

COTTONWOOD—KING of the Great Plains & Rockies!

ECOLOGY • INDIAN FOLKLORE • MEDICINE & USES

*Without the cottonwood,
there would be
no golden autumn
on the Great Plains.
Rivers riffle silver
over hidden rocks,
fish leap to catch
a last insect on the wing,
sagebrush is in bloom
and skunkbush
turns the hills to red.
Along the banks
of every stream
cottonwood,
dressed up in gold,
is KING!*

ECOLOGY

Cottonwood trees grow abundantly where there is plenty of moisture along all rivers and creeks in the Great Plains, even growing along streams up into the Rocky Mountains, challenging another species of cottonwood, the narrowleaf cottonwood (*Populus angustifolia*) at more

northern sites or higher altitudes. Along stream banks in coniferous forests, again the cottonwood challenges the aspen and birch trees.

Though the plains cottonwood is dominant, and the climax tree out on the Great Plains, growing 60 to 90 feet tall with a 6 to 7 foot trunk, and by far the biggest and lustiest, it is not a tolerant tree, requiring lots of sun. And it is not a long-lived tree. So often, a woods of cottonwood will have many down trees, and many trees standing like gray ghosts, denude of leaves, often without bark and with only the large, heavy trunks left. The branches, though thick, are easily broken off in a windstorm, so the ground under the tree is scattered with dead branches. Plains cottonwood trees grow in sandy, gravelly soils on the banks of rivers can reach to over 100 feet tall, with trunks that are 8 to 10 feet across.

At a moist site, young trees grow from

seeds that float through the air in profusion far and wide. The tree has a wide root system, a little deeper than many of the riverbank trees. Without the cottonwood trees along streams and rivers, there would be little glory in autumn on the Great Plains and lower edges of the Rockies. But thanks to the cottonwood, September to October is a golden time.

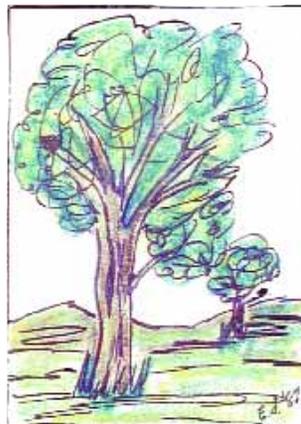
Like all light-barked trees, cottonwood trunks can split wide open on the south side of their trunks in the winter sun. When the underneath tree is still frozen, the bark and the first inner layers warm up in the sun, swell and crack open. Usually such cracks heal over but leave scars on the tree trunk.

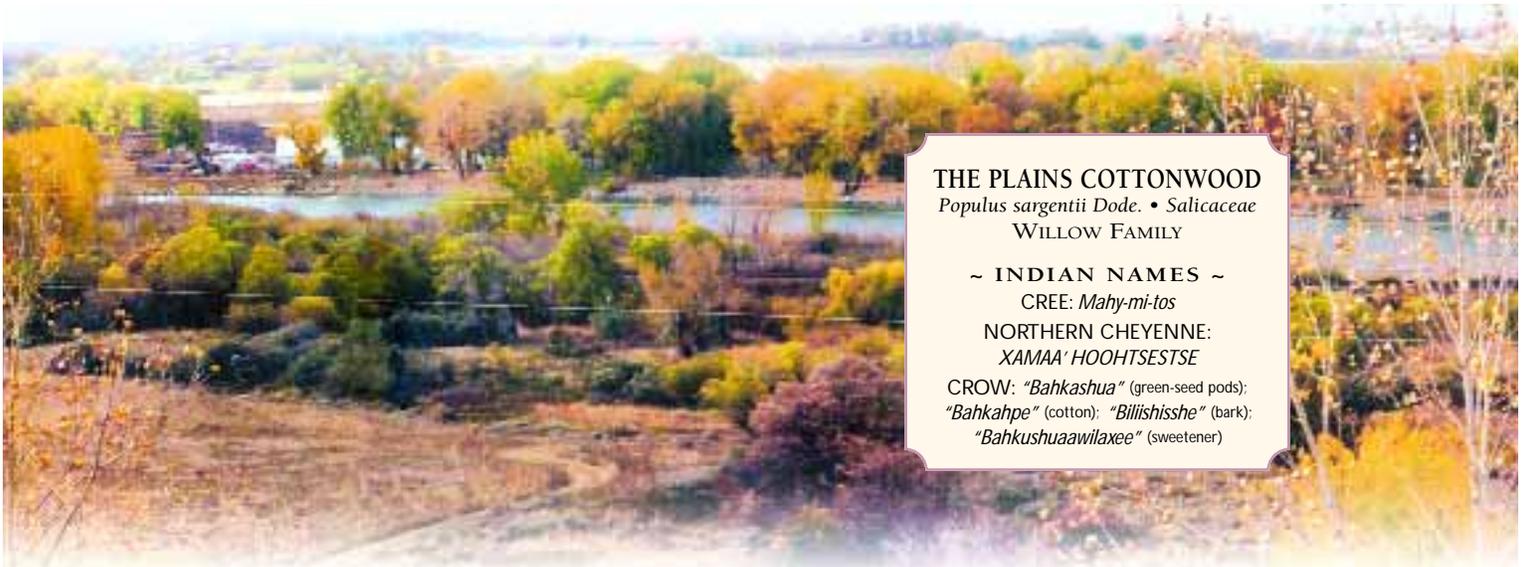
No tree has been used in as many ways as the cottonwood—king of the Great Plains. Its ecological value as the largest climax plant, and as part of watershed control—its value as a shade tree and as shelter belts for homesteads and rural homes, and its rugged, ragged beauty are all important. Other uses of the cottonwood, from top tip to trunk and root, are symbolic of its place in the ecology of the native peoples of the Great Plains and Rockies.

FOLKLORE & FOOD

For food, the Plains Indians relished the sweet, inner bark and sap of the cottonwood. The Flathead, Kutenai, Blackfeet, Northern Cheyenne, and Crow all used it as a sweetener in teas, puddings and syrup. In the spring, when the sap rises, many tribes preferred cottonwood sap to any other species, finding it sweeter than Ponderosa pine.

In spring, when the cotton was flying, the Crow Indians knew the natural sugar content of the sap was at its best. This was a fun time and activity. Courting young couples would go into the woods in the company of others to





THE PLAINS COTTONWOOD

Populus sargentii Dode. • Salicaceae
WILLOW FAMILY

~ INDIAN NAMES ~

CREE: *Mahy-mi-tos*

NORTHERN CHEYENNE:

XAMAA' HOOHTSESTSE

CROW: "*Bahkashua*" (green-seed pods);

"Bahkahpe" (cotton); "*Billishishe*" (bark);

"Bahkushaawilaxee" (sweetener)

de bark the trees, scrape the wood and inner bark, and gather the sweet sap in a container to take home. Also the children would gather the cotton when it was still moist on the tree and chew it for gum.

Generally, the process for harvesting the sap was to sample a little bit by cutting out a piece of the bark and trying the taste of the inner part until it was sweet, usually in May. Then they hollowed out places along the trunk, and when the sap collected in the cup-like holes, they drained or syphoned it out and used it to sweeten or evaporated it to a thicker consistency. Or the people peeled off the rough, outer bark with a buffalo or elk rib (later hatchets were used) and then scraped off the thin, clear layer still clinging to the tree just under the bark (*the cambium*) for eating.

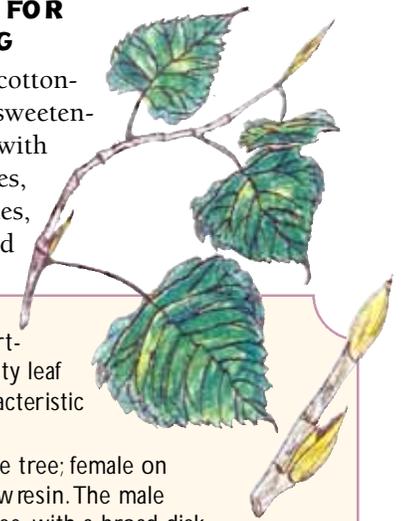
In summer, the Indian people backed up into the mountains, but in winter, they moved down to the plains to huddle their teepees in the protection of cottonwood trees. When the grasses were under snow

cover, the people peeled the bark and twigs from the trees to feed their horses. Some even carried bark along on hunting or raiding forays. Blackfeet warriors were known to rub themselves with the sap to keep others from smelling them when they were horse stealing.

The bark is edible for people and animals, especially used in winter. All species of cottonwood trees are palatable to livestock and game animals. Animals browse any parts they can reach.

SWEETENER FOR FRUIT PUDDING

The inner bark of the cottonwood was often used as a sweetener for fruit pudding made with sarvis berries, chokecherries, wild rhubarb, buffalo berries, and others, either harvested



Plains cottonwood has a broad open crown, with erect and stout, spreading branches, and heart-shaped, light green, thick, firm and lustrous leaves, broadly triangular, 3" to 6" long with a pointy leaf tip. The leaf petiole (stalk) is flattened and slender (2 1/2-3 1/2" long), a definite identifying characteristic of this species, usually with 2 small glands at the apex.

Along the Big Horn River, Montana, the plains cottonwood is dioecious (male flowers on one tree; female on another). The flowers are enclosed in two bud scales. The female buds are very sticky with yellow resin. The male staminate flowers are on short-stalked aments (flower clusters), glabrous (hairless), not very dense, with a broad disk of 20 or so short-stalked, yellow stamens. Female flowers are also on short-stalked aments, not densely occurring with small, cup-shaped disks enclosing the base of a round ovary which bears 3 to 4 broad-lobed stigmas. Female flowers have light brown, scarios bracts fringed at the tips, small and flattened at the base of the flower.

The fruit of the pistillate flower is made up of clustered pods or capsules inside of which tiny seeds develop surrounded by a very white, cottony mass of hair-like strands. In early summer, the pods split open, sending the cottony seed mass flying through the air. Should a late frost occur, the seed pods drop on the ground, individually or the entire ament. This proliferation of seeds surrounded by a cottony mass is the most identifying characteristic of the plains cottonwood, signaling the days when "cotton flies through the air." A glance into a sunbeam filled with cottony-covered seeds is a surprise.

Cottonwood twigs are alternate, stout, angular, smooth and light yellow, with conspicuous elevated leaf scars. Winter buds are 1/2" long and alternate along twigs with a final, terminal bud. The bud is conical, acute, olive-green to brown, minutely hairy, and covered with sticky amber-colored, faintly aromatic resin. The bark is gray and smooth on young trees, and on newly growing branches of older trees. On old tree trunks, it is gray, very thick, and deeply furrowed with long, broad, vertical ridges.



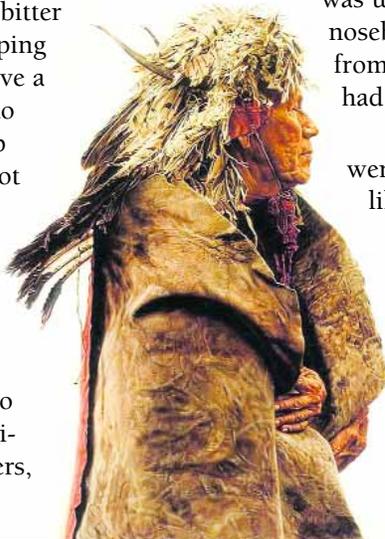
fresh or preserved by drying or freezing. To make your own, place 2–4 cups of fruit in a sauce pan. Add enough water to cover the fruit and boil until the seed coats split. Make a flour paste by adding water to 1–2 tablespoons of flour for every four cups of berries. Make sure there are no lumps in the flour paste by stirring and crushing any lumps with a spoon. Add the paste to the berry pot, stirring constantly so the paste does not cook into lumps. Then add the cottonwood's inner bark to the desired sweetness. Cornstarch may be used instead of flour (1–2 tablespoons). If desired, cinnamon and/or a tablespoon of vanilla may be added for flavor.

COTTONWOOD TEA—
An Old-Fashioned “Bitters”

Combine 1 ounce of dried cottonwood bark, 1/4 ounce of licorice root (*Glycyrrhiza spp.*), 1 teaspoon of cloves, and a fifth of brandy. Let them set for about a month, at which time a bitter solution is ready for sipping for a general tonic, to give a boost to poor appetite, to relieve fever, and to help indigestion. Take care not to sip too much!

MEDICINAL USES

All cottonwoods contain *salicin* and *populin*, precursors of aspirin, and were used to reduce fevers and as anti-inflammatories. For fevers, aches, pains and muscle



Crow Indian Wearing 1860 War Bonnet, James Bama

spasms, poplar is a safe substitute for quinine. Both bark and leaves were made into tea for diarrhea relief, for mild urinary-tract infection, and for use as a diuretic.

Leaf buds, particularly of the aromatic balsam poplar, made good salves, ointment or balms for burns and skin irritations. The buds are very powerful. Fresh or dried plant parts were used in fomentations or poultices for muscle or joint aches, sprains and swelling. The Blackfeet Indians mixed juniper roots (*Juniperus scopolorum*) with leaves from cottonwood, and other poplars, such as quaking aspen, to make a tea used as a liniment for aching muscles.

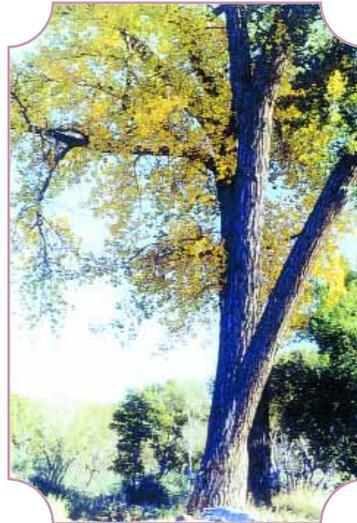
Cree people used many parts of cottonwood trees for medicines. The entire woody part under the bark was used as a salve. The sweet-smelling buds were put on boils to ease the inflammation and to draw the boil to a head so it could be removed, core and all. Mixed with other things, such as the roots of cinquefoil (*Potentilla spp.*) and wild roses, cottonwood was used to treat nosebleeds. The ashes from burned wood had medicinal value.

Cottonwoods were used much like peruvian bark, a medicinal bark from trees or shrubs of the genus *Cinchona*, native of South America, which

yields quinine and other alkaloids. Peruvian bark contains *cinchonine* (the alkaloid C₁₉H₂₂O) and was used as an antimalarial agent. Care must be taken in its use; however, as an overdose is dangerous.

Flathead and Kutenai people also used the leaves, moistened and applied as poultices for sores, boils and bruises, believing that it drew out the pus of infected areas. Nez Perce used poultices or

wrappings to put around sore, aching muscles. Kutenai made a bark tea thought to relieve whooping cough and tuberculosis. Believing the medicine to be somewhat poisonous, they always followed it by drinking warm

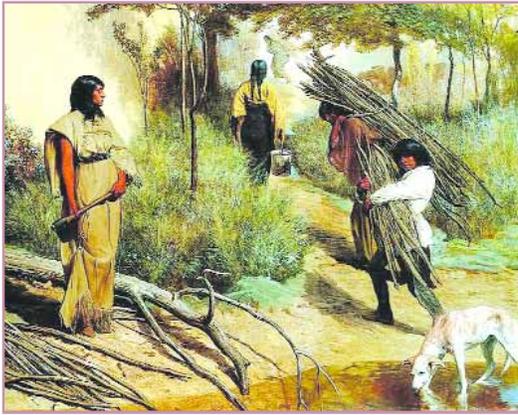


water. They recommend moderate use of this medicine over a sustained period of several weeks.

For syphilis, Flathead people drank cottonwood tea made from the young branches, again mixing it with the roots of cinquefoil and rose bushes. They also found that eating the bark gave relief for colds.

COTTONWOOD BUD BALM

Fill a pint or quart jar with buds. Add sweet almond oil or olive oil to cover the buds. Let this set for one week and strain. Heat the strained oil slowly at low heat. Add 1 1/2 teaspoons of beeswax until melted, or more if needed to make a salve-like consistency. Pour into a wide-mouth container. Let it cool to set, and cover with a lid. Use it as a salve for burns and other skin irritations.



Crow Indian Women Gathering Wood, Valentine Walter Bromley

FOR FUEL

All Indian people used cottonwood to burn for fires inside their teepees, for fires to heat sandstone or basalt rocks for sweat lodges, and for cooking fires. They knew dried cottonwood branches and trunks made a very hot, smokeless fire. Later, people discovered that chimneys of their fireplaces and woodstoves gathered tar and residues from the burning of pine and other pitchy wood. A quick, very hot, smokeless cottonwood fire could be used to burn out the residue in the chimneys. (Care should be taken if this is tried, especially with a woodstove, as chimney fires have been known to start house fires.)

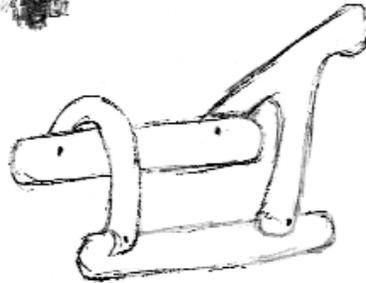
Indian people knew that the “girdling” of trees, taking off the bark all the way around, could cause the trees to die. However, they knew the value of dry cottonwood branches and trunks for hot smoke-free fires, so they were ready to harvest all dead trees. Also, since cottonwood trees are short-lived, dead, dry trees were often found standing ready to be used for fuel. At first, only the branches were used, especially by women breaking off and carrying wood for their cooking fires. Later, axes and bucksaws and then chainsaws came into use so the entire tree was easy to cut.

FOR SHADE

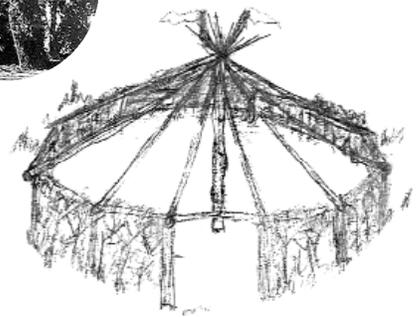
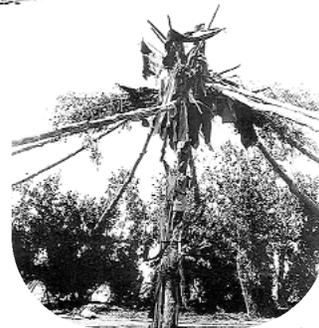
The leaves and branches were used for enclosures and shades for arbors at encampments. Nothing was cooler on a hot summer day than a framework structure of cottonwood posts with boughs across the top over which tree limbs with leaves were spread.

FOR SADDLES

Because the wood carved and bent easily, cottonwood trees were used for carving the basic frame for Indian



saddles. Most saddle frames were a simple structure that sat on the horse's back. Later, strips of hide were fastened down around the horse's belly. Even later, a loop or a flat piece of wood was attached to the saddle with a piece of rawhide on both sides for stirrups. The wooden frames were usually padded with thick materials. Ladies' saddles had pommels of carved wood or bone to hang things from when transporting their goods. Mens' saddles had both cantle and pommel made the same way. Then saddles were decorated with fringes, beads, bells and claws. For celebrations, robes resplendent with beading were made to decorate their horses.



(usually four) before the lodge was constructed, in which the sponsor and three others came to the site and made prayers.

On the fifth day, the selected worthy person cut the cottonwood tree, which had been scouted to find one that was tall, straight and

CEREMONIAL USES

Because of their height, and straight trunks that often forked at the top, cottonwood trees were sought for the lodge centerpole and for the twelve poles radiating outward from the center for Sun Dance ceremonies.

Cheyenne and Crow and many of the other Plains Indian tribes follow the ceremony of sending out an honored person to locate a cottonwood tree, just right for the centerpole for supporting the frame of the Sun Dance lodge. Sometimes the centerpole was a quaking aspen (*Populus tremuloides*).

For giving thanks and for offering prayers for help, the Sun Dance was one of the most important ceremonial events among all of the Plains Indians. The ceremony varied for each tribe, but many aspects of the dance were similar. Usually the ceremony, held at the

full moon during the summer months, lasted for up to 10 days.

First, a tribesman vowed to build the lodge to sponsor the dance. There were preparation days



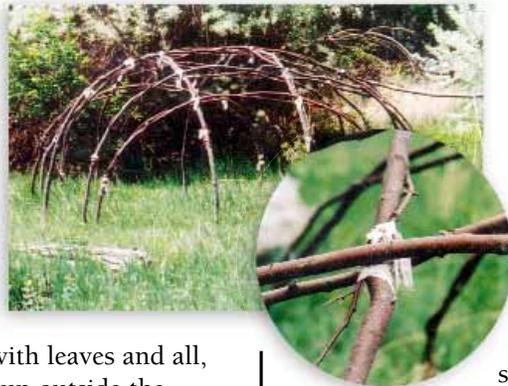
Opening The Sacred Bundle, Howard Terpning

with two forks at the top. With his helpers, the pole cutter made his prayers to the chosen tree, chopped it down, and carried it to the center spot where the lodge was to be built. A hole was dug and the pole was erected into place.

Around the center-pole, a circular framework of posts was set, connecting the posts at the perimeter. Branches

were cut and with leaves and all, these were set up outside the frame, forming a protective shield against evening chill, rain or sun.

When the rest of the lodge was completed, sacred objects, such as a buffalo skull, tobacco bags and eagle feathers, were brought in and appropriately placed. Now the dancers entered the lodge and took their places around the outer wall. There they usually spent three days during which they danced toward the centerpole and back to their places. Their costumes varied with each tribe. Some wore medicine necklaces or objects important to them. Each had an eagle-bone whistle. All of the dancers blew their whistles as they danced. Drummers drummed and sang the sacred Sun Dance songs.



Many prayers were made, including general prayers for the tribe's welfare and individual prayers for the ill and handicapped and elderly. Prayers were requested when presented with a gift from

someone outside the lodge.

During the days of dancing, the dancers went without food and water. Often each day had its special ceremonial meaning with special events, prayers and songs. On the morning after three days of

dancing and fasting, the drummers sang the water song and water was brought in.

The dance ended and the dancers departed the lodge for sweatbaths and a ceremonial feast.

TOBACCO & SWEAT LODGES

Crow Indian people also used cottonwood poles for the Tobacco Lodge structure and for the charcoal and coals burned in the center of the Tobacco Lodge. They burned the wood for peyote rituals. Many Plains tribes burned cottonwood to heat their rocks for sweat lodges because it burns very hot and is smokeless.

DYES & PAINTS

Cottonwood trees are one of the plants from which Indian people got their dyes and paints. The buds produce a variety of colors. Cottonwood bark was

burned to roast the clay used in making paints for the symbolic and heraldic designs on people's skin. Cheyenne Indians mixed the cottonwood buds with blood in springtime, which produced a black color that did not wash away, to paint images of their deeds on robes, teepees or shields. Not all Indians painted their teepees. The Cheyenne and Blackfeet did, while the Crow did not.

Colors were extracted from other plants, too, and from clays to produce the reds, greens, yellows, purples and whites, for painting teepees, *parfleches* (rawhide bags) and other things they wished to have decorated or dyed.

The biggest tree of the Great Plains had many uses. Little girls used the leaves to create tiny teepees and even tinier green moccasins for their dolls. As a child, this author used to choose the tough, heart-shaped leaf of the cottonwood, fold it in half, pinch the tip end down with one hand, while holding the sides together with the other hand, and blow down into the top through the leaf to make a whistle. The tighter you held the folded leaf together and



the harder you blew, the louder would be the whistle.

As civilization advanced, people planted cottonwood trees in shelter belts, or used them in landscaping. Frequently now, if people want a tree that grows

A boy finds his own sense of wonder along the Yellowstone River, and treasures a fallen cottonwood tree...



rapidly to provide shade, protection and beauty in their yards, parks or golf courses, they often choose the fast-growing cottonwood. However, they all know that cottonwood trees are short-lived, so they plant longer-lasting trees such as firs and spruces among them. ■



DR. ELNORA (STENERSEN) OLD COYOTE, age 86, grew up in Eastern Montana and married John M. Old Coyote, a full-blooded Crow Indian. With the help of many tribal people, she has been researching and teaching the use of native plants for many years. She has studied and written about over 300 Montana plants. Included here are her notes on ecology and folklore, and her original sketches and poems. Elnora lives in Huntley and can be reached at (406) 348-2474.

EDITOR'S NOTE: Part 2 of Elnora's LOCOWEED ARTICLE will be published in the May-June 2009 issue of *Natural Life*:

"Early American Folklore for Poisonous Plants of the Rocky Mountains and Great Plains"

- 6) LARKSPUR 7) DEATH CAMAS
- 8) WESTERN WATERHEMLOCK
- 9) WESTERN POISON IVY
- 10) TRUE HEMLOCK

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