shaman kept in a pouch. Medicinal remedies were infusions or pastes made from leaves or roots which were fresh, dried or boiled.

The following is a description of sweathouses:

> The original sweathouses were dome shaped, made of bent poles and covered with moose hide. Several people put hot rocks in the hole [dug in the ground] and, after swimming in a creek, they go into the tent closing it tightly behind them. They throw water on the rocks to make the steam which heats the tent. Our informants assured us that no one dove into the creek afterwards (Johnson and Raup, 1964: 195).

This description, given for the Kluane Lake region, corresponds to what I heard of from the Little Salmon and Tatlmain people, the only difference being that no mention was ever made of the practice of bathing beforehand.

Now let us look at the general principles of certain fabrication techniques with which Euro-Canadians are not very familiar: indigenous cooking methods, wood construction without the use of nails, tanning of skins and furs, and the making of leather clothing.

The Tutchone explained that food could be prepared in one of four ways: boiled (*in m^{r}aa*), roasted (*in ts'o*), dried (*in gan*), and a few foods could also be eaten raw (berries and some plants). Boiling and roasting as cooking methods in 1850 were observed by Campbell (in Wilson, 1970: 112) and documented also by Johnson (Johnson and Raup1964) in the archaeological record. Campbell (*ibid*.) even provided a detailed description of boiling food:

> […] their kettle was made of the small fibres of the roots of trees, mostly split & then knitted up tight & close like a blanket; after using it for a time it comes water proof & is then fit for cooking purposes; the method being to heat stones in the fire & throw them into the "kettle" with a pair of tongs formed by bending a stick, & keep on doing so until the water is boiling & the food cooked. By the time this is accomplished to the satisfaction of the "chef," the water is converted into a pretty thick soup—not with vegetables like Scotch broth—but with sand & ashes conveyed into the cooking utensil by the hot stones.

There was an alternative to this method when no baskets were available. If a large animal had been killed, its stomach was cleaned out and filled with pieces of meat, blood and water. The "stuffed" stomach was then hung on a piece of wood very near a fire. The pouch was turned from time to time so that all sides were exposed to the heat source and so that none of the sides became burnt as a result of being exposed to the heat too long. After an hour or two, the contents were ready to eat.

The method used to dry fish and meat was described in Chapter 7 and does not need to be repeated here. Berries were dried in the open air, either on a skin or a plank. They would be turned from time to time, and closely monitored to ensure that birds did not steal the fruit away. All dried foods (fish, meat and berries), could be eaten as such (i.e., raw but dried) or could be boiled.

Roasting was sometimes used to cook the flesh of large game animals and salmon, but was most often used for small game: hare, gopher, grouse, etc. The technique was very simple and consisted in cutting the meat of large game and salmon into thin strips about 20 cm long which were then skewered onto the end of a willow stick that was then staked into the ground near an open flame. The same technique was used to cook small game except that the entire carcass was suspended near the fire. If one did not care to salvage the fur of a small animal or the plumage of a bird, it was burned off in the flame. One exception was the porcupine which was too large to be skewered on a stick and too difficult to manipulate. It was placed directly on the coals and turned over using branches. Alternatively, front and back paws could be tied to willow withes and the porcupine swung over the flames by two persons.

How were pieces of wood assembled to construct an object without nails? Implements in this class include birchbark containers, moose-skin boat frames, sweathouse frames, log rafts, etc. In Schwatka's historical accounts (1893: 216-219, 229), we are informed that pieces were tied together either with roots or babiche. Tutchone have also described the use of pegs to join large wood pieces.

What about shaping wood and antler or horn? The Tutchone had no templates or patterns to pull apart the edges of their dug-out canoes, bend thin planks for their snow shoe frames or shape Dall sheep horn into ladles. Here is how they did it. They first created a preliminary shape by cutting the raw material with an adze, knife or chisel and then placed the item in a sweathouse. The sweathouses used for these purposes functioned on the same principle as those used for body care, except that they were of various shapes in order to accommodate the sizes of the objects undergoing transformation. Once the horn or wood had become pliable enough under the effects of the heat and humidity, manual traction was used to give it its ultimate shape and strong babiche ties helped maintain it in that position. For dug-outs, the trunk of a tree had to be hollowed, filled with boiling water and the edges pried apart with the strength of one's arms and legs. Narrow wooden boards were then put in place to maintain the shape.

Let us now turn to the matter of how skins and furs were tanned and how pieces were measured, cut and sewn together to make clothing. A scraper was used to remove any remaining trace of flesh or blood from beaver, marten, moose and other hides. To make chamois leather from moose or Dall sheep skins, the hair and blackish tissue that covered the skin had to be shaved of course. This was also done with a knife and scraper. With the fur scraped off or left on, the hide was then washed and rinsed four or five times with tepid water and then hung out on a drying stage where it became a rigid, parchment-like leather. Later, often in spring or early summer, the parchment-like leather was soaked in a tanning solution made of water and moose brain, which acted as a detergent and tanning agent. Once softened in this way, the hide would be wrung vigorously with the help of two sticks. While still damp, it was hung over a horizontal pole and firmly fastened to it. The pole was set shoulder-high to a standing woman. There, the skin was scraped with a coarse stone semi-

lunar scraper for hours. Once that phase was completed, a hole was dug into the ground and a fire set, fuelled by burning rotted roots which exuded a very thick smoke but no flame. A dome-shaped structure made of willow stems about 1.5 m high and 1.2 m wide at the base was set up over top of the hole. The hide was then placed on the dome structure and smoked until it developed tones ranging from yellowish to orangish. This smoking process not only made the skin suppler, it also made it less likely to rot. The next day, or some days after, all of these operations were repeated (soaking in tanning solution, scraping, etc.) six or even eight more times in succession. At the end, the skin had taken an orangish colour and become true chamois leather. In all, it took about seven or eight hours of labour each day over 15 days (spread over several weeks) to turn a moose hide into chamois leather. Turning a beaver pelt into soft fur took four or five days of labour.

Once transformed into chamois leather or tanned fur, skins were ready to be used into the making of clothes. To measure the pieces to be cut, the skin or pelt was placed against the body of the person for whom it was being made. The pieces were then cut with a knife and sewn together with sinew (for thread) which was drawn through small holes made with an awl.

9.1.2 The Various Types of Transformation Industries

With these details, we can now present the types of transformation industries, the various tasks peculiar to each type of industry and the work patterns associated with each task. An analysis of Tutchone's accounts reveals that there were 16 types of transformation industries: 1) breeding, raising and training dogs; 2) quartering and cutting up game; 3) starting and using fire; 4) cleaning semi-finished products derived from the quartering process; 5) cutting/shaping wooden parts; 6) drying semi-finished products; 7) freezing semi-finished products; 8) cutting meat and then drying the strips so produced, cutting fish and drying them; 9) cutting and polishing raw materials; 10) cutting and shaping raw materials with steam; 11) hammering and scraping raw materials; 12) hammering and polishing raw materials; 13) scraping and washing raw materials; 14) cutting hides; 15); painting or dyeing raw materials; 16) assembling semi-finished products into finished goods.

What were the work patterns involved in each industry? How can we be sure that nothing has been omitted? To answer, we will divide the finished products used or consumed by the Tutchone into either of the following two categories: 1) finished products obtained simply through extraction; 2) finished products obtained by transforming raw materials taken from nature.

While the first category of products requires no discussion, there is a valid reason for providing a list of such products since not presenting one would leave the door open to a series of questions along the lines of: "In Chapter 6, such and such a consumption product was mentioned, yet there is no indication anywhere as to how it was made." It is therefore best to stem such queries by answering them at the outset, and the best way of doing so is to present an inventory of extracted natural products not subject to further transformation.

Our investigation may then be carried out by dividing all the work phases related to all finished products over the 16 industries cited above, next, by grouping similar work phases

in each of these industries and then by explaining the work pattern for each group of similar work phases. That way, we can be sure that no work phase is left out.

The list of finished products that were obtained simply by extracting them from nature is not too long: pyrite (*tłao*); stones used to boil water (basalt was by far preferred because it did not crack when thrown red-hot into water); work mats and plates made of poplar or willow boughs; drinking water; squirrels and fish fed to dogs; ritualistic or aesthetic objects made of unique stones; coal amulets; raw bear root; raw berries, dried mushrooms taken from squirrels' reserves; fresh leafy greens; spruce resin as a mosquito repellent, analgesic, disinfectant, deodorant for hare traps, chewing gum and glue; sweet drinks made from lodgepole pine or poplar sap; disinfectant made from lodgepole pine sap; laxative made from birch or poplar sap; cold remedy made from birch sap; firewood;[466] ordinary pebbles for fish net ballasts; dyes derived from ochre, lichens, alder and fresh berries; tree trunks used as bridges; snow or water for cooking.

Now let us look at how all the transformation activities are divided up among the 16 industries listed above, beginning with those associated with animal breeding and describing the type of work they entailed.

9.1.2.1 Animal breeding

Animal breeding, it will be recalled, involved raising dogs (or young wolves) to become work animals or to be given to children as pets (dog pups). In the first case, the animals were fed and trained; in the second case, they were simply fed. The Tutchone stated that this work was done by men, women or children, depending on the circumstances. Food was given to the pups and tossed to work dogs and tamed wolves. Both dogs and wolves were trained by osmosis, meaning that each animal was simply integrated gradually into an already trained group. In all cases, the human work was an individual undertaking.

9.1.2.2 Skinning and quartering game

These activities comprise the second transformation industry. Skinning wolverine, marten, weasel, ermine, moose and Dall sheep, and plucking eagle feathers were masculine tasks. Skinning hares and gophers and "shearing" moose hair and Dall sheep hair (used as stuffing in harness collars, or for trade) were women's work. The tasks of quartering meat and removing organs, entrails, hooves, antlers were divided as follows: men did all of the above for moose, Dall sheep and bears; women looked after processing grouse, ducks, swans, jays, buntings, lynx, muskrats, hare, gophers and fish. The Tutchone did not speak of any form of cooperation for any of these tasks; work was always done individually. The carcasses of the smallest animals (no bigger than fox or wolf) were brought back to camp whole. There, they could be prepared by one person. As for fish, such as keta salmon for example, the women at the camp worked side by side, but they did not, technically speaking, work as a coopera-

[466] Firewood was dead wood collected daily in the taiga. In front of the lean-to or between two lean-tos facing one another, the ends of two uncut tree trunks would be placed together; as the wood burned, one trunk was pushed closer to the other so that they overlapped by 50 cm or so. The Tutchone still do this today, and the practice probably dates far back in time as cutting tree trunks without a saw was a most arduous task.

tive unit; each carried out all tasks from beginning to end on her own. The largest animals—moose for example—were skinned and quartered on the spot by the hunter who had made the kill. For strategic reasons, there would only be one hunter at the site of the kill (cf. Chapter 5). As the hunter would have been at a considerable distance from his people, there is no doubt that this work was done by that individual alone. To conclude this section, we will note the average work times for certain activities: approximately 20 minutes to skin a fox (Tollemache, 1912) and about an hour or an hour and a half to skin and roughly quarter a moose, depending on the individual's experience.

9.1.2.3 Burning materials

Obtaining finished products either by burning a primary resource or by using the energy given off by burning a primary resource is the third transformation industry. One type of finished product obtained in this manner was the heat used to keep warm in winter and the smoke produced by burning green wood to repel mosquitoes and blackflies in summer, as well as masking any food odours that could attract bears. The work associated with this "production"—lighting a fire—was carried out by men and women alike. The second type of product obtained through this type of activity was done by exposing a primary resource to the smoke of a fire. Dressed leather, sanitary napkins and diapers (made from the "cotton" obtained from squirrel nests) belonged to this category. We have seen how smoke was used to produce dressed leather. Let us now look at how sanitary napkins and diapers were made. As the "cotton" from the inside of squirrel nests was always infested with fleas and lice, it was impossible to use it in the state in which it had been collected. Exposing it to thick smoke destroyed vermin and sanitized it for its intended purpose. These products were always made by women. The third type of product acquired through combustion included all goods made of ash or the remains of a burnt primary resource: the ash of birch fungus as additive to chewing tobacco; the ash of cottonwood as a deodorizer for beaver traps; the ash of alder bark as a multi-purpose deodorizer (traps and deadfalls); and burnt palms of porcupine paws. These tasks were carried out by the individuals who used the products, generally the men. The last type of product obtained through the use of fire included drinking water produced in winter by melting snow, boiled food (*in m^{r}aa*) and grilled food (*in ts'o*). These could be prepared either by women or by men, the latter being responsible for preparing formal meals (boiled moose meat, liquefied oil, etc.) served at celebrations. The existence of a division of labour for food preparation was attested also by a fur trader who maintained contact with the people of Little Salmon from 1900 onward (Field [1913], in MacNeish, 1957: 59). As the Tutchone remembered it, none of the tasks associated with preparing these products lent themselves to collective efforts; all were individual tasks.

9.1.2.4 Cleaning

The fourth transformation industry consisted in simply cleaning the semi-finished products obtained through quartering game. Among the goods derived from this industry were moose shoulder blades which, when scraped against trees, produced a sound that attracted male moose during the rutting season; various pouches and containers made from the stomach, bladder and entrails of moose, Dall sheep and bears; pouches to store ritualistic objects made from the hollowed necks and heads of loons; swan bone drinking "straws" used in

girls' puberty rituals; swan down used in peace rituals; and eagle feathers. These tasks were performed by men or women working alone.

9.1.2.5 Cutting Wood

The fifth transformation industry consisted simply in cutting wood. The semi-finished and finished products thus derived included digging sticks, wooden springs for small traps; sticks used in the framework of leather smokers, fish traps, sweathouses and moose-skin boats (obtained by cutting willow or spruce branches of various strength); wood for "carpentry" and "rattan" for basket weaving (e.g., cooking baskets, etc.) and ties made of spruce or willow roots (obtained by cutting the roots into fine strips); shaped logs used to make grave enclosures, rafts, deadfalls for bear, marten and mink, as well as ground caches, scaffolding and fish weirs; posts for summer shelters (made of small birch trunks); beams for fish drying racks, frames for lean-tos and conical houses (made of spruce trunks). Splitting of wood with a wedge and then cutting the pieces with a knife or adze to shape the wood for its intended use was carried out when required. According to the Tutchone, all these tasks were the work of individuals who would be using the object (male or female). There was no need, either for men or for women, to work cooperatively.

9.1.2.6 Drying semi-finished products

The sixth transformation industry—drying semi-finished products (*in gan*) (excluding meat and fish)—resulted in the following products: sinew threads for "sewing" (made by drying the sinew of large animals); amulets made by drying eagle claws; sanitary napkins and diapers by drying sphagnum moss (a material preferred over squirrel nest "cotton" mentioned earlier); powder derived from puffball spores to aid in the healing of wounds; analgesics (made from birch or alder leaves); remedies for diarrhea (alder bark); dried berries. In all cases, these simple tasks were carried out by women and children working individually.

9.1.2.7 Freezing food

The seventh transformation industry: freezing food. This option for preserving berries, meat and fish was available to the Tutchone from mid-October to mid-May. The work itself was very elementary, as one needed only to place the products that had been gathered (berries) or cut up (meat and fish) away from the reach of dogs and wild animals and simply let them freeze. This was individual work done by women or men, depending on circumstances.

9.1.2.8 Cutting fish and meat

The eighth transformation industry involved cutting fish and meat into strips for drying. This was the only other method known traditionally to the Tutchone for preserving fish and meat, and was generally done from mid-May to the end of September. The work involved in this task was described in Chapter 6. Cutting and drying meat and fish entailed hours of tedious labour for the women who worked individually or in the company of others in the camp, though no cooperation was needed. Each one would process a fish or a piece of meat from beginning to end. Once the protein foods were about 80-90 percent dried (Tollemache, 1912: 294), they could be easily transported. It should also be noted that experienced women were absolutely necessary in this branch of production. Men, and adolescent boys, could not do this work efficiently, as proper training called for many years of practice.

9.1.2.9 Cutting into shape and polishing

The ninth transformation industry: production by cutting and/or polishing primary resources. Goods derived from this activity included sun goggles made from birch bark; crooked knife handles; wooden wedges made from spruce knots; plates; ladles; bowls (*tu tian*); wooden tongs to manipulate heated stones used in cooking, fish hooks (*trã'*); salmon clubs; handles for chisels, spear and harpoon shafts made from staves of birch wood; tool handles; "wash basins" carved into spruce trunks; bows and sterns of moose-skin boats which were cut from the root of white or black spruce; planks split from different varieties of trees; bow drills used to bore holes and bow drills used to make fire, both of which were made from cottonwood; scrapers; "needles" for "knitting" gopher fur strips into blankets; awls, punches, arrowheads and harpoon points made of moose antler; gouges and carving tools made from beaver teeth.

The tasks associated with making these tool components were performed by men working on their own. The first phase was carried out using a wedge, an adze or a knife; the second, with a stone polisher. From a structural standpoint, both phases shared similarities with the task of cutting, presented above. From a human standpoint, however, they were different and that is why they are treated separately. What made them different was that, instead of proceeding to transform any raw material, one first had to find a specimen of the material that was particularly well suited for making the desired object. The rudimentary shape carved in this manner was then polished with a piece of sandstone or other abrasive stone. The skill required for the work was comparable to that required by a master craftsman, which is why it was almost always done by adults.

9.1.2.10 Cutting and shaping wood with steam

The tenth transformation industry consisted in cutting and shaping wood with steam or boiling water. Products made through this process included plates, awls, spearheads, chisels, arrows, bunting arrows, harpoons, adzes, hammer and gouge handles which were made from moose antlers, handles for various tools, and ladles (*t'sa'*) from Dall sheep horn, "warning bells" made of moose hooves which were tied to beaver nets, dug-out canoes made from cottonwood, bows and arrows, fur-stretching frames and snowshoe frames (all made of birch), and thin narrow birch staves which were bent into a circle to make wooden drum frames.[467]

Transforming moose antler and Dall sheep horn into useful objects was men's work. The task of shaping wood would sometimes be done individually, and sometimes cooperatively, in which case two individuals were needed (to make dug-out canoes and drum frames, for example). This form of cooperation was absolutely necessary. In fact, while one worker put all his strength into bending the very stiff board, the other had to follow the instructions of the first to tie the wood or insert the necessary holding pieces. In general, all the individual tasks were assigned to men, but when cooperation was required for a particular task, production teams often consisted of husband-and-wife dyads.

[467] Snowshoes were made or repaired in September-October (cf. Bompas, 1888: 40).

9.1.2.11 Hammering and abrasion

The eleventh transformation industry: production through hammering and abrasion. This type of activity was used for copper items, such as knife blades, spearheads, arrowheads, wood carving tools, nose-rings, earrings, amulets, etc. The task was carried out by men working alone. Glave (1892) indirectly attested that such was the case in 1891.

9.1.2.12 Hammering and polishing

The twelfth transformation industry: hammering and polishing. With this type of action, stone could be fashioned into hammers or blades for adzes, obsidian into knife blades (no polishing involved here), and slate into polishers and hide scrapers (*da.δo*). The Tutchone with whom I consulted knew only of the technique for making hide scrapers. The making of this tool was individual work. However, they were certain that all the work involved in making points for tools was the work of men and was carried out individually.

9.1.2.13 Scraping, stretching, washing and tanning hides

The thirteenth transformation industry—scraping, stretching, washing and tanning skins and furs—was reserved for women. Wringing skins and furs dry and the laborious task of scraping them with a stone hide scraper required the cooperation of two people, generally a team made up of a woman and her mother (or daughter or sister). The other work phases related to this activity were individual tasks. Through this industry, people produced bedding made of moose skins, bear skins and Dall sheep skins which were used with the fur turned inward; tanned hides (chamois leather) of moose and Dall sheep skins for clothing, and furs of wolf, wolverine, fox, marten, weasel, ermine, lynx, beaver, hare, gopher, muskrat and marmot. Skins and furs were then used to make ordinary and formal garments.

9.1.2.14 Cutting skins and other materials

The fourteenth transformation industry: cutting skins and other materials. Skins were cut to produce babiche, pieces for all clothing and all hide pouches, covers for moose-skin boats made of raw moose hide, cut porcupine quills or feather shafts for making beads, feather shafts for gopher snares (eagle feathers were preferred), fletching of arrow shafts (eagle feathers, once again, were preferred) and lastly, the pieces used to make all types of birchbark containers and baby carriers. The work involved in making bead pieces, parts for clothing, pouches and bedding were tasks carried out by women working on their own. Working with birchbark was also individual work, but unlike the former type of work, this could be done by men or women. Sinew thread production could be listed here too, although the thread was separated by hand after the dried sinew had first been pounded into a sort of "tow." This was mainly done by women and girls.

9.1.2.15 Painting and dyeing

The fifteenth transformation industry: painting and dyeing. The purpose of this industry was to produce tattoos, face paint (women's work for the most part, even though the paint was intended for men), protective paint made of ochre and oil brushed on to wood and tanned hide (men's work), as well as dye made from berry juice or alder bark used in colouring porcupine quill beads (women's work). Whatever the task, it was done individually.

9.1.2.16 Assembly

The sixteenth and final transformation industry: assembly. The Tutchone braided sinew to produce fine string (*iɛ tliau'*) which was used, among other things, to make snares for small game and fish nets.[468] They also braided babiche to make rope (*kieŋtl'an*) which was used to make, among other things, snares for large game animals such as moose. Fine strips of hare fur,[469] gopher fur or lynx fur were "knitted" to make fur robes (*ts'at*). Lastly, fine spruce roots were braided to make baskets for cooking. Working with sinew and furs and making baskets was women's work and done individually; braiding rope, on the other hand, was men's work and also done individually. Fine strips of babiche were woven to make the lacing for snowshoes (*iɛ'*) and beaver nets, while sinew was used to make fish nets (*tɛ mieŋ*). Aside from the beaver net for which the facts are uncertain, these tasks were all women's work. Making the lacing used for snowshoes was individual work, whereas making fish nets was a cooperative effort involving, generally, two women. (Although cooperation was not required for the technique, it took so long to tie knots in the net that the job was done more quickly when several people worked together to make it.)

The assembly industry did not end there. Sinew was used as sewing thread to produce the following goods: pants (*θo'*); moccasins (*k^{h}ii*); tunics; mittens (*maat*); feather tunics (*tro ts'at*); straps; robes made of luxury furs (*ts'at*); dog harnesses and pack-saddles (*tɬing yao'*), quivers; pouches; hunting bags; ballast pouches on fish nets; covers for moose-skin boat (*tsɛk' k^{h}uu*) made of green moose hide, and bead decorations (*tso'*). Fine roots were used for sewing birchbark baskets and baby carriers (*k'ii*). The assembly work required to produce these items was performed entirely by women, each one working by herself.

Tying was another important assembly technique. It was the final work phase in producing bow drills (*'iɛ sru'*); bows; skin toboggans (*dlu*); hafting and feathering pointed and bunting arrows; adzes (*x ot*); scrapers; knives (*mraa*); mauls; fish spears (*træ' to'*); salmon spears; harpoons; ice chisels (*taanaa*); awls; clubs; gouges (*nah tθaa*); drums; graves (*tθan k'ii*); rafts;[470] frames for skin boats, sweathouses, smokehouses for skins, funnel-shaped fish traps, fish weirs, snowshoes and vertical snares (*gɛh miaŋ'*). Aside from fish weirs and funnel-shaped fish traps which took two to five men to set up (see above), all these products could be made individually and were generally always the responsibility of the men, especially the hafting of arrows, attaching feathers to arrow shafts and attaching bow strings using sinew was done by men.

The last form of assembly consisted in fitting pieces together without the use of ties. The Tutchone used this technique to produce lean-tos made of spruce trees and branches (*k^{h}ũ'*), conical houses (*niŋ ma'*); snow shelters (*jya khũ'*), ground caches, caches (*dædzaw*) and deadfalls. Snow shelters were put together in emergency situations by men and women

[468] Bompas (1888: 91) attested to the use of braided sinew.

[469] Glave (1892) attested to the used of hare fur blankets.

[470] The tree trunks used in rafts were attached together with fine twigs of willow as well as pegs. This assembly technique was observed in 1891 and 1900 (cf. Glave, 1892: 874; Armstrong, 1936: 201; Tollemache, 1912: 238). It should be noted that while women did not build rafts themselves, they were quite adept at using them without the assistance of men (Redmond, 1891: 621).

alike. The spruce lean-tos and conical houses were built by women (men did this type of work only in the absence of women or to assist them). Men were responsible for building ground caches, elevated caches and deadfalls.

Only one of these work phases called for synchronic cooperation. When a family lean-to or conical house had to be built, it needed to be done quickly as it was generally done at the end of a day of travel. While these shelters could be built by one woman alone, her older children would help to speed up the process (usually the woman stopped before her husband, the latter would keep hunting and return later when the house was built). With the children's assistance, the shelter could be put up in one or two hours. Of course, when a person needed to build a bivouac for him or herself, the work would be done by that person alone.

This summarizes what the Tutchone reported about synchronic work patterns. Let us now have a look at diachronic production patterns. The task here consists of determining whether the different work phases involved in making a finished product were carried out by the same person or team, or whether they were carried out by different individuals or teams in succession and, if so, how the work phases were broken down into tasks performed by specialists or specialized teams.

The first noteworthy point is that the various phases involved in making a great many finished products were carried out, from beginning to end, by the same worker or synchronic team of workers. For these finished products, there was therefore no diachronic division of labour. Such products included, first of all, everything that was a finished product by virtue of extraction: pyrite, stones for boiling water, etc.; next, all of the following goods which, from extraction to the last phase of transformation were carried out by one woman or one team primarily of women: digging sticks, baskets made of woven spruce roots, robes and blankets made of strips of hare or gopher fur; insoles made from hare fur, cooked meat from small game dried by women; cooked meat from small game hunted and cooked by women; fish either cooked, dried, or frozen by women; dog food prepared from squirrels or fish which were also captured by women; sanitary napkins and diapers made from moss or the "cotton" lining of squirrel nests; powder extracted from puffballs used in healing wounds; lean-tos erected by women (assisted by their husband and/or children); work mats made of tree boughs; smokehouses; dried berries; dyes made from plants, bark or fruit collected by women.

The Tutchone reported that many products were made, from beginning to end, by one man or by a small group of men. Among the goods produced single-handedly by men we find hide scrapers; stone abraders; wood working tools, awls, gouges, hooks, clubs, plates, ladles, large ladles (made either of bone, moose antler or Dall sheep horn); necklaces, bracelets, earrings, nose-rings (made of copper); wedges, sweathouses, sun goggles, dug-out canoes, caches, ground caches, grave enclosures, deadfalls, rafts, funnel-shaped fish traps, fish weirs (all made of wooden parts); deodorizers for traps (bark ash); pouches made of the stomachs, bladders or entrails of large animals; fresh meat and fat from animals that were hunted, quartered and cooked by men (bear, moose, Dall sheep, etc.) or used as bait in traps; fish caught by men and fed to dogs.

The second point to note is that a fair number of finished goods were obtained through a diachronic division of labour between husband and wife. For example, one or two work phases would be performed by the man while most other phases would remain the responsi-

bility of the woman. The following products, which were made by women but with primary resources produced by men, comprised this diachronic division of labour: tanning solution; nets; cord and small snares made of sinew; babiche; sewing thread, dried salmon and other fish; dried meat from moose, Dall sheep, bear, lynx, beaver, etc.; skin toboggans; packs borne by dogs; harnesses; quivers; pouches; hunting bags; tunics; pants; mittens; socks; beaver kit robes, marten or fox robes; bedding made of the skins of moose, Dall sheep or bear; beads derived from porcupine quills or eagle feather shafts; dress ornaments made of the furs of wolf, wolverine, weasel, ermine or eagle feathers or swan plumage; pouches made from the stomach or entrails of large animals and cleaned out by women; baskets and containers made of birch bark.

The following items were produced by men through an inverse asymmetrical diachronic division of labour with at least one primary fastening material (i.e., babiche or sinew transformed into "thread") produced by women: drum frames; mauls; clubs; adzes; gaffs; sticks; salmon spears; bow drills; knives; ice chisels; spears; harpoons; bows and arrows, snares for large game; smokehouse frames (covered with hides).

The third and last noteworthy fact is that cases of more complex diachronic division of labour were rare and also limited to work phases which were divided between a man and his wife. These included fire obtained from wood (collected by women), and pyrite or from a bow drill (produced by men); drums, snowshoes and moose-skin boats made of frames or structures (produced by men) and dressed hides, babiche lacing or green hide (produced by women) and, lastly, dogs trained and fed jointly by men and women.

What we learned overall from the Tutchone is that there were traditionally only two types of *synchronic* work patterns: the first and most important being individual work which probably accounted for 98 percent of all work phases, while the second entailed simultaneous cooperation, but was only uncommonly used (e.g., to make dug-out canoes, drum frames, shelters, to set funnel-shaped fish traps and weirs, and to wring skins dry and to tie nets). Aside from building fish weirs, which required the cooperation of two to five men, all cooperative work required only that a man work simultaneously with his dependents (including his wife) or that a woman work simultaneously with her dependents (including her husband). Apart from building lean-tos, in which women were normally assisted by their children, these cooperative processes generally depended on only two people: spouses whose children were not old enough to work formed the cooperative unit.

As regards *diachronic* production patterns, everything we learned may be summarized as simply. The production process for approximately half of all finished products was not associated with a diachronic division of labour. From beginning to end, the transformation process for this category of products remained in the hands of the same worker or team of workers. The other half of all finished products called only for a minimum of diachronic division of labour—tasks were divided between husbands and wives.

9.1.3 Verification

Now, two important questions remain to be solved: (1) How does the Tutchone's ethnohistoric tradition compare with that documented for neighbouring peoples; (2) Could these pat-

terns have been in effect, given the spatio-demographic context in the mid-nineteenth century?

For the first task, we can limit our study to the Tutchone's immediate neighbours—the Tagish, the Southern Tutchone, the Upper Tanana/Nabesna, the Han and the Kaska—and to a more remote group, the Ingalik, whose transformation industries were the subject of one of the most comprehensive studies ever undertaken on such a subject. The point of the exercise is not so much to determine whether all the tasks carried out by these neighbouring peoples were the same as those carried out by the Tutchone, but simply to see whether the activities of neighbouring peoples, which were similar to those of the Tutchone, led to the work patterns reported after 1972 by the Tutchone.

Such a comparison brings out, first of all, discrepancies in the composition of certain teams of synchronic cooperation. According to the Tutchone, lean-tos were built by teams made up of mothers and their children, men being rarely involved in this type of work. Ingalik men, in contrast, coordinated the work team (Osgood, 1940: 318-232), while Southern Tutchone and Tagish men were routinely a part of the team at the very least (McClellan, 1975b: I).[471] The Tutchone claim that two people would work together to shape wood for dug-out canoes, whereas the Tagish, the Southern Tutchone (McClellan, 1975b: I, 270) and the Kaska (Honigmann, 1954: 46-47, 55) say that these tasks were done by individuals. The Northern Tutchone specified that certain phases of the tanning process and of making nets were shared by two people. This form of cooperation was not reported among the Ingalik (Osgood, 1940: 212-215). The same Tutchone people described caches, rafts, grave enclosures and babiche as the work of individuals. Ingalik men would carry out the first three activities in small groups (*ibid*.: 336, 381, 409-416). Among the Ingalik (*ibid*.: 105), Southern Tutchone and Tagish (McClellan, 1975b: 270) and Upper Tanana/Nabesna (McKennan, 1959: 68), the fourth activity (babiche) was done in pairs.

Next, the comparison reveals that certain activities assigned to one gender or the other among the Tutchone were in fact performed by the opposite gender in neighbouring regions. Among the Tutchone, spruce roots for making baskets or "cord" were extracted by women; however, among the Ingalik (Osgood, 1940: 84) and the Kaska (Honigmann, 1954: 30), the men also participated in this task. The same Tutchone say that babiche was made by women, while it was men's work among the Ingalik. Among the Northern Tutchone, it was the men who played the greater role in cooking. This was also true for the Upper Tanana/Nabesna (Guédon, 1974), the Tagish, the Southern Tutchone (McClellan, 1975b:

[471] The collective work of the Ingalik in building large houses is not taken into consideration here as the Tutchone did not build any structure of this type. Another point should be mentioned. Osgood (1971: 84), in writing about the Han, and Honigmann (1954: 59), in writing about the Kaska, described the cooperation of two nuclear families in building two double lean-tos similar to the kind that Schwatka described for the Tutchone. However, I do not believe that this contradicts what I was told by the Tutchone. It is obvious that the team work (one woman and her children) they mentioned was for the construction of a single lean-to and that it took two families to build two lean-tos facing each other (double lean-tos). However, it did not require the cooperation of two nuclear families as we have two finished products: two face-to-face lean-tos rather than one as the term "double" connotes a single product.

208) and the Han (Osgood, 1971: 144), but apparently, the opposite for the Kaska (Honigmann, 1954: 40-41).[472]

However, these are the only apparent differences. All other work phases common to the Tutchone and their neighbours gave rise to similar work patterns in all groups. Overall, the comparison shows that there are discrepancies between what the Tutchone reported and what was actually practiced by some of their neighbours, but it also shows that the differences were few. In total, only eight differences—no more—were found between what the Tutchone reported and what actually prevailed among the Ingalik.

We must query what these differences represent. Are they minor or representative of more significant differences that are not immediately apparent? This can be determined easily. The study on the transformation industries of the Ingalik (Osgood, 1940) includes all the sub-types of means of appropriation and consumption used by the people of that indigenous group; for example, *x*-shaped gouge, *y*-shaped gouge, *z*-shaped gouge, etc. Each sub-type of finished product is defined under a separate heading where the following information is provided: Athapaskan name; materials used; when and by whom the product was made; when, by whom and how it was used; and lastly, its life span and usefulness. This study makes it possible to assess how many Ingalik finished products were similar to Tutchone finished products. It turns out that the Ingalik produced 411 different finished products through their transformation industries, and that 370 of them had counterparts in Tutchone society.[473]

This being established, we can then estimate how many Ingalik work phases were comparable to Tutchone work phases. The data available for the Ingalik show that an average of five work phases was required for a given finished product. A look at the Tutchone equivalents suggests that the same must have been true for them as well. Based on these findings, the eight differences between Tutchone and Ingalik forms of production can then be generally determined. If 370 Ingalik products were similar to Tutchone products and if, as a result, they had 1,850 work phases in common (370 products multiplied by 5 work phases per product = 1,850 work phases), the eight work phases that were organized differently represented a divergence of no more than 8/1,850, or a difference of around 0.4 percent. What the Tutchone have said about the way their ancestors worked is therefore quite consistent overall with the work phases and work patterns documented among their neighbours.

Let us delve further into this matter. Can these patterns be extended to the mid-nineteenth century spatio-demographic context? This question calls for another look at whether synchronic cooperation and the minimal diachronic division of labour reported to have existed can be explained despite the fact that some Tutchone spent several months of winter and summer in camps composed of 8 to 12 nuclear families and, therefore, between 16 and 24 adults. To answer we have to recall some limiting aspects of the yearly cycle. First, scarcity of food was a common occurrence in winter and it could force nuclear fami-

[472] I did not find data that revealed whether men or women were responsible for cooking among the Ingalik.

[473] The figure is obtained by sub-dividing the types of Tutchone man-made objects listed in Chapters 6, 7 and 9 into particular objects and by comparing the resulting list with the one in the study on the Ingalik (Osgood, 1940: 11-19, *passim*).

lies to leave their large camps and go out on their own. Moreover, some men and their families were frequently required to leave their local group to engage in certain extraction activities such as trapping animals for furs, fishing at different lakes and at spawning areas, and so on. Furthermore, salmon fishing and related industries (i.e., cutting and drying fish, hunting moose, etc.) left barely any time in July, August or September for transformation activities. There could therefore be no absolute guarantee that people remained grouped together all winter, nor, by extension, that they could cooperate with one another at all times. Consequently, the production of the vast majority of their means of consumption and means of appropriation needed to be compatible with the labour force available in the smallest winter residential unit (the nuclear family). Cooperating or dividing tasks among the larger group, rather than limiting them to the nuclear family, would have created habits of social interdependency which would have had counter-productive effects on production in difficult times. Whenever groups had to split up, the members of each family would have been compelled to make the production and consumption goods needed for their survival differently from their customary way, while having to cope with the added stress of dealing with a shortage of resources. In consequence, the pattern described by the Tutchone for the late nineteenth and early twentieth century can almost certainly be extrapolated back in time, given the difficulties of making a living and the socio-demographic situation in 1840-1850.

The last thing to check is whether there is any discrepancy between what the Tutchone have reported and what we know about hunting societies in general. If so, an explanation will have to be sought. Leroi-Gourhan (1964) who, from the 1930s to his death in 1986, devoted his life to the comparative study of techniques best summarizes the situation among most hunters and gatherers.

> The relationship between food, territory and population density at all stages of human technical and economic development is an equation in which the variables are correlated. In the case of the primitive group [understood here as the first form of human society and culture to have existed] the ratios between the terms are the same whether we are dealing with Eskimos, Bushmen, Fuegians, African Pygmies, or certain Indians. This is so strictly true that these trends cannot but be applied in the interpretation of prehistoric data. To provide themselves with food, prehistoric beings had to possess detailed knowledge of plant and animal habitats. The old picture of the roaming primitive "horde" is most certainly incorrect. Some gradual moves out of the group's territory may have occurred, as may accidental or sudden migration, but as a rule the group would have long frequented a territory whose feeding potential was known to it in minute detail. Of course it will always be difficult to tell what a normal Australanthropian or Archanthropian territory looked like. However; the established fact of the existence of huts or tents from the Palaeoanthropians onward makes the terms of the equation comparable to those for the primitive peoples of today [understood here as the hunting and gathering people of today]. Indeed we arrive at very similar terms if we apply standards from the animal world to the Australanthropians and Archanthropians: the territory of primates or carnivores may be large, but it includes specific food and shelter locations which turn it into something which differs from a limitless open space.
>
> Frequentation of a territory implies making periodic journeys over regular tracks. The primitive group is normally nomadic—e.g., it moves from place to place on a regular basis as resources become available, usually following a seasonal cycle. A complex relationship thus exists between the density of food resources, the area that can be covered in daily food-getting forays around a temporary attractive abode, and the territory's total area which is de-

termined by the group's knowledge of a sufficient number of seasonal food producing locations—a balance between food requirements, feeling secure within the habitat, and boundaries with the territories of other groups. Lastly, a limiting relationship exists between the total amount of available food, the number of individuals in the group, and the size of the frequented territory. The density of food resources of course has a directly limiting effect on the number of consumers, but the territory's size is just as much a constraint. The group can only exist if daily forays are compatible with cohabitation or if periodic moves will ensure a sufficient food supply for a corresponding number of grouped individuals. The size of today's primitive groups is determined by two variable factors: constant resources, on the one hand, and periodically available ones, on the other. Constant resources will provide normal subsistence for a group limited at most to some tens of individuals—usually between ten and twenty. Periodically available resources, such as temporary abundance of salmon or reindeer, may permit several such elementary groups to band together. Thus the texture of the social fabric is, at its very origin, closely dependent on the ratio between territory and food supply.

The primitive group is then made up of a limited number of individuals of both sexes, functionally specialized, who throughout a yearly cycle frequent a territory corresponding to their needs. Such a group is basically an elementary subsistence unit capable of ensuring its own survival over a prolonged period, although it may sometimes band together with others. Its main characteristics are complete knowledge of survival practices and technical multivalence. With Eskimos, Australian aborigines, or Fuegians the primitive group composed of a limited number of couples and their descendents offers an overall picture of Eskimo, Australian aboriginal, or Fuegian society; possession of the whole of the group's material culture being essential to the survival of units living in isolation. *More narrowly still, the totality of the group's survival culture is held by the conjugal group, in which it is shared equally by husband and wife.* The couple, especially among Eskimos, may find itself temporarily isolated from all other social units. The fact that in primitive peoples technical specialization does not extend to the sphere of survival operations reflects the basic conditions of life of such groups, where each social unit must possess all the knowledge necessary for survival. Normally the elementary unit will include a sufficient number of individuals for a certain division of tasks to operate among them, older and weaker members being assigned a role in secondary operations, but such specialization does not cast doubt upon the basic principle of multivalence of *each* of the group's members (*ibid*.: 213-214, 216, 218, emphasis added).

Leroi-Gourhan's ethnographic files from which this conclusion was drawn were among the best in the world at the time of his writing. As this scholar was meticulous almost to a flaw, it is difficult to take his work lightly. Of course, some of his vocabulary is outdated, particularly terms such as "primitive group" and "elementary unit." The meaning is nevertheless clear, and it would serve no purpose to refute the content. Moreover, we would hardly want to contest the existence of imperatives that result in a narrow range of similar technical options among distant and unrelated hunting societies for it would then become impossible to explain the following two phenomena. We saw above that the work patterns of the Ingalik and those reported for the Tutchone differed by about 0.4‰, and that those differences were minimal—within the limits of what a nuclear family made possible in terms of work organization. Let us now mention that a brief comparison between Ingalik and Tutchone languages, both of which emerged from the same proto-language, shows that

the terms used by each group for concepts as basic as “hand,” “head,” “water,” “fire,” and so on were completely different in approximately 32-33 percent of the cases.[474] Now, if we keep in mind that indigenous groups certainly could never have made a conscious effort to alter their basic vocabulary, but that they likely made changes in order to improve their interaction with nature, it becomes clear that the great similarity uniting hunters on the technical level originates in a context of quasi-universal imperatives associated with a relationship among food, territory and population density, for which the general terms were fairly similar from one hunting society to another. Thus, Tutchone ethnographic data that Leroi-Gourhan did not know confirm the accuracy of his analysis and, in the end, we must admit that the Tutchone traditional accounts about the overall technological independence of the couple and nuclear family are in no way out of the ordinary.

Where do all these inquiries lead? We noted: 1) that what the Tutchone have said about their transformation industries is not exceptional in the context of Athapaskan societies in the Subarctic and is, in fact, perfectly in line with what existed elsewhere in the area; 2) that their tradition completely meshes with the spatio-demographic context for the years 1848-1852; and 3) that it also reflects the conditions of the vast majority of hunting peoples around the world. A conclusion becomes obvious: What has been revealed here through oral literature about work and production patterns in the transformation industries is certainly extremely close to what actually prevailed in 1840-1850. On certain technical points related to this or that activity or work phase, some readers may still have doubts, a few errors may have been made, but we have to keep in mind that our purpose is not to draw up *a complete explanation* of the making of each and every object, but more simply to identify the limited number of existing forms of appropriating materials (e.g., individual work, limited cooperation, individual diachronic production, conjugal diachronic production, etc.). Erroneous details, if any, would have no effect on the possible number of different work *patterns* or different *forms* of production.

9.2 Changes in the Forms of Appropriating Materials between 1840 and 1920

Work patterns in the *extractive* industries having been presented in earlier Chapters, we have now been presented with a complete picture of the framework of the techno-social relations of dependence and independence between individuals that characterized Tutchone society circa 1840-1850. In the present section we will consider, one by one, each of the factors that might have altered those relations and subsequently determine their true impact. We will then know whether there were any changes in the techno-social framework of production from 1840 to 1920 and, by extension, whether or not the Tutchone’s socio-cultural organization could have been altered during that period through such changes.

[474] For lack of appropriate data, the exact figure cannot be calculated. I have based my estimate on the difference between Upper Tanana and Kaska (43%) and Beaver and Ingalik (33%) (Dyen and Aberle, 1974: 12).

In all, we noted that almost all phases of extraction and transformation were performed through individual *work or labour*, with the following exceptions: 1) hunting bear and Dall sheep by surrounding them, building fish weirs or setting funnel-shaped traps, building lean-tos (all of which called for two to five individuals working as a synchronized unit); and 2) shaping planks for drums and shaping dug-out canoes, as well as drying skins and making fish nets (all of which required the simultaneous cooperation of two workers). Next, we noted that the finished products of all extraction industries, as well as of about half of all transformation industries, were carried out through individual *production* (i.e., no diachronic division of labour) and we noted that the balance of the transformation industries could be carried out simply through conjugal production (i.e., diachronic division of labour between husband and wife).

The question now is whether these forms of appropriating materials changed in the period under study. The answer will show whether or not there was *upheaval in the organization of labour and production* and whether or not the *socio-cultural organization* is likely to have changed as a result of such events from the mid- to late nineteenth century, and then between 1890 and 1920. If we then take stock of what we will have learned at that point, we will see that all that remains to do is to test one last assumption of change related to demographics: Was the Tutchone population decimated to the point where these people had to renounce certain societal institutions, such as clan segmentation, as they would have become demographically impracticable? After this final verification, our inquiry will be complete. In the final and concluding chapter we will provide a summary of the results obtained from the beginning of this work. Conclusions will then be drawn as to the main questions that have interested us since the beginning: Can the oral knowledge at our disposal be used to reconstruct the Tutchone's socio-cultural organization as it existed between 1840 and 1890?

9.2.1 Data Concerning Indirect Factors of Change

Let us begin with a recapitulation of the data concerning the indirect factors of socio-cultural change presented in Chapters 3 and 6, as well as the partial answers already provided. We will thus be able to circumscribe the problems that remain to be resolved both in terms of the forms of appropriating materials and in terms of demography.

What we have called indirect factors of change are the socio-technological and demographic disruptions that might have occurred between 1840 and 1890 and between 1890 and 1920. The direct factors refer to the socio-cultural pressures that might have been exercised by the Tlingit between 1840 and 1890 and by Euro-Canadians between 1890 and 1920. The impact of these was assessed at the end of Chapter 3, Section 3.2.4.

Insofar as concerns the indirect technical factors, we began by surmising that a change in the zoological environment might have occurred and brought about a change in the forms of hunting. We then retained the assumption that European means of production might have caused the disappearance of indigenous activities involved in fabricating local means of production (and therefore certain indigenous forms of appropriating materials), and also that the use of those imported means of production might have altered the way in which materials were appropriated. Next, we noted that the purchase of individual means of consumption

might have also brought about the disappearance of indigenous branches of activity involved in producing the means of consumption and, by extension, perhaps certain work patterns and forms of production. We also pondered the possibility that the Tlingit or Euro-Canadians might have sparked the development of new industries and, in turn, possibly, new forms of appropriating materials. Lastly, we advanced an assumption about epidemics: that they may have led to groupings and agglomerations of different indigenous peoples and/or resulted in certain work patterns or societal institutions being abandoned once rendered impracticable for lack of a sufficient number of individuals.

What have we resolved thus far and what has yet to be addressed? Six questions have been answered. We now know that: 1) the decimation of the Tutchone population did not lead to an amalgamation of the population (Chapter 4); 2) changes in the zoological environment did not alter the forms of appropriating materials (Chapter 5); 3) repeating rifles were the only European implements that could have transformed the forms of appropriating materials (Chapter 5 and 6); 4) the acquisition of European means of production neither eliminated nor originated any branch of indigenous production between 1840 and 1890 (Chapter 6); 5) however, the acquisition on a larger scale of the very same means of production between 1890 and 1920 led to the abandonment of a few indigenous branches of production during that period (Chapter 6); and lastly, 6) a few new industries were born (particularly after 1900).

At present, the following assumptions remain to be tested. Did the sale of means of consumption result in the disappearance of certain indigenous branches of activity involved in producing means of consumption? If so, and considering the branches of activity involved in producing the means of consumption eliminated, what was the effect on the forms of appropriating materials? Did contact between Tutchone and Tlingit—and later between Tutchone and Euro-Canadians—lead to the production of new means of consumption? Did these new means result in the development of new work patterns and forms of production? Did the use of repeating rifles after 1900 have consequences on the work patterns involved in hunting certain animals? By what percentage, approximately, did the population decline? Did this decline reduce the size of groups to the extent that some forms of appropriation and/or certain cultural institutions ceased to exist for lack of sufficient numbers of people?

Most of these questions are double-barrelled: What exactly happened, and what was the impact? Consequently, we will need to sketch a background of events when necessary and then assess their impact. This is the approach adopted in the pages ahead. The problems linked to imported European goods and the problems related to demographic growth are dealt with separately, but only because the matter of resolving both types of problems must be handled very differently.

9.2.2 The Fate of Indigenous Branches of Activity Involved in Producing the Means of Consumption

In this section, I try to discover which indigenous activities involved in producing means of consumption were eliminated or added, first between 1840 and 1890, and then between 1890 and 1920. To do so, I first inventory the European means of consumption that were adopted and draw the necessary conclusions as to the fate of the indigenous industries

whose survival was threatened. Thereafter, I determine which new industries were introduced. At that point, I return to the fate of the indigenous branches of activity involved in producing means of production and draw a general conclusion with regard to the Tutchone industries that were abandoned and those that were maintained.

9.2.2.1 Consumption from 1840 to 1890

Let us momentarily focus exclusively on recreating the history of the consumption of non-productive foreign goods. In the years 1848-1852, and even before that, the Tlingit sold *dentalia* and abalone shells, blankets, buttons, pearls, tobacco and "spices" to the Tutchone (cf. Chapter 2). What new consumer goods were introduced between 1852 and 1890? Did they eliminate any indigenous industries? Did contact with the Tlingit prompt the Tutchone to produce new consumer goods?

Period documents—all of them dating from 1880-1890—reveal a few changes, which can be summed up as follows. During that decade, larger quantities of beads were sold, European clothing and hats began arriving in Tutchone country and the people, albeit hesitantly, began building small log cabins. These in no way resembled the large communal houses traditionally built by the Tlingit, but were inspired by the Tlingit technique for assembling wood.

These facts led to a decrease in the production of indigenous beads and prestige fur robes, but barely a noticeable decline in the construction of the traditional brush-shelters. Moreover, the Tutchone's lean-tos were not affected by the construction of cabins, and ordinary indigenous clothing was in no way threatened by European clothing. Decorative work on clothing continued but glass beads replaced porcupine quill embroidery and shell ornaments.

The above information is rooted in the following data. Tutchone elders I met in the early 1970s indicated that beads made of porcupine quill became toys for young girls in the 1890s, by which time women were using mostly glass beads in embroidery works. Bompas (1888) noted that robe-making had all but ceased in the 1880s. Schwatka (1893) notes that ragged European clothes were regarded as prestige apparel, not as clothing to wear everyday. Both Schwatka (1893) and Glave (1892) noted that, in 1883 and 1891 respectively, leather skins continued to be used in the making of traditional everyday clothing. Schwatka (1893) attested to the existence of log cabins after seeing one in 1883 at Minto, but he also observed the continued and far more common use of lean-tos (*ibid*.: 1885b: 751). Glave (1892), Hayes (1892) and many who came later also witnessed the regular use of the double lean-to.

The appearance of log cabins late in the period 1840-1890 is supported by the following findings. From 1880 to 1895, a number of areas in Tutchone country were explored by Europeans, Euro-Americans and Euro-Canadians: the Yukon valley between the mouth of the Big Salmon River and the mouth of the Stewart by Schwatka in 1883; the Pelly River valley by Dawson in 1887 and later by Pike in 1893; the Klotassin River valley and the Kluane Lake region by Glave in 1891 (1892); the Dawson range and the White River valley by Hayes in 1891, etc. Yet, only one cabin, the one described by Schwatka (1893: 200), was sighted. Everywhere else, the Tutchone had only lean-tos in summer and winter and sometimes conical houses. The Tutchone at Selkirk described these conical houses to Schwatka, but he confused them with the description of a tent. Tutchone accounts which agree with

archival documents reveals that it was only after 1898 that a few Hutshi, Aishihik and Selkirk men began building tiny one-room log cabins.[475] Data show that log cabins are thus a recent phenomenon.

9.2.2.2 Consumption from 1890 to 1920

Besides log cabins, what new consumption goods were introduced by Euro-Canadians between 1890 and 1920? What became of the indigenous branches of activity with which they competed? Were any new types of production introduced?

The facts for that period are easily reconstructed. A few of the Tutchone elders with whom I first met in 1972 were then in their youth. The writings of Euro-Canadians living in the region are an additional source of information for the period. We even have a document written by one of the fur traders from Fort Selkirk (Tollemache, 1912).

From these sources, we know that Fort Selkirk was the only trading post in operation between 1890 and 1900 and that the Tlingit continued to be the main purveyors of trade goods for most Tutchone during those years. The key event during that period occurred between 1900 and 1905 when Euro-Canadian goods ceased to be brought in on boats from the mouth of the Yukon River and began arriving instead from the Pacific Coast by trains along the railway linking Skagway (in Tlingit territory) to Whitehorse and by steamboats travelling from Whitehorse to Northern Tutchone country. As a result of those changes, the number of trading posts in Tutchone territory multiplied (cf. Chapter 3). Faced with this stiff competition, the Tlingit stopped trading with the Tutchone. From then on, Euro-Canadians began supplying the Tutchone with the kinds of goods that the Tlingit had been providing them. The supply of products such as tobacco, glass beads, European clothing and blankets increased considerably. In light of the fact that *dentalia* and other types of shells, which had previously been sold by the Tlingit, were replaced by Euro-Canadian trinkets, it can be surmised that the foreign-made jewellery also gained importance. New consumer goods were introduced: canvas tents, flour, lard and tea. Furthermore, new types of objects started to be made; the Tutchone stopped building the types of cabins they had been building from 1880 to 1900 using Tlingit building techniques and adopted those used by Euro-Canadian trappers.

What changes affected the indigenous branches of production? Five modifications are worth noting: 1) The production of Dall sheep wool as a trade good was halted when exchange with the Tlingit came to an end; 2) The sale of European clothing led to the almost total disappearance of the indigenous tanned hide clothing and the permanent disappearance of native robes made of luxury furs. From 1905 on, the vast majority of Tutchone began dressing almost exclusively in canvas or wool clothing. The wealthiest Tutchone sold their fur robes to the trading post (cf. Poole Field, [1913], in MacNeish, 1957). Sewing hides survived, but only for the making of mittens, moccasins, capes made of hare or gopher furs,

[475] We know that the Selkirk Tutchone began building European type cabins only after 1898 thanks to the following documents: A. Harper, *Fort Cudahy*, July 30, 1906; *Yukon Commissioner to Reverend Canham*, November 30, 1898; *Land Agent at Fort Selkirk to Land Agent in Dawson*, March 22, April 4, 1899; Reverend Canham, *Fort Selkirk*, September 6, 1899 (Yukon Archives, Whitehorse, AG 91, Vol. 7 F. 13-31).

dog harnesses, backpacks, hunting bags and items embroidered with glass beads; 3) Existing pieces of jewellery made of native copper continued to be worn but no new pieces were produced, resulting in no further extraction of even small quantities of copper; 4) Traditional conical houses, supplanted by log cabins, were no longer being built; and 5) The setting up of tents and the building of cabins were added to the repertoire of existing industries. These, however, were the only changes to the Tutchone's indigenous industries. In fact, as shown in Chapters 3 and 6, the sale of flour, lard and tea in no way altered the Tutchone's subsistence needs and all related extractive industries were maintained.

In 1972, the Tutchone still had a number of traditional consumption goods: ritualistic or aesthetic objects made of various types of stone; drums; ash for chewing tobacco; fire from dead and green wood; tree trunk bridges; ceremonial swan down; amulets made of eagle talons; loon parts used in shamanism; moccasins, mukluks, mittens, and various pouches, gun cases, made of moose tanned hide; furs from wolf, wolverine, fox, marten, weasel, ermine, beaver, lynx, bear, muskrat, etc.; and indigenous cures and remedies.

Thanks to the Tutchone and to the 1,820 typed pages of Father Bobillet's journal covering the years 1939 to 1950,[476] the memoirs of the nurse who took care of the Tutchone starting in 1949 (Wilson, 1965), as well as the work of Armstrong (1937), we also know that the Tutchone produced, up until 1950, all of the items listed above and in addition the following goods: sanitary napkins and diapers made of moss or "cotton" taken from the lining of squirrel's nests; wooden ladles; large ladles made from the horns of Dall sheep; plates made from the flat portion of moose antlers; sun goggles; baby carriers; smokehouses; moose shoulder blades which were used in geomancy and in hunting to attract moose; capes made of hare or gopher furs; bedding made of moose and Dall sheep hides with the fur left on; drinking cups made of the palms of porcupines; drinking from tube or "straws" made from the lower leg bone of swans; rendered moose fat; all traditional foods; dressed leather from moose hide; and lean-tos.

The reason why the Tutchone continued to tan moose skins stems from the fact that they continued to make some tanned hide items and that the trading posts bought tanned hides[477] (Armstrong, 1937: 5) just as the Tlingit had done in earlier times. Lean-tos continued to be used because families had only one tent and had to resort to living in lean-tos whenever they split up for brief periods. Cabins, which a certain number of families had built around trading posts, did not eliminate the need to put up a lean-to whenever people had to go into the bush in search of moose or spawning grounds.

Thanks to the Tutchone's oral accounts, we know that the period 1900-1920 was a time when, in addition to the above items, people also made tunics from swan plumage, traditional grave enclosures, decorations made from eagle feathers and face paint. Those in their seventies or eighties in the early 1970s had vivid recollections of them. In fact, a man from

[476] Bobillet, *Journal d'un missionnaire au Yukon*, op. cit.

[477] Armstrong writes: "Trading in the hides of moose and caribou had increased to a very alarming extent up to the time of my journey to the Upper Macmillan in 1928. Until recent years, I saw very few moose and caribou hides finding their way to the trading post. The Indians cured just enough with which to make moccasins, mittens and other clothing. These Indian tanned hides were being taken in trade by certain trading posts and were finding their way out of the country to be made into moccasins, gloves and so on and sold to tourists all along the Pacific Coast" (1937: 5).

Little Salmon made some face paint for me. Another guided me to Big Salmon and showed me traditional grave enclosures dating from about 1919-1920.

The importance of these data lies in this: Once we tally up the number of consumer items listed above and add the number of goods that were eliminated after 1900-1905, the total makes up a complete inventory of consumer goods that were produced circa 1848-1852 (see Tables V, VI, VII, VIII and IX). The list of eliminated products which we have just established is therefore complete and exhaustive.

9.2.3 Inventory of New and Obsolete Industries and Consequences for Traditional Work Patterns and Forms of Production

Let us now integrate the preceding results with those obtained from Chapters 3 and 6 on the fate of the branches of activities involved in making the means of production. In other words, we will take stock of all industries that were eliminated or added between 1840 and 1890 and again between 1890 and 1920. For each period, we will draw conclusions as to the consequences of these additions and eliminations.

9.2.3.1 Overview of the years 1840-1890

The following summarizes what has been established thus far. First, almost all indigenous industries remained unaltered. In Chapters 3 and 6, we learned that such was the case for all branches of food production. In Chapter 6, we noted the same for the following industries: hunting of fur-bearing animals (the same volume continued to be produced; cf. Chapters 3 and 6); extraction of pyrite and copper (iron was imported in insufficient quantities); production of toboggans, items used for packing, transportation and storage; funnel-shaped fish traps, fish weirs, fish hooks, clubs, wedges, scrapers made of bone, semi-lunar moose skin scrapers made of stone, snowshoes, preserving agents, tanning solution, babiche, fish nets; assembly of adzes, gaffs, fish spears, salmon spears, bow drills, knives, wood working tools, awls, chisels, etc. Secondly, we saw that the production volume in certain branches of production declined somewhat. Chapter 6 showed that such was the case for the branches related to making the following means of production: points of tools made of non-metallic raw materials (and, by extension, mining activities to extract stone for tools); traditional baskets (supplanted to a certain degree by metal pots); and bows and arrows (partly supplanted by flintlock guns). On the strength of the previous section, we can now add to this list a decrease in the production of indigenous beads, prestige robes and conical houses. Thirdly, it has been established that the hammering of iron as well and the construction of rectangular one-room cabins were added to traditional industries.

How were indigenous forms of appropriating materials affected by the results of these changes? We will use the concept of the forms of appropriating materials to try to find out if the nature of techno-social relationships among Tutchone individuals changed between 1840 and 1890. By techno-social relationships or forms of appropriating materials, we mean the relationships of dependence or independence with which Tutchone individuals had to comply in order to be able to produce goods and make a living (cf. Chapter 6).

To find out whether these relationships changed because of the lower volume of production in certain industries or because of the addition of new branches of production, we must

determine whether the lower volumes of production led to the disappearance of certain traditional techno-social relationships of dependence/independence between individuals or whether the additions coincided with the introduction of types of relationships of dependence/independence that had not previously existed (details in Chapter 6).

It should be noted that a decrease in the volume of production in a given branch of industry cannot change the nature of the forms of appropriating materials in any way. In fact, a great many indigenous products continue to be made and men and women remain embedded in the same techno-social relationships that existed before the volume of production fell off. For the years 1840-1890, there are only two questions: Did hammering of iron bars and the construction of one or two log cabins bring on new work patterns or forms of production (i.e., new forms of appropriating materials)? We know that iron had no such effect. Imported iron bars were hammered just as copper was (Chapter 6). As for the cabins, the following information will shed some light. An elder, the son of the leader of the Hutshi group, told me in 1974 that these dwellings had been built by the same members of one nuclear family who had built traditional conical houses. As a child, he had lived in such a dwelling at Hutshi and, he told me, he asked his father and grandfather about the history of the building. The illustration of this type of dwelling, which appears in Schwatka's book (1893), confirms his statements. The cabin in the illustration is so small and so roughly hewn that it is difficult to imagine that it could have been built by more than a handful of people. We can therefore conclude that the construction of cabins did not introduce any new work patterns or forms of production and, consequently, engendered no change in the forms of appropriating materials.

9.2.3.2 Overview of the years 1890-1920

First, just as for the previous period, we know that a great many indigenous industries remained unchanged. Chapters 2, 3 and 6 showed that such was the case for all subsistence industries as well as industries related to trapping fur-bearing animals. Chapter 6 specified, moreover, that the same was true for the production of ground caches, platform food caches (stage caches), dug-out canoes, moose-skin boats, rafts, toboggans, funnel-shaped fish traps, fish weirs and snowshoes. In the previous section, we noted that a great many means of consumption also continued to be produced: moccasins, mittens, dressed hides, capes made of hare and gopher skins; glass beadwork; furs; ceremonial tunics made of feathers; bedding of fur skins; ritualistic objects (swan's down, eagle talons, items used in shamanism, etc.); decorative objects (eagle feathers, face paints, etc.); medicinal remedies; sanitary napkins and diapers, ladles made of Dall sheep horns; plates made of moose antler; baby carriers; sun goggles; grave enclosures; wooden plates; firewood, lean-tos, etc.

Secondly, we noted that the volume of production declined somewhat in a few branches of production. Chapter 6 showed as much for sectors linked to the production of items such as spruce root baskets, deadfall traps, snares, babiche and sinew cords and ties.

Thirdly, we noted that several branches of production were entirely abandoned: the production of points for tools made of stone, bone, moose antler, wood and copper; the extraction of stone, pyrite and copper nuggets for tools; and the assembly of knives, adzes, nets made of sinew, and bows and arrows. From the chronology of consumption set out above, we can now add to the dying industries the type of cabins made in the 1880s and 1890s, the making of indigenous beads, clothing, robes, conical dwellings, Dall sheep wool for trade,

and native copper for jewellery and points. The extraction of copper nuggets having ceased, so too did the production of jewellery.

Lastly, we also noted that three new industries were added to existing ones: construction of a new type of rectangular cabin, setting up of tents and making fish nets out of cotton line.

Did these events change the forms of appropriating materials (i.e., the techno-social relationships of dependence/independence)? For the same reasons as noted above, the lower volumes of production in some industries could not bring about this type of change. Again, only new industries and industries that were eliminated could result in a change in forms of appropriating materials. For industries that were eliminated, we must determine whether the disappearance of certain branches translated into the disappearance of certain work patterns or forms of production; i.e., whether the abandoned work processes or production processes were of a type that did not exist in any of the remaining work or production processes. For the new industries, we must determine whether they presented opportunities to introduce techno-social methods of appropriating materials that had not previously existed.

What do these questions bring to light? First, we must review the work patterns and forms of production linked to the eliminated branches of production and describe the work patterns and forms of production that were used in the new industries.

Individual labour and individual or conjugal production (diachronic division of labour), it will be recalled, were the methods (forms of appropriation) through which the Tutchone produced the following goods which were ultimately eliminated: copper nuggets, pieces of pyrite, indigenous beads, indigenous jewellery, stone points for tools, knives, adzes, bows and arrows, Dall sheep wool, and clothing. Simultaneous cooperation of two to five workers was used in two work phases that were eventually eliminated: the making of fish nets out of sinew and conical dwellings.

Eyewitness accounts exist describing the erection of tents and how cotton nets and cabins were made. Putting up a tent required cutting poles (small tree trunks) to make a frame over which the canvas could be stretched, collecting spruce boughs to make a ground cover like the ones used in lean-tos, and cutting a number of branches to form a wind barrier of brush around the base of the tent. These tasks were carried out by women and children, as in the case of the lean-tos. Even the traditional arrangement of two dwellings face to face was maintained: when a girl “was given a husband” she set her tent facing that of her mother’s; the flaps were left open and a fire was lit between the two as was the practice with the double lean-tos. The Yukon Archives has a photograph, dating from 1900 (see photo under Diagram XI), that shows such a layout, and in 1972-1974, I saw for myself that some Tutchone continued to follow a similar set-up.

Cabins were built by sawing the wood logs to size and notching them at their ends with an axe. The logs were assembled by hand and, more often than not, without the use of nails. This work was generally done by teams of two men (father-in-law/son-in-law or father/adolescent son).

Fish nets of cotton line were made in the same way as were fish nets made of sinew, i.e., by teams of two women, usually a mother and her adult daughter. Cotton thread entirely eliminated the phase of braiding sinew and it thus saved women a lot of labour time. But this was its sole advantage. The work patterns and forms of production used in the three new

industries were thus: 1) cooperative work involving two, three or five people and 2) conjugal production.

Let us now see whether the elimination or addition of these tasks transformed the forms of appropriating materials. Did the disappearance of industries with individual work and conjugal production noted above affect the nature of the forms of appropriating primary resources? Obviously not, as individual work and conjugal production were techno-social relationships that continued to be practised in the great many indigenous branches of production that survived (e.g., beadwork and the making of babiche, snares, ladles, etc.). Did the disappearance of cooperative work related to the building of conical dwellings and sinew nets correspond to an abandonment of all techno-social relationships of this type? Once again, the answer is categorically "No," as simultaneous cooperation of this type continued to exist in the work processes linked to the building of lean-tos and fish weirs, the tanning of skins, the making of snowshoes, etc. Did the work patterns and forms of production associated with the new industries usher in new techno-social relationships? Again, they did not, as they were exactly the same type as pre-existing indigenous cooperative work.

All in all, we must conclude that neither new industries nor abandoned industries brought about any change in the set of techno-social relationships with which the Tutchone had to deal previously. The forms of appropriating materials maintained the same structure as in 1840-1850.

9. 2.4 Impact of Using Euro-Canadian Means of Production in Tutchone Indigenous Industries

How did the *use* of Euro-Canadian tools and implements affect the forms of appropriating materials? Before this question can be addressed, we must first review what has already been resolved and what remains to be resolved. In Chapter 6, we studied how the use of any tool involves the osseous and muscular system, the motor habits and the knowledge embedded in the worker's brain. Except for repeating rifles, this analysis showed that all imported Euro-Canadian tools had to be manipulated in the same or in a similar manner as their indigenous counterparts and required the same work patterns as well. In the case of the rifle, the change in hunting technology was potentially a significant one: what previously had to be cooperative work to be productive (hunting caribou herds) could now become an individual endeavour.

Let us briefly review the effect of the introduction of the rifle. In the nineteenth century, only two hunting activities were carried out through simultaneous cooperation: 1) capturing bears at their dens; 2) hunting Dall sheep by surrounding them (cf. Chapters 5, 6 and 7). It is easy to determine whether rifles brought about the demise of both these forms of cooperation as period documents and eyewitness accounts provide a clear record.

The Tutchone are unanimous in their accounts of capturing bear: Thanks to the rifle, a series of bullets could be fired in rapid succession, enabling hunters to kill the animal before

it had time to charge them. From then on, it became possible to hunt bear alone thus ending the cooperative aspect of this form of hunting.[478]

For Dall sheep, however, nothing really changed. As before, the men continued to hunt in groups of three or four by encircling these animals. Bobillet provides proof of this in his eyewitness account of men forming groups of three or four[479] in 1943 to go hunting. Of course, after 1900, Dall sheep were also hunted on occasion by individual hunters, but this was simply a continuation of what was already possible with bow and arrow or flintlock gun (cf. Chapter 7). Cooperation continued despite the introduction of rifles because the animal tended to escape before it came into shooting range. In this case, forming a circle around the animal was still the best technique.

In brief, rifles did not do away with the need for cooperation except in the case of bear hunting. Did this affect the forms of appropriating materials? We now see that it did not. First and foremost, the hunting of Dall sheep (an important and valued resource) continued to require the cooperation of several hunters, as did the building of fish weirs and the placing of nets. As a result, these tasks provided opportunities to implement the same type of techno-social relationships as those that had prevailed in bear hunting.

Once again, one of the factors that might have transformed the traditional technical relationships that the Tutchone had with their materials and the techno-social relationships they had to maintain with one another had no effect. This was certainly a quirk of history. Had the Tutchone been given the opportunity to hunt game with bows and arrows or flintlock guns in large cooperative groups (as for barren-ground caribou herds; see Chapter 5), the outcome would have been very different.

9.2.5 Epidemics and Population Decline: Techno-Social and Socio-Cultural Impact

The final series of questions can now be addressed in our efforts to identify factors which might have altered Tutchone culture in the second half of the nineteenth and in the early twentieth century: By what proportion did the population decrease between 1840 and 1920 as a result of epidemic disease? Did this have an impact on the forms of appropriating materials? Were there consequences for the proper functioning of certain pre-existing socio-cultural institutions?

9.2.5.1 Demographic impact

In Chapter 4, we noted that the Tutchone population had been decimated by disease on many occasions between 1840 and 1890. However, no estimates for the rate of the population decline were provided, and I will now explain why.

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[478] In Chapter 7, I related an incident about a man who had gone hunting alone for bear equipped only with a rifle and who was seriously wounded. The men who saw him return in his shattered state went out as a group to find the bear responsible and killed it. It was hunting bear alone that was the usual form of hunting. Forming a hunting group in such circumstances was associated with ritualistic matters (see the description).

[479] Bobillet, *Journal d'un missionnaire au Yukon*, p. 408.

First, most of the figures available on the size of indigenous populations in the Yukon were completely unusable. This problem was well documented by Krech (1978a).

> Included in Mooney's 4600 "Kutchin" are: "500(?)" Tanana, 200 Han, 100 Koyukon, and 100 "Tutchone" (Mooney, MS). The derivation of these data is confused. For instance, it appears that Mooney depended on Morice for his Tutchone estimate. Morice's tenth Kutchin group is the "Tutsone-kut'qin, or Crow People, the *Gens des Foux* of the Canadians according to the English writers, and the Tathzey-kutchi of Richardson, who estimates them at 223 hunters, or about 1100 individuals divided into four bands (Morice, n.d.: 27). Richardson (1854: 234) did identify "Tathzey-kutchin" as "people of the ramparts" or "*Gens du Fou*" and said they numbered 230 men in four bands. However, Richardson depended for his data on A. H. Murray ([1847], 1910: 82), who reported: "… the Fathzei-Koochin (People of the Ramparts) there are only about 20 men in this band. …Between them and the natives of this place are the 'Han-koochin' (People of the Water) known as the *Gens du fous* this is the largest band of any hereabout, there are in all 230 men. They are divided into four bands." Whymper (1869: 177), who was at Fort Yukon in the mid 1860s, identified Han as "*Gens de foux*" and Tutchone as "*Gens de bois*," but Dall [1870: 271], there at the same time, did just the opposite: Han were the "*Gens de Bois* or Wood People," Tutchone "Crow People or *Gens des Foux*." Morice referred to Dall's distinctions (Morice, n.d.: 27). Evidently, Murray's identifications were confused by Richardson; Dall (but not Whymper) followed Richardson's error; Morice followed Dall and Richardson also projected a total population (1100) from 230 hunters. Mooney adopted these inaccuracies (*ibid*.: 90, n^2).

Equally problematic were attempts to start from the relatively accurate census figures for 1908 (Table II), then to estimate the number of lives lost to each recorded epidemic of contact period, and to come up with a population estimate for 1840. In fact, the losses might have been mitigated by a higher birth rate. Helm (1980) noted that this was the case for the Athapaskans of the Mackenzie Basin:

> Male-skewed sex ratios in the census generations of 1829 and 1858 support the statements of European observers that selective female infanticide was practiced in the first half of the nineteenth century by the Mackenzie Dene populations of Eastern Kutchin, Hare, Slave, and Dogrib. There is no evidence in the historical record that depopulation of the Mackenzie Dene from exogenous diseases occurred in the first 40 years of direct contact, 1789-1829. From 1829 on, the census evidence firmly negates the supposition of depopulation in the historic era. The argument that depopulation due to European diseases brought about the "loss" of a hypothetical unilineal and/or unilocal social organizations of Dogrib, Slave, and Hare is, by the evidence, invalid. The essential continuity of the population level from 1829 to the advent of effective medical care during the 1950s suggests the rate at which exogenous diseases "replaced" selective female infanticide as a mortality factor after 1860; in succeeding generations, proportionately more males died than before, but more females lived, resulting in a basically balanced sex ratio and a slight increment in population up to the mid-twentieth century (*ibid*.: 279).

Since it appears that a similar phenomenon took place in the remote past among the Tutchone who practised female infanticide (cf. Arcand, 1966: 32)—a practice that disappeared

in the years between 1840 and 1890[480]—the only reliable way to calculate population numbers was to use population figures provided by Robert Campbell.

The figures are as follows: In 1843-1852, the Fort Selkirk regional group consisted of 55 adults, 24 of whom were men, for a total of about 96 to 120 people; the population of Tatlmain and the Macmillan, approximately 90 to 117 each. We also have information provided by Dawson (1888: 202B):

> Mr. Campbell informs me that in his time while a very few families of the Knife Indians [Upper Pelly/Kasini] inhabited the region of the Upper Pelly, the Indians were very numerous and divided into bands along the river from Fort Selkirk to Fort Yukon. The Wood Indians [Tutchone] numbered several hundreds. Below them on the river were the "Ayonies" as well as other tribes of which Mr. Campbell was unable to learn the names.

If we look at Maps 3 and 6, we see that the figure of several hundreds of Wood Indians clearly refers to the regional groups of the Lower Macmillan, Tatlmain, Selkirk, Tatchun, and Little Salmon. We will return to this figure and to these groups later.

We can venture a guess as to what became of the Selkirk and Tatlmain people between 1848 and 1888. Ellington says that the people of the White River (Copper Band), the Stewart River and the people who gathered at Selkirk to trade (Selkirk and Tatlmain people) numbered 200 in 1888.[481] This would mean 50 people per group on average, including 50 for Tatlmain. As we learned from McDonald that the Stewart was then inhabited by a subgroup of the Selkirk people,[482] we should estimate 100 members in all for the Selkirk group. From 1848 to 1888, the decline in the Tatlmain population was very roughly 50 percent, while that for the Selkirk group was almost zero. The combined population decline of the two amounted to about 25 percent.

Since this calculation was based on very imprecise data for 1888, we will use an estimate based on what Campbell reveals about population figures for 1843-1852, and on the excellent 1908 census work done by Indian Affairs representatives. The population can be calculated for the three groups for which Campbell provided adequate information indirectly: the people of Selkirk, Tatlmain and the Macmillan. In 1908, the Selkirk regional group was still made up of the sub-group of the Fort Selkirk region and the sub-group of the Stewart River.[483] Together, the two sub-groups had 125 members (cf. Table II). That same year, the Tatlmain group had 30 members and the Macmillan group 50.[484] From 1843-1852 to 1908,

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[480] I establish the date when female infanticide ceased to be practised based on the fact that no elder Tutchone could recall a single case.

[481] J. W. Ellington, *Fort Reliance*, July 1888 (C.M.S. A 115).

[482] R. McDonald, *St. Mathews*, February 6, 1890 (C.M.S. A 116).

[483] The division of the Selkirk group into two sub-groups was confirmed for 1906. One lived at Fort Selkirk; the other along the Lower Stewart River. Cf. Bompas, *Carcross, May 25, 1906* (Indian Affairs Archives, R.G. 10 Vol. 3962. File 147-654-1).

[484] The figures for the Tatlmain and Macmillan are based on the following findings and calculations. Bragg, Superintendent of Schools YT to Secretary, Dept. of Indian Affairs, *Dawson*, May 14, 1908 (Indian Affairs Archives RG 10, Vol. 3962, File 147654-1) stipulates that in 1908 there were, in all, 80 "Lower Pelly Indians" which designates the Macmillan and Tatlmain people. Since we know from Green's on-site count that there were 30 Tatlmain people in 1908, by subtraction, there would have been 50 Macmillan people.

the population decline for the Selkirk group was negligible, while that for the Tatlmain was 70 percent, the Macmillan group 50 percent, and that of the three groups combined approximately 33 percent (300 members in 1843-1852 and 205 in 1908).

Are these rough approximations valid for the rest of the Tutchone groups? We can find out by referring to what Campbell told Dawson: In 1848-1852, the Wood Indian population numbered in the several hundreds. More precise numbers are suggested in the journal Campbell kept at Fort Selkirk. We already know that these Wood Indians included the Selkirk, Tatlmain and Macmillan people, for a total of about 300 individuals. We also know that they included the people of Tatchun and Little Salmon as well. If we assume 100 members for each of the two groups, the overall Wood Indian population in 1843-1852 would total 500, children included.[485]

The demographic changes of these five groups can be tracked. The Anglican missionaries present in the region in 1893-1897 counted between 300 and 400 members.[486] Green provides a figure of at least 316 members in 1908 (cf. Table II).[487] Based on these figures, they would have lost between 20 and 40 percent of their members between 1843-1852 and 1908. As can be seen, the results from both sources are quite similar. Based on the formula used to calculate the population for three groups, the accumulated decline would have been 25 percent in 1888 and 33 percent in 1908. A calculation for five groups results in an approximate decline of 30 percent in 1893-1897 (a period when numerous Euro-Americans and Euro-Canadians passed through Tutchone country in search of gold) and an accumulated decline of 36 percent in 1908.

I realize that some data suggest a higher rate of population decline. The chronology of epidemics (Table III) shows, for instance, that some diseases killed 30 percent of the members of certain groups in a matter of months. We saw that the original Stewart River group was said to have been totally annihilated around 1870 and that a sub-group of the Selkirk people replaced them (Chapter 4). We noted that the Tatchun population was only nine strong in 1908 (Table II). However, we must not overlook the fact that the people of Selkirk

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[485] Anyone who reads the *Lewes and Pelly Forks Journal* and keeps track of the comings and goings of the Wood Indians can easily be led to believe that the 500 Wood Indian total must certainly be realistic. Campbell never gives the impression that this group might have been either much larger or much smaller.

[486] The figure of 300 to 400 individuals for the Selkirk, Tatlmain, Macmillan, Tatchun and Little Salmon areas is based on the following data. According to the C.M.S. missionaries, there were still somewhere between 300 and 400 Indians trading at Fort Selkirk in the years 1893-1897 (cf. Bompas *Forty miles,* June 26, 1893 (C.M.S., A 118 #2051); *Proceedings, The C.M.S., Annual Report for 1894* (p. 251), *Annual Report for 1897* (p. 419). Yet, we know that, at that time, only the Selkirk, Tatlmain, Macmillan, Tatchun and Little Salmon people traded at Fort Selkirk; the other Tutchone and the Tagish could go towards the Pacific Coast to trade with the Tlingit, while the Han and Upper Pelly had trading posts closer to their own territories.

[487] See Green, Table II (102^{+} Little Salmon + 30^{+} Tatlmain + 9 Yukon Crossing (Tatchun) + 70 Fort Selkirk + 55 Stewart Fort Selkirk = 266 and Bragg (50 Macmillan) = 316. *Bragg, Superintendent of Schools YT to Secretary, Dept. of Indian Affairs, Dawson,* May 14, 1908 (Indian Affairs Archives RG 10 Vol. 3962, File 147654-1) stipulates that in 1908 there were, in all, 80 "Lower Pelly Indians" which designates the Macmillan and Tatlmain people. Since we know from Green's on-site count that there were 30 Tatlmain people in 1908, by subtraction, there would have been 50 Macmillan people.

and Little Salmon still had 125 and 102 members, respectively, in 1908 (Table II), which was equal to the average population of each regional group circa 1843-1852.[488] The epidemics, therefore, did not affect all regional groups to the same extent.

To gauge the plausibility of these figures, we must also take into account the results obtained for the indigenous groups of the Mackenzie. For this group, Helm's very precise calculations (1980) show that mortality owing to epidemics during the years 1829-1950 was offset by the elimination of the practice of female infanticide and by a much higher birth rate, not to mention the fact that the population remained the same size throughout this 120-year period. The fact that the decline in the Tutchone population was calculated as being far lower than certain initial impressions would suggest is consistent with the trends noted by Helm in the Mackenzie region.

In brief, the body of pertinent available data suggests that the Tutchone population declined steadily between 1840 and 1920. In relation to the 1840s, population numbers had decreased by about 25 percent in 1888, by 30 percent in 1893-97 and by 33 to 36 percent by 1908.

9.2.5.2 Impact of the population decline on the forms of appropriating materials

Did population declines, first between 1840 and 1890 and then from 1890 to 1920, prevent the Tutchone from working in cooperative groups as they did in the 1840s? To recap, cooperation took one of several forms: two to five men encircling Dall sheep, hunting bear, building fish weirs and setting up fish traps; two women working cooperatively to make fish nets and wringing skins dry; a man and his wife (or a parent and an adolescent child) working together to shape wood with the use of steam; a mother and older children (or eventually her husband) to build lean-tos, manufacture of about 50 percent of the finished products through a diachronic division of labour between husband and wife.

The answer is clear. On the one hand, the materials presented above in this chapter already show that all these work patterns and forms of production continued to be used. On the other hand, even if this information did not exist, it would be evident that the population decline would not have had any impact whatsoever on such restricted and limited pre-existing cooperative forms of appropriating materials.

We can also show that even work that was traditionally carried out in the company of others (not true cooperation) was hardly affected. Thus, the salmon camp encountered by Glave (1892) in 1891 was made up of some 40 individuals, and the group encountered by Hayes that same year consisted of six families (about 30 individuals). Tollemache (1912: 24) noted that in 1900-1905 all the people of the Macmillan had gathered in a similar type of camp. He added:

> They do not generally fish alone like the White man, but construct a central camp where they dry the salmon […]. Visiting an Indian fishing camp would provide quite a novel experience

[488] Jim Boss, a Southern Tutchone man, mentioned 200 members for the Hutshi in 1902, but this seems to include a number of regional groups (cf. *T. W. Jackson, Barrister, Whitehorse, to Superintendent General, Indian Affairs, Ottawa,* January 13th, 1902 (Indian Affairs Archives, RG 10 Vol. 4037, File 317, 050).

> to people unaccustomed to the spectacle, the men catching the salmon, while the women are employed in cutting them up and hanging them on poles to dry (*ibid*.).

In 1921, the salmon fishing camp of the Selkirk and Stewart people consisted of 38 individuals, apparently not including children (Peake, 1966: 135). In the years 1940-1950, 50 people had gathered at the camp at Big Salmon and six families (30 individuals) had gathered near Fort Selkirk.[489]

Overall, production activities were carried out much as they had been in the years 1848-1852. In 1940-1950, father Bobillet observed the same facts that Tollemache had 50 years earlier and Campbell a century earlier. He wrote that the men visit the fish traps morning and evening, the women cut the fish while the children, carefree, tirelessly swarm about the shores.[490] Selous (1907: 304) noted that the relationship between fishing and hunting activities did not change: In 1906, the Selkirk people killed four moose and, as in Campbell's day, they brought the animals back to the salmon fishing camp where the women were cutting up fish. The population decline almost certainly had no effect on work patterns or forms of production.

In all, none of the assumptions about a change in the forms of appropriating materials can be retained. Throughout the second half of the nineteenth century and all through the first two decades of the twentieth century, the Tutchone continued to live and produce goods by adhering to the same techno-social relationships. There occurred no techno-social upheaval in the forms of appropriating natural materials that might have brought about a change in socio-cultural relationships of dependence and independence between individuals.

9.2.5.3 Direct impact of the population decline on socio-cultural organization

When we calculated the rate of population decline, we presumed that it put an end to female infanticide and led to a rise in the number of births. Logically then, we would have to suppose that the male-female ratio became balanced and that the proportion of young people increased. A quick calculation can support this last point. In 1908, young people aged 18 or under represented 37 percent of the population (see Table II), which was a higher proportion of youths than what prevailed in Europe 10 to 15 years, even after the baby boom that followed the Second World War. In 1962, in France, this proportion was for example only 33 percent (cf. Pressat, 1966: 105). [491]

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[489] Bobillet, *Journal d'un missionnaire au Yukon*, pp. 400-401, 804, 824.

[490] *Ibid*., p. 824, *passim*.

[491] It should be noted that the age pyramid among the Tutchone in 1908 (37% aged under 18) was such that there could only have been minimal natural population growth in the subsequent two or three decades. Pressat (1966: 100) shows that mortality and fertility rates among French women in 1820 would have led to a zero-growth rate if 34.7% of the population was under 19 years of age, and it is quite likely that the mortality and fertility rates of Tutchone women in 1908 was not very different from those of French women in 1820.

Although the end of female infanticide constituted a direct socio-cultural change in itself, was this the only cultural disruption resulting directly from the population decline brought about by epidemics? In this regard, two assumptions are generally made by specialists of subarctic Athapaskans: 1) A matrilineal system was abandoned in favour of a bilateral system following the population decline;[492] 2) The population not being large enough anymore, a former clan system became impracticable.

The first assumption can be tested simply enough by determining whether the rate of population decline obliged these Athapaskans to change from a matrilineal system to a bilateral one (cf. Krech, 1978b). As the Tutchone were matrilineal in 1920 and still are in the twenty-first century, such a process evidently did not take hold among the Tutchone.[493]

The second assumption is more complex. Around 1900, the Southern and Northern Tutchone who only had a matri-moiety system were surrounded to the north, west and south by Athapaskan peoples who had Athapaskan matri-clans (Gwich'in, Han, Upper Tanana and Tagish). The Tutchone's neighbours to the east (Mountain, Upper Pelly and Kaska) did not

[492] Dyen and Aberle (1974) suggest that, theoretically speaking, the Kaska, Sekani, Upper Tanana, Gwich'in, Southern Tutchone, Tahltan and Tsetsaut could have been bilateral in a remote period and could have become matrilineal later under Pacific Coast people cultural influences. The same might have occurred among our eleven Tutchone groups. However, the problem is not relevant in this book where the focus is exclusively the change between 1840 and 1920, particularly as I have shown that if the Tlingit had had a cultural impact on Tutchone society, it would have been well before 1840 (Chapter 2). It could be demonstrated again for the much more ancient transition from a bilateral system to a matrilineal system (if such a transition had actually occurred). For that, we can rely on the following two key facts. According to Murray who lived at Fort Yukon (Gwich'in country) from 1847 to 1851, the Gwich'in then had a matrilineal system (see the results of written interviews given by Murray to Lewis Henry Morgan ([1859-1867], 1959: 116). According to Anderson, who quotes Campbell's companion Stewart, the Tlingit never travelled past the northern bounds of Northern Tutchone country *(James Anderson Papers*, National Archives, MG 19, A29, File I, pp. 76-100). The importance of these facts lies in the following. Had the Gwich'in borrowed their matrilineal system from the Tlingit, they could not have done so directly for they were too far from them and not in direct contact with them. The system had to have been diffused in the following order: from the Tlingit to the Tagish/Southern Tutchone/Northern Tutchone, to the Han and then to the Gwich'in. This means that if the Southern Tutchone had become a matrilineal society under Tlingit influence, they would have done so before the Han, and the Han before the Gwich'in. In other words, any earlier transition from a bilateral system to a matrilineal system among the Tutchone would have occurred well before 1840.

[493] Perhaps the hypothesis that depopulation caused the Mackenzie Athapaskans to change from a matrilineal system to a bilateral system should be entirely rejected in its current form. First, there is no proof of depopulation in the Mackenzie Basin (cf. Helm, 1980). Second, Dyen and Aberle (1974) showed that the bilateral system might have been the first kinship system among certain Proto-Athapaskan groups. Third, according to Krech (1978a: 99), the Gwich'in might have lost 83% of their numbers between 1760 and 1860. However, the Gwich'in remained matrilineal and have maintained that system to this day. How could have Krech believed that the depopulation in the Mackenzie Basin (assuming that it had in fact occurred) was the reason for the emergence of bilateral systems in that region (despite there being no formal proof of a matrilineal system prior to that) while stating, without seeing the contradiction, that an other Indian group (the Gwich'in) could have lost 83% of its population and yet remained matrilineal?

have matri-clans at all, nor did nearly all of the Tutchone groups.[494] Around the same period, Tlingit matri-clans existed among the Tagish (immediately adjacent to the Tlingit) and the southernmost Tutchone whose territory adjoined Tlingit country. For simplicity, the abbreviation TST will be applied to these "Tlingitized" Southern Tutchone. It must be noted that Tlingit and Athapaskan matri-clans co-existed among the Tagish; the Tlingit matri-clan system among the TST, however, was a superficial institution with no Athapaskan counterpart. There were no Tlingit matri-clans among any of the other Southern or Northern Tutchone groups or among any other Athapaskans. The Tutchone, Upper Pelly, Kaska and Mountain who had neither Tlingit nor Athapaskan matri-clans will be referred to as "a-clanical." The area in which the Tlingit matri-clans were distributed, it should be noted, was limited to a very narrow band of land adjacent to the northern limits of Tlingit country (see Map 1 and Aberle, 1972ms, de Laguna, 1975). Tlingit early explorations in Athapaskan country dates back to the eighteenth century, but direct contact and contact between them and the Southern Tutchone, Tagish and Northern Tutchone remained strictly limited to trading expeditions much of this time (see Chapter 2).

Given the region's history then, how can this rather curious spatial distribution of two different clan systems be explained? Could it be that the a-clanical Tutchone in 1900 previously had a clan system and lost it, or could it be that the a-clanical Tutchone of 1900 never had a clan system during the period of interest to us (1840-1890)? We will try to find out by testing each possibility and examining which of the two best fits in with the facts.

If we suppose that the Athapaskan clan system was abandoned by the Tutchone, we must find the cause. Could the answer lie in the demographic decline among the Tutchone? That would not appear to be the case as the Gwich'in, Han, Upper Tanana and Tagish maintained this system despite having experienced population decreases as severe as those experienced by the Tutchone, if not more so. Could it be assumed that direct contact between the Tlingit and the Tutchone prompted the latter not only to abandon the Athapaskan clan system but also to forget everything about its former existence? This is most likely not to have occurred, for when the Tlingit clan system spread among the Tagish it did not lead the latter to abandon and forget their Athapaskan clan system.

Could we make the assumption that earlier direct contact between Tlingit and our present a-clanical Tutchone in a remote past caused the latter to abandon the Athapaskan system in favour of the Tlingit system and that this adopted Tlingit system was then lost because of population decline? Arguments presented earlier in the case of the Gwich'in, however, eliminate population decline as a major factor in such socio-cultural change. And further,

[494] The first written reference to the existence of two unilineal groups or matri-moieties among the Tutchone dates from 1928. These are two moieties, but absolutely not clans (*Report of the 6th Synod, Diocese of Yukon,* July 29-August 2, 1928). Despite many efforts, neither McClellan nor Arcand nor I were able to find a single Tutchone elder (Northern or Southern) between 1948 and 1974 who could recall the existence of a former Tutchone Athapaskan *clan* system. We do know, however, that this was not the case for the anthropologists who, between 1930 and 1974, studied the Upper Tanana, the Han, the Gwich'in and the Tagish (cf. Osgood, 1936b, 1971; McKennan, 1959; Guédon, 1974; McClellan, 1975b: II, 439-440, 445-479; Slobodin, 1963: 13). Considering the period in which these data were collected, they can be considered to reflect the indigenous spatial distribution of clan systems circa 1880-1900.

both the Tagish and TST maintained the Tlingit matri-clan system throughout the nineteenth and twentieth centuries despite having experienced population losses of equal magnitude. Arguing that Tlingit influence eliminated a clan system would be absurd as that influence would have only helped the Tutchone to either maintain their supposed Athapaskan system or to replace it with the Tlingit matri-clan system (or alternatively to add the Tlingit one to theirs as did the Tagish). We are thus led to conclude that the elimination among the Tutchone of a supposed clan system does not fit the facts we have at hand. To conclude, the spatial distribution of the two different clan systems that existed in the region circa 1900 and the history of the overall region from the end of the eighteenth century to 1900 suggest that the 1900 a-clanical Tutchone did not previously have a clan system, Tlingit or Athapaskan.

Should it be argued, then, that the a-clanical organization of most of the Tutchone was an ancient reality? In fact, an ancient absence of Athapaskan matri-clans among the Tutchone could help to explain why the Tutchone did not have any matri-clans of this type in 1900 and why at the same date the Gwich'in, Han, Upper Tanana and Tagish did despite having had a demographic history similar to that of the Tutchone. The ancient absence of Athapaskan matri-clans among these Tutchone would also explain why almost all Tutchone resisted adopting the Tlingit matri-clan system despite incentives to do so for some 120 or 130 years and why only the few regional groups closest to Tlingit country did. Normally, had the original Tutchone had Athapaskan matri-clans, it would have been easy for them to adopt the names of the Tlingit matri-clans while maintaining the Athapaskan matri-clans as the Tagish did. (The fact that the Han, Gwich'in and others had Athapaskan matri-clans without adopting Tlingit matri-clans is irrelevant as these groups did not enter into direct contact with the Tlingit.) The last point to note is that the ancient absence of Athapaskan matri-clans among the Tutchone would explain why the TST had Tlingit matri-clans but no Athapaskan matri-clans.

9.3 Conclusion

What do our findings show on the whole? First, the foregoing has demonstrated that the Tutchone forms of appropriating material (work and production patterns) did not change significantly in the period 1840 to 1920. Secondly, the demographic decline could in no way be held responsible for a supposed elimination of a hypothetical former clan system. The spatial distribution of the Athapaskan and Tlingit clan systems in the Yukon combined with the larger region's history undermine the assumption that the non clanical Tutchone in 1900 might have had Athapaskan (or Tlingit) clans at one time, but then lost them. Third, these very data and this history mesh better with the assumption that the a-clanical Tutchone in 1900 would not have had Athapaskan (or Tlingit) clans in the nineteenth century or earlier. As a result, we must suppose that these Tutchone had no clan system in the nineteenth century. With cultural continuity and stability having been established, we are now positioned to answer the questions posed in the Introduction of this book.

10 CONCLUSION

This study opened with a simple question: Were matriliny and socio-economic inequalities the characteristics of a truly indigenous independent and sovereign Tutchone first nation of small-scale hunters and gatherers? In Chapters 2 and 3, we saw that, to answer this question, we would first need detailed knowledge of the socio-cultural organization of Tutchone society during the period in which matriliny and these dominant-subordinate social relationships existed. We noted that this knowledge could only be acquired from a few documents written between 1840 and 1890 and from oral accounts collected after 1900, with the bulk of them gathered only after 1972.

This fact has compelled us to raise a number of questions concerning the history of Tutchone society, the coherence of nineteenth century documents and the information available in the twentieth century oral record that can assist our understanding of nineteenth century Tutchone culture. Was Tutchone society altered under the cultural influence of the Tlingit with whom they traded during the period 1840-1890? Was the Tutchone population decimated by European epidemics that were spread far and wide by direct and indirect contact with Indians traders and European newcomers? Did this result in various cultures regrouping and amalgamating, giving rise, through a transcultural process, to a new culture? Did this force the Tutchone to renounce certain social institutions that normally required the presence of a great many people: large cooperative hunting or fishing groups, division of the population into various clans? Did the abandoning of cooperative groups, in turn, provoke the abandoning of socio-cultural sub-systems through which individual men and women consented to depend upon one another and form a unified group for common productive goals? Did the consumption of goods sold by the Tlingit bring about the disappearance of indigenous branches of production? Did the newly introduced tools and weapons lead to a change in work patterns? Did this alter the techno-social relationships of dependence and independence between Tutchone individuals? Did the socio-cultural sub-systems related to the socio-technological relationships collapse when these techno-social relationships changed?

Assuming affirmative responses for the above questions, then surely the documents collected between 1840 and 1890 would describe a succession of different socio-cultural systems rather than a single one lasting throughout most of the second half of the nineteenth century. Surely then, it would have been impossible to fuse documents from different dates and take them as parts of *one* given overall system making it impossible to proceed to an ethnographic reconstruction.

Moreover, a different question had to be asked. Even if the predominant situation was stable from 1840 to 1890, does the oral literature collected after 1900 provide the information needed to compensate for shortcomings in the written literature? These oral accounts were provided either by Tutchone who had known the 1840-1890 era or by Tutchone who, during the 1890-1920 era and latter, had been acquainted with people who had directly known the period 1840-1890. However, what of Tutchone culture during the years spanning 1890 to 1920? Was it already very different from that of the 1840-1890 phase? Did this lead eyewitnesses of the second half of the nineteenth century to conceal certain facts unpalatable or irrelevant in the possibly new cultural context of the early twentieth century? Could it be that in this context stories were either misinterpreted or modified by those to whom they were told?

A multitude of reasons could have led the culture of the 1890-1920 era to be different from the culture in 1840-1890: commerce with trading posts operated by Euro-Canadians; the presence of Euro-Canadian missionaries and police officers in Tutchone country; the sale of European and Euro-Canadian goods in greater quantities than when trade was carried on with the Tlingit; possible transformation in the forms of appropriating natural resources and in the socio-cultural organization.

Once we acknowledged that these queries were indeed valid, we set out to find answers. Let us now summarize what we discovered for the period spanning the years 1840 and 1890.

Contact between the Tutchone and the Tlingit, which had been initiated towards the end of the eighteenth century, continued through the years 1840 to 1890. If the socio-cultural organization of the Tutchone had been modified under Tlingit influence, it no doubt occurred well before 1840. After that date, the modalities of Tlingit-Tutchone interaction remained unchanged and they are not likely to have directly effected new socio-cultural transformations among the Tutchone. The contact maintained with the Tlingit was in fact for commercial purposes only and that contact had already been established before 1840 (see Chapter 2).

In Chapters 4 to 9, we were able to establish the following facts. From 1840 to 1890, no ecological change took place. However, epidemics decimated the Tutchone population, and a possible ancient practice of female infanticide may have been abandoned. The result was that demographic decline was reduced to approximately 25 percent only—the proportion of young members of the population increased and the male-female ratio evened out. However, the demographic decline did not result in an amalgamation of diverse populations, nor did it cause people to abandon cooperative work patterns or social institutions (e.g., matriliny, matri-clans).

As for the economy between 1840 and 1890, we reached the following conclusions. The Euro-Canadian tools acquired (including flintlock guns) did not modify work patterns. Euro-Canadian means of production and consumption were not offered in sufficient quantity

to have warranted abandoning a single indigenous industry. Two new industries were introduced (hammering of imported iron bars and the construction of rectangular log cabins), but neither of these ushered in new work patterns. The acquisition and use of Euro-Canadian goods in no way changed the Tutchone's techno-social relationship with their environment's primary resources and, from 1840 to 1890, these Athapaskans continued to produce goods under the same techno-social imperatives of dependence/independence between individuals. Consequently, their socio-cultural organization could not undergo change as a result of new forms of appropriating resources.

Chapter 6 provided a definition of the concept of the *forms of appropriating natural resources and transforming raw materials into finished products* which might prove useful to ethnohistorians and archaeologists. This notion, together with the related concepts of production, labour, labour force, means of labour, subject of labour, product, work phase, simple and complex cooperation, etc., allows for a very precise analysis of how a society's existing relationship to nature may have been altered by exogenous factors and to what extent. In turn, this allows researchers to better study the question of whether technological innovations may or not have induced socio-cultural reorganization.

Overall, from 1840 to 1890, only one of the factors of change retained as a plausible hypothesis actually materialised: demographic decline. However, its impact was limited to the eradication of a possible practice of female infanticide. For reasons attributable to historical circumstance, the plausible socio-cultural upheaval expected did not occur. By all accounts, the essential features of the Tutchone's socio-cultural organization during that period must certainly have been maintained. This leads us to conclude that all documents written during that era describe a single socio-cultural system.

For the period spanning 1890 to 1920, the data have led to a more complex picture. First, we identified all the *economic* and *demographic* changes that had the potential to provoke some transformations in the forms of appropriating natural resources and we have studied whether or not these changes could have resulted in *actual changes of these forms of appropriating resources*. This was done in order to determine whether *techno-social changes* occurred and whether, as a result, *socio-cultural organization* was vulnerable to change under the influence of such techno-social changes. We then identified all the events that might have directly led to a transformation in the Tutchone's traditional *socio-cultural organization* and assessed the real impact of those events.

Insofar as concerns the social forms of appropriating natural resources, we came to the following conclusions. From 1890 to 1920, there occurred a great many economic changes which might have affected the traditional structure of the forms of appropriating resources. A few indigenous industries which produced goods that were rivalled by Euro-Canadian products were all but entirely abandoned. Those industries included the extraction of native copper, pyrite and stone used in the making of tools; the making of jewellery, points for tools, bows and arrows, conical dwellings, clothing made with chamois-leather, and nets made from animal sinew (see Chapters 6 and 9). Three new industries were introduced: the making of nets with cotton thread; the pitching of canvas tents; and the building of small Euro-Canadian style cabins (see Chapters 6 and 9). Of all the goods introduced to the Tutchone, repeating rifles were capable of transforming most traditionally cooperative hunts into individualized hunts (see Chapter 6). Another factor of change occurred after 1910 with the appearance of a vast herd of barren-ground caribou in Tutchone country (see Chapter 5).

And lastly, demographic decline continued in this period. After the 25 percent population loss between 1840 and 1890 and an 8-11 percent loss from 1890 to 1908, the Tutchone population in 1908 had been reduced to two-thirds of its size in 1840 (see Chapters 4 and 9). However, because of a number of factors, these *eco-demographic* changes had no impact on the social *forms of appropriating resources*, i.e., the *techno-social relationship* of relative dependence and independence between persons, with which Tutchone individuals had to comply in order to be able to efficiently produce goods. The first of these factors was the very simple nature of the forms of appropriating resources from the earlier period: preeminence of individual work in the extraction and transformation industries; simultaneous cooperation between groups of no more than two to five people and extremely rare use of simultaneous cooperation; production of finished products carried out partly through individual work and partly in conjugal dyads (see Chapters 7, 8 and 9). The second of these factors was the continued need to produce food for sustenance and furs for trade by harvesting essentially the same resources as prior to 1890 (see Chapters 2, 3 and 6), with essentially the same tools as those used prior to 1890 (see Chapter 6). The traditional cycles of dividing into smaller groups and gathering into larger groups continued (see Chapters 2, 3, 6 and 8), and the vast majority of pre-1890 work *phases* were preserved with the same work patterns and forms of production (see Chapters 6 and 9). Thus, *all* work patterns and forms of production from the 1840-1890 phase remained throughout the years 1890-1920.

Together, these two facts totally cancel out the changes that might have resulted from demographic decline, the introduction of rifles, as well as the elimination of some industries and the addition of others. The demographic decline took place in a society where the forms of appropriating animals and natural objects were already so basic that no further simplification was necessary. The elimination of some industries and the use of rifles dispensed with some work *phases* but, as the work *patterns* associated with the eliminated work *phases* continued to be employed in very many of the indigenous industries that survived, the *forms* of appropriating nature continued to exist. The new industries paved the way for new work *phases*, but since some of those phases had to be carried out under the same cycles of dispersion and concentration; they did not lead to any new *work patterns* or *forms of production* for the Tutchone (see Chapter 9).

Paradoxically, the introduction of rifles was one of the factors that prevented changes in the forms of appropriating natural resources. This weapon was a neutralizing force against the potential ecological disruption brought on by the arrival of the barren-ground caribou in Tutchone country around 1910. If the Tutchone had had only bows and arrows or flintlock guns, this game animal would have prompted them to form large hunting groups just as their Han and Gwich'in neighbours formerly did. Since no similar large collective work pattern had previously existed in Tutchone nineteenth century society, the forms of appropriating resources would necessarily have changed. However, as rifles were commonly used in 1910 and as these weapons enabled hunters to kill caribou without resorting to simultaneous cooperation, the significant environmental change represented by the arrival of barren-ground caribou had no impact on the forms of appropriating resources (see Chapter 5).

In summary, the Tutchone used the same forms of appropriating resources from 1890 to 1920 as they did from 1840 to 1890. In other words, in order to produce food for sustenance and goods for local use or trade purposes, between 1890 and 1920 the Tutchone had to comply with the same techno-social dependence/independence relationships between per-

sons as that which existed from 1840 to 1890. The economic, demographic and ecological changes that occurred between 1890 and 1920 had no impact on the social forms of appropriating natural resources. As no changes in the forms of appropriating resources occurred, the Tutchone were not enticed to modify their socio-cultural organization via this route. On the contrary, on this point, we can even suggest the following two proposals: 1) To the extent that socio-cultural organization between 1840 and 1890 intermeshed with the techno-social relationships that then had to be respected in order for the society to survive, we must suppose that the 1840-1890 socio-cultural organization remained in line with the techno-social relationships that prevailed from 1890 to 1920; and 2) Inevitably, this fact could only have led to maintaining most of the socio-cultural structure of 1840-1890 into the 1890-1920 era.

As regards the factors likely to have *directly* triggered the transformation of the *socio-cultural organization*, we drew the following conclusions. Four such factors arose between 1890 and 1920: 1) Euro-Canadian merchants tried, through persuasion, to change the Tutchone's traditional economic behaviour; 2) Missionaries tried, also through persuasion, to change the Tutchone's traditional cultural, ideological and religious behaviours; 3) The federal police force tried to change their traditional socio-political behaviour by persuasion, but also by the use of force; 4) Demographic decline increased somewhat. An examination of the compendium of data about the 1890-1920 era shows that the pressures from merchants and missionaries failed and that only police pressures had any serious effect at all: they managed to make the use of violence and the dominant-subordinate relationships among indigenous peoples more difficult (see Chapter 3). Furthermore, the empirical study of the history of the Yukon Basin from the end of the eighteenth century through to 1900 and the comparative study of societies in that region circa 1900 show that demographic decline could not have caused the Tutchone to change from a matrilineal system with matri-moieties to a bilateral system or from a matri-clan society to a society without matri-clans. The first assumption is challenged by the fact that the Tutchone were still matrilineal and divided into matri-moieties in 1900-1920 and still are to this day. The second assumption is negated by the spatial distribution in 1900 of the Athapaskan and Tlingit clan systems in the region and by the history of the region (see Chapter 9).

All in all, we can now conclude that the traditional social forms of *appropriating natural resources* were maintained; that this encouraged the Tutchone society to retain its *socio-cultural organization*; that *demographic* pressures were present and that Euro-Canadian *cultural* pressures were exercised in an attempt to change this socio-cultural organization; but that all such attempts failed with the exception of the pressures that prevented the practice of dominant-subordinate relationships among Tutchone (and, of course, the trade modalities with Tlingit foreigners which were part of this system). If socio-cultural organization can be presumed to continue provided that no change is called for and if the above change is the only one discernable (after identifying every factor that might have caused the Tutchone to change and determining all the results), then the only possible conclusion is that the socio-cultural organization from 1890 to 1920, without a doubt, was near identical to the socio-

cultural sub-systems of 1840-1890, except for the means (indigenous use of force) with which dominant-subordinate relationships were exercised.[495]

We examined the context in which oral testimonies of occurrences in the years 1840-1890 were passed down in the 1890-1920 era. By all accounts, the Tutchone who had lived during a part of the 1840-1890 spoke from within a society that had then renounced its dominant-subordinate relationships (which were impossible to maintain because of the Euro-Canadian police), but that maintained all its other socio-cultural sub-systems. Could we conjecture that this context spurred them to mask or adulterate the truth about certain aspects of their nineteenth century life? Should we suppose that the context exposed the events to misinterpretation on the part of the people who were told of accounts and who would share them with us in the early 1970s? For all matters aside from dominant-subordinate relationships, the answer must clearly be "no" as the elders passed down their stories in a society that still maintained the sub-systems of which they spoke. We must however take greater care in assessing the dominant-subordinate relationships. The fact that Tutchone elders still knew about these relationships in the 1970s proves that they received this information from eyewitnesses to the nineteenth century. However, this does not guarantee that the information is absolutely complete.

We raised these questions to determine the degree in which oral tradition compensates for the shortcomings in written documents dating from 1840-1890. We now have the answer. The oral reports are comprehensive for all matters except perhaps dominant-subordinate relationships. For this, we must exercise greater caution in comparing oral accounts with the information contained in archival documents dating from 1840-1890. Can it be done? Certainly! For it will be recalled, Campbell's journal contains numerous references to the two *dan noži'* of the Selkirk regional group and we will see that Schwatka also provides information on this subject.

It can be seen from the preceding arguments, that we can therefore reconstruct the socio-cultural system for the years 1840-1890 on the basis of oral accounts and available period documents, and try to identify the mechanisms that made it possible for a surprising matrilineal system and an unexpected relationship of inequality to exist among these Tutchone small-scale hunters and gatherers.

The detailed study presented here has laid the groundwork for the full examination of the culture of the eleven Tutchone regional groups as it is preserved in their oral traditions and in the historical documents. This will be the subject of a forthcoming book. The present work has exhaustively described the technology, the forms of appropriating natural resources and the spatial distribution of the Tutchone population in 1840-1920. It is hoped that the research and discussion presented in these pages will be of value both to the Tutchone, to other Yukoners, to students of anthropology, ethnoarchaeology, history and ethnohistory, and, indeed, to interested members of the public at large.

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[495] In the summary concerning socio-cultural changes in 1840-1890, I included the impact of the demographic decline (elimination of female infanticide, balanced male-female ratio, increasing proportion of youths in the overall population). These traits were still in place in 1890-1920, but were no longer new. They must therefore not be included among the changes with respect to 1840-1890.

APPENDIX A
SCIENTIFIC NAMES OF MAIN YUKON SPECIES

BIRDS

(cf. Godfrey, l966)

1. Baldpate (*Mareca americana*, Gmelin) or American widgeon
2. Canvasback (*Aythya valisineria*, Wilson)
3. Crane, sandhill (*Grus canadensis*, L.)
4. Duck, mallard (*Anas platvrhynchos*, L.)
5. Eagle, bald (*Haliaeetus leucophalus*, L.)
6. Eagle, golden (*Aquila chrysaëtos*, L.)
7. Goose (*Branta canadensis parvipes*, Cassin)
8. Goshawk (*Accipiter gentilis*, L.)
9. Grebe, horned (*Podiceps auritus*, L.)
10. Grebe, red-necked (*Podiceps grisegena*, Boddaert)
11. Grouse, blue (*Dendragapus obscurus*, Say)
12. Grouse, ruffed or willow (*Bonasa umbellus*, L.) or "partridge"
13. Grouse, spruce (*Canachites canadensis*, L.)
14. Gull, Bonapart (*Larus philadelphia*, Ord)
15. Gull, herring (*Larus argentatus*, Pontoppidan)
16. Gull, mew (*Larus canus*, L.)
17. Hawk (*Chordeiles minor*, Forster) or common nighthawk
18. Kingfisher, belted (*Megaceryle alcyon*, L.)
19. Loon, Arctic (*Gavia arctica*, L.)
20. Loon, Common (*Gavia immer*, Brünnich)
21. Osprey (*Pandion haliaetus*, L.)
22. Owl, boreal (*Aegolius funereus*, L.)
23. Owl, great horned (*Bubo virginianus*, Gmelin)
24. Owl, hawk, (*Surnia ulula*, L.)
25. Owl, short-eared (*Asio flammeus*, Pontoppidan)
26. Pintail (*Anas acuta*, L.)
27. Ptarmigan, rock (*Lagopus mutus*, Montin)
28. Ptarmigan, white-tailed (*Lagopus leucurus*, Richardson)
29. Ptarmigan, willow (*Lagopus lagopus*, L.)
30. Raven, common (*Corvus corax*, L.)
31. Scaup, greater (*Aythya marila*, L.)
32. Scaup, lesser (*Aythya affinis*. Eyton)
33. Shoveler (*Spatula clypeata*, L.)
34. Snipe, common (*Canella gallinago*, L.)

35. Swallows (5 to 6 species)
36. Swan, trumpeter (*Olor buccinator*, Richardson)
37. Swan, whistling (*Olor columbrianus*, Ord)
38. Teal, green-winged (*Anas carolinensis*, Gmelin)
39. Woodpecker, (2 species: *Picoides villosus and tridactylus*)

FISH

(cf. Scott and Crossman, l973)

1. Burbot (*Lota lota*, Linnaeus), or ling, eelpout, loche, freshwater cod, maria, methy lush, lawyer
2. Cisco, least (*Coregonus sardinella*, Valenciennes), or lake herring, big-eye Mackenzie herring
3. Greyling, arctic (*Thvmallus arcticus*, Pallas), or bluefish, artic trout, tittimeg, poisson bleu
4. Inconnu (*Stenodus leucichthys*, Güldenstadt), or sheefish, connie, coauy
5. Pike, northern (*Esox lucius*, Linnaeus), or jack, jackfish, pickerel, Great northern pickerel
6. Salmon, chinook (*Oncorhynchus tshawhtscha*, Walbaum), or spring salmon, king salmon, tyee. quinnat
7. Salmon, coho (*Oncorhynchus kisutch*, Walbaum), or silver salmon, sea trout, blue-back
8. Salmon, dog (*Oncorhynchus keta*. Walbaum) or chum salmon, or keta
9. Sculpin, slimy (*Cottus cognatus*, Richardson), or Miller's thumb, cockatouch, star-gazer, Bear Lake bullhead, slimy muddler, northern sculpin
10. Sucker, longnose (*Catostomus catostomus*, Forster), or sturgeon sucker, red-sided sucker, black sucker
11. Trout, lake (*Salvelinus namaycush*, Walbaum), or mackinaw trout, salmon trout, laker, namaycush, masamacush, togue, grey trout, Great Lake char, landlocked salmon, mountain trout, tague
12. Whitefish, broad (*Coregonus nasus*, Pallas), or round-nosed whitefish, sheep-nosed whitefish, khluguzhey, tezareh, tezra
13. Whitefish, lake (*Coregonus clupeaformis*, Mitchell), or sault whitefish, Great Lake whitefish, gizzard fish
14. Whitefish, pygmy (*Prosopium coulteri*, Eigenmann and Eigenmann), or Coulter's whitefish, brown back whitefish
15. Whitefish, round (*Prosopium cvlindraceum*, Pallas), or pilot fish, Frost fish, me-nominee whitefish

MAMMALS

(cf. A. W. F. Banfield, 1974)

1. Bat, little brown (*Myotis lucifugus)*
2. Bear, black (*Ursus americanus*, Pallas) or American black bear
3. Bear, grizzly (*Ursus arctos*, Linnaeus)

4. Beaver (*Castor canadensis*, Kuhl) or American beavers
5. Caribou, barren-ground (*Rangifer tarandus granti*)
6. Caribou, woodland (*Rangifer tarandus caribou*)
7. Chipmunk (*Eutamias minimus*)
8. Ermine (*Mustela erminea*, Linnaeus) or stoat or weasel
9. Fox (*Vulpes vulpes*, Linnaeus) or red fox
10. Gopher (*Spermophilus parryii*, Richardson) or Arctic ground squirrel
11. Hare (*Lepus americanus*, Erxleben) or snowshow or snowshoe hare
12. Lynx (*Lynx lynx*, Linnaeus)
13. Marmot (*Marmota caligata*, Eschscholtz), or Hoary marmot
14. Marten (*Martes americana*, Turton) or American marten
15. Mink (*Mustela vison*, Schreber) or American mink
16. Moose (*Alces alces gigas*, Linnaeus)
17. Mouse, deer (*Peromyscus maniculatus*)
18. Muskrat (*Ondatra zibethicus*, Linnaeus)
19. Otter (*Lontra canadensis*, Schreber) or river otter
20. Porcupine (*Erethizon dorsatum*, Linnaeus) or American porcupine
21. Sheep, Dall's (*Ovis dallis dalli* and *stonei*, Nelson, Allen)
22. Shrews (Sorex; 5 species: *cinereus; obscurus; palustris arcticus; hoyi*)
23. Squirrel, American red (*Tamasciurus hudsonicus*, Erxleben)
24. Squirrel (flying) (*Glaucomys sabrinus*, Shaw) or Northern flying squirrel
25. Vole, tundra (*Microtus oeconomus*) or root vole
26. Weasel (least) (*Mustela nivalis*,Linnaeus)
27. Wolf (*Canis Lupus pambasileus*, Linnaeus)
28. Wolverine (*Gulo gulo*, Linnaeus)
29. Woodchuck (*Marmota monax*, Linnaeus)

PLANTS

(From Marjolaine LeFebvre, Forestry Department, John Abbot College, Montreal)

1. Alder (*Alnus* species)
2. Aspen, trembling (*Populus tremuloides*) or quaking aspen
3. Balsam (*Alies lasiocarpa*) or Alpine fir
4. Bear roots (*Hedysarum alpinum*) or Indian's sweet potatoes
5. Birch, dwarf (*Betula glandulosa*)
6. Birch, water (*Betula occidentalis*) or river birch
7. Birch, white (*Betula papyrifera*)
8. Blackberry or Mossberry (*Empetrum nigrum* L.)
9. Blueberry (*Vaccinium uliginosum*)
10. Cottonwood (*Populus balsimifera*)
11. Cottonwood, black (*Populus trichocarpa*)

12. Cranberry, highbush (*Viburnum edule*)
13. Cranberry, lowbush (*Vaccinium vitis-Idaea*)
14. Crowberry (*Juniperus* species) or Juniper berry
15. Currant, highbush (*Ribes tristes*)
16. Fireweed (*Epilobium angustifolium*, L.)
17. Hellebore (*Veratrum viride*)
18. Jackpine (*Pinus contorda*, var. *latifolia*, Loud) or lodgepole pine
19. Lichen (*Cladonia* species) or Caribou moss
20. Onion, wild (*Alium specias*),
21. Rhubarb (*Heracleum lanatum, Michx*) also known as Wild celery or Cow parsnip
22. Rosehip (*Rosa*, species)
23. Soapberry (*Sherpherdia canadensis*. L.)
24. Spruce, black (*Picea mariana*)
25. Spruce, white (*Picea Glauca*)
26. Stoneberry (*Arctostaphylos uva-ursi*, L.)
27. Strawberry (*Fragaria glauca*)
28. Tea, Hudson Bay (*Ledum groenlandicum*, Oeder) or Labrador tea
29. Willow (*Salix*,species)
30. Willow, dwarf (*Salix barclayi*)

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