Multiple axe or hatchet marks, usually associated with areas of missing wood, have been observed on some scars. These chop marks may be the result of kindling removal or cutting of the hardened pitch that accumulates on the scar. Lodgepole pine pitch is used by some groups for medicinal purposes. These marks probably are not associated with the bark removal in most cases, instead representing a later use of the exposed scar face.

**Dating:** Dates from the early 1700s have been obtained on lodgepole pine bark-strip scars, but the majority date to the latter part of the 1800s to the early 1900s. The prevalence of wild fires in the forests of the Interior, and the general youth of the forests, may be responsible in large part for the scarcity of trees predating 1900. Undoubtedly many older bark-striped pines will be identified once larger numbers of CMTs are dated.

**Associations:** Bark-stripped lodgepole pines are found alone or in groups, or in association with other kinds of archaeological sites. Stripped pine have been noted in association with aboriginal trails (“trail-type” CMT sites) and aboriginal camps. Stripped lodgepole pine sometimes occur in very large groups of hundreds or even thousands. This type of site is called a cambium harvest site.

**Natural bark scarring on lodgepole pine:** Not all rectangular bark scars on lodgepole pine are cultural (human) in origin (see Appendix II). Animals known to consume tree cambium and strip trees include porcupines, squirrels, bears, moose, snowshoe hares, cottontail rabbits, and deer. In many cases, the scars left by animals are oval or irregular (without geometric shape), have no sharp border, are at low heights on the tree, and occur on very young trees. Tooth marks may be present on these scars.

Bears strip bark starting at the base of the tree, tearing upwards and often girdling the tree, thereby killing it. These scars are usually widest at the base at the bottom of the tree, and taper upwards. Often these scars have tops comprised of several “peaks,” each the result of a different strip. Long strips of bark
sometimes hang from the scar tops, and scar edges are often irregular. The exposed sapwood often has a regular pattern of transverse marks from the bear’s lower incisors which are used to remove the inner bark. Pieces of bark, claw marks, and canine puncture marks also may be present on the scar. Other kinds of bark modifications by bears (territorial claw marks and tree demolition) are unlikely to be confused with cambium stripping.

Scars resulting from fires, lightning strikes and extreme frost can usually be easily distinguished from rectangular cultural scars. They are normally larger than cultural scars, often extend down to the ground, and sometimes extend up to the tree crown. Scars from wild fires are usually triangular in shape (sometimes oval), and start at ground level (sometimes part way up the trunk). Lightning and extreme freezing commonly split the wood beneath the scar. Scars of natural origin do not have toolmarks.

When a group of scarred trees is encountered, a careful inspection for toolmarks should be made. Where at least one tree shows toolmarks, the others probably can be assumed to be cultural. Many bark-strip scars are obviously cultural because of the presence of toolmarks. In most cases, these modifications are of aboriginal origin.

Additional discussion of natural bark scarring of logdepole pine can be found in Appendix II.
Characteristics of Cultural Rectangular Bark-strip Scars on Lodgepole Pine

Cultural rectangular bark-strip scars on lodgepole pines usually exhibit the following characteristics:

- overall rectangular or inverted triangular shape (obscured on older trees by a scar window of lenticular or other shape)
- relatively straight, parallel or contracting, sides (which can be obscured by the scar window)
- well-defined top
- well-defined base (in some cases)
- cut marks in the bark and wood at the top of the scar (denticulate tabs if bone or antler tool is used)
- no galleries from engraver beetles on scar face
- tear tabs at the bottom of the scar (cut marks if bottom of strip is cut)
- horizontal linear impressions from use of bone and antler peelers (rare)
- no tooth or claw marks in wood of scar face
- no long strips of bark hanging from the scar top
- found in groups (often, but not always)
- association with trails, camps and other kinds of archaeological sites (sometimes)
CMT Scar Shapes

Overall shape of the scar window. Any scar which does not conform to any of these shapes should be called “irregular.”

CMT Scar Top Shape/Form

Top shape describes either the top of the original scar or the top of the scar window, depending on the overall morphology of the scar.

Rectangular bark-strip scars on western redcedar

Two kinds of rectangular bark-strip scars have been identified on western redcedar in the Interior, representing two different uses:

- large rectangular scars
- smaller rectangular scars

**Large rectangular scars:** These scars resemble the large rectangular bark-strip scars found on the Coast. They have been recorded on western redcedar in the Interior wet belt in the vicinity of Shuswap and Adams Lakes. These scars have straight sides with chopped tops and bases [see photo, p. 72]. Cut and chop marks may be present at the top and/or bottom of the scar. Scar lobes form along both sides of the scar, sometimes forming lenticular scar windows. These large rectangular scars are usually the result of collecting slabs of thick outer bark for use as roofing, wall lining, and flooring for pithouses and winter lodges.

**Smaller rectangular scars:** These bark-strip scars are found on western redcedar located on the eastern flanks of the Coast Mountains. Similar scars have been reported in interior Washington State, but not on the Coast. The scars are rectangular in shape and usually considerably smaller than the big scars resulting from the removal of bark slabs. Lengths of just under 1 m are common. Sometimes, multiple rectangular strips were removed one above the other, resulting in long rectangular scars up to 2 m long. Some scars are horizontal rather than vertical. Trees were sometimes climbed to considerable heights to obtain bark (over 10 m in one case). Toolmarks are common. In Washington State these scars are attributed to the collecting of bark for making baskets. The Interior scars are presumably for a similar purpose.
Bark-stripped western redcedar with large rectangular bark-strip scar.
Rectangular bark-strip scars on paper birch

The bark of the paper birch is widely used by the people of the Interior. Bark sheets are used as material for containers, baby cradles, canoes, and toboggans; for wrapping food and lining storage caches; and for walls and roofs of dwellings. Thick leathery bark suitable for canoes, etc. is harvested in winter. It is peeled off in large sheets. Birch bark also is used for tanning and for torches. Birch cambium is eaten, birch sap is collected for medicinal purposes, and birch pitch is used as a fire starter.

The stripping of birch bark resulted primarily in rectangular bark-strip scars with relatively straight sides. The scars vary considerably in size, depending on the intended use. Three kinds of rectangular bark-strip scars have been recorded so far for birch CMTs:
- girdled scars — discussed later in this section
- rectangular outer-bark scars
- rectangular bark-strip scars

Rectangular outer-bark scars: These scars are the result of collecting smaller pieces of bark, possibly for wrapping food. Only the outer bark is taken; the inner bark is left on the tree. Cut marks are present along both sides of the scar; scar lobes are present where the cuts have penetrated the inner bark into the sapwood.

Rectangular bark-strip scars: These scars resemble the rectangular scars on lodgepole pine, though usually smaller. Both the inner and outer bark has been stripped, in order to access the cambium. The scar face is exposed, and scar lobes are present along the sides of the scar.
**Rectangular bark-strip scars on hemlock**

In recent years, an increasing number of bark-stripped western hemlock trees have been recorded in the northwestern portion of the BC Interior. Primarily, they have been in the Skeena-Nass River area, but also have been recorded closer to the coast and on the Queen Charlotte Islands.

Bark-stripped hemlocks, like pine, are stripped for their inner cambium which is used both medicinally and as food. Hemlock CMTs are frequently found in areas where pine trees are also used. They have been recorded in great numbers in CMT Harvest sites, as well as in association with trails, cache pits and village sites. Dates ranging from the early 1800s to the mid 1900s have been obtained from hemlock CMTs.

Hemlock bark scars are typically small in size (less than 1 m in length, on average about 85 cm), raised well above the ground (generally at knee-breast height, on average 65 cm), and exhibit either rectangular or oval shaped scar windows. Scar window tops and bottoms can vary depending on the amount of bark die-back immediately above and below the original scar. Scar window widths are on average approximately 25 cm. Toolmarks are relatively common, and are most often recorded as a series of small, horizontal cut marks extending across the scar face at the top, middle and bottom. As well, some hemlock CMTs retain a visible lateral cut edge. This is the vertical cut edge of the original bark along the side(s) of the scar. It is sometimes visible on or near the healing lobe of the scar.
A bark-stripped hemlock CMT with an oval shaped scar window. Note the relatively short length of the scar (approx. 1 m) and the height above ground (approx. 40 cm).
A rectangular bark-stripped hemlock CMT with two sets of parallel horizontal cut marks visible across the scar face.
Rectangular bark-strip scars on other species

**Trembling Aspen:** A few trembling aspen with what may be rectangular bark-strip scars have been recorded, mainly in the central Interior. These scars are not described, but in one case the scars are said to be “like pine” and presumably are rectangular in shape. The few that are recorded are found either with or in the vicinity of stripped lodgepole pines. Aspen bark is used traditionally for medicinal purposes, and as a cleanser, bleach, and hair remover. Aspen cambium is eaten, and aspen sap consumed by some groups.

**Spruce:** A few spruce CMTs with rectangular bark-strip scars have been recorded, but little information is available about these scars. In most cases, the species of spruce is not identified. Long vertical rectangular scars, probably from the collection of bark sheets for canoes or housing material, have been recorded on large spruce in central British Columbia.

**Girdled bark-strip scars**

Girdled bark-strip scars are horizontal rectangular scars that span the entire circumference of a tree. They are found primarily on paper birch, but have been observed on cedar, lodgepole pine and other species.

**Girdled bark-strip scars on paper birch**

The importance of birch bark was noted earlier in this section. Large sheets of birch bark can sometimes be obtained by girdling a tree. These scars can be of almost any size. A vertical cut mark, usually made with a knife, is found on these scars, and sometimes extends just beyond the top and bottom of the scar. This mark is the result of an initial cut, from which the bark is stripped by hand. Short horizontal “starter” cuts are sometimes made near the top and bottom of the vertical cut to help guide the start of the strip. Sometimes the horizontal cuts circle the tree.
Girdling does not kill the birch because only the outer bark is cut and removed. Encircling cuts, when present, usually do not penetrate the inner bark. The vertical cut often penetrates into the sapwood. Scar lobes form only along the vertical cut because it is the only cut that penetrates the bark.

**Girdled bark-strip scars on cedar**

Girdled scars on cedar trees have been reported from the Fraser Canyon, Stein River Valley and Skeena River areas, and have been found alongside tapered and rectangular scarred cedar trees. Girdled scars, like rectangular scars, are cut at the scar top and bottom to remove a large sheet of bark from around the entire circumference of the tree. Girdling a cedar kills the tree and thus there is no lobe growth or healing associated with the scar. Tool chop marks are frequently identifiable at the top and/or bottom of the scar. Both western red and yellow cedar trees have been recorded as girdled CMTs in the Interior.

**Girdled bark-strip scars on lodgepole pine**

Girdled scars also have been reported on lodgepole pines, though they are infrequent. These scars are similar in many aspects to the rectangular scars on pines for cambium collecting, differing primarily in the removal of bark from around the entire circumference of the tree. Toolmarks are present at the top and bottom of the scars. Girdled lodgepole pines on the Chilcotin Plateau have been attributed to the collection of bark sheets for smoking fish and curing hides.

**Tapered bark-strip scars**

Tapered (triangular) scars are relatively long and narrow scars with straight sides that contract to a peak or crease at their top. They are found on western red cedar.

Tapered bark-strip scars are infrequent in the Interior except in transition areas like the Fraser Canyon and the Skeena Valley between Kitselas Canyon and Hazelton where the Coastal
Western Hemlock Zone with its large cedars penetrates the Coast Mountains and aboriginal groups weave inner cedar bark. In these transition areas, the tapered scars are indistinguishable from those on the Coast. Elsewhere, including the so-called “Interior wet belt” (Interior Western Hemlock Zone) where western redcedar is a dominant species, tapered scars have not been reported except in the Stein River Valley.

In the Stein River Valley, the tapering scars are similar to those on the Coast, though somewhat shorter in length. Many of the scars have bases, and toolmarks are present on a number of scars. For a discussion on the identification of these scars, see the section on Coastal British Columbia.

Other bark-strip scars

This category consists of all other bark-strip scars. These include S-shaped scars, oval scars, and scars with no regular shape. They have been reported for a number of tree species, particularly lodgepole pine. Presumably these other scar types are the result of individual preferences in how bark is removed, uses not associated with the other scar types, failed attempts to remove rectangular scars, and special circumstances that allowed an unorthodox method of bark removal. An example of the latter is two scarred lodgepole pines on the Chilcotin Plateau stripped in a “barber-pole” fashion, each with a scar winding around the trees starting at a height of 450 cm above the ground. In both cases the trees were very small (14 cm diameter), and the purpose of the bark removal is not reported.

In older archaeological reports, bark-strip scars often are simply identified as present, and are not described. Consequently, it is not possible to classify these bark-stripped trees. These include stripped ponderosa pine and alpine fir.

Ponderosa pine bark was stripped for cambium, for slabs used as building material, and for pieces used as fire fuel. Bark-stripped ponderosa pines should be common in those parts of the southern Interior where this species thrives. Most of these scars should be
rectangular in shape. Although bark-stripped ponderosa pine with rectangular scars have been observed, none have been recorded. Two instances of bark-stripped ponderosa pine have been recorded, but these scars are not described. Apparently short stubby young trees growing in open terrain were preferred when seeking cambium. The use of ponderosa pine bark for construction has a considerable antiquity: bark slabs thought to be roofing material were found in a house at Adams Lake that was occupied about 1500 years ago.

One bark-stripped alpine fir CMT has been recorded in the alpine parkland of the Chilcotin Plateau. However, no information is available about this bark scar other than the “bark had been removed with a knife.”

Undoubtedly examples of other bark-stripped tree species will be identified once people start looking for them. Other species that could exhibit cultural bark-strip scars, but have not been recorded archaeologically in the Interior, include red alder, Douglas-fir, black cottonwood, black spruce, black poplar, western larch, and willow.

**Identifying Aboriginally-logged Trees**

As on the Coast, an aboriginally-logged tree is a tree which has been tested, felled, cut, or otherwise modified by aboriginal people as part of the traditional procurement of logs, posts, planks and other pieces of wood. It is anticipated that in transition areas between the Interior and Coast, where large cedars grow and aboriginal groups work wood in ways similar to groups on the Coast, many aboriginally-logged cedars similar to those on the Coast will be eventually recorded. At present, flat and stepped cedar stumps have been recorded, along with logs, log sections and missing log sections.

In the Stein Valley, a single standing plank-stripped western redcedar has been recorded. The tree has a single plank scar, with a notch at both ends of the scar. In the Interior away from the Coastal Western Hemlock Zone, traditional logging
activities relied on species other than western redcedar, and did not result in modifications that can be identified many years later. Also, many traditional uses involved chopping and cutting that produced modifications that cannot be distinguished from those produced by non-aboriginal people.

The classification used for aboriginally-logged trees on the Coast is also used in the Interior, though some types either do not occur in the Interior, or occur only in cedar-rich transitional areas between the Coast and Interior.

The single aboriginally-logged CMT recorded so far outside the Coastal Western Hemlock Zone is a canoe tree. While several finished canoes or parts of finished canoes have been documented in the Interior, only one instance of a canoe tree (CMT) has been recorded, a ponderosa pine specimen in the North Thompson Valley. A canoe tree is a log or log section partially shaped into a dug-out canoe (canoe blank) that was never completed. The defining characteristic of a canoe tree is the presence of a canoe blank. A canoe blank is a log in the initial or intermediate stage of shaping into a canoe. A canoe blank usually has a shaped bow and stern. Other attributes of a canoe blank will vary with the size and style of the canoe, and the degree of completion.

Other features that may be present are the stump of the tree from which the canoe blank was cut, other sections of the felled log from which the blank was cut, lofting logs (logs placed underneath the canoe blank to raise it off the ground), and logging detritus (waste chips, chunks and slabs).

**Identifying Other Modified Trees**

This class consists of all CMTs other than bark-stripped trees and aboriginally-logged trees. It includes trees modified:

- to obtain kindling, sap and pitch
- to display messages and images of ceremonial, spiritual and other significance
- to mark trails
• to serve as support posts for shelters, drying frames, and other structures
• for other purposes.

Only a few instances of these kinds of CMTs have been recorded in the Interior, but others will be found as more attention is paid to these trees. A few comments follow on some of these trees.

**Kindling collection trees**

Exposed wood with chop marks and small areas of removed wood have been observed on a number of tree species. The removed wood probably is used as kindling or fuel. These trees can have one or more kindling removal scars (areas with chop marks and missing wood). These chopped areas occur on both natural and cultural bark scars [see photo below].

*Lodgepole pine with kindling removal scar (chopped area).*