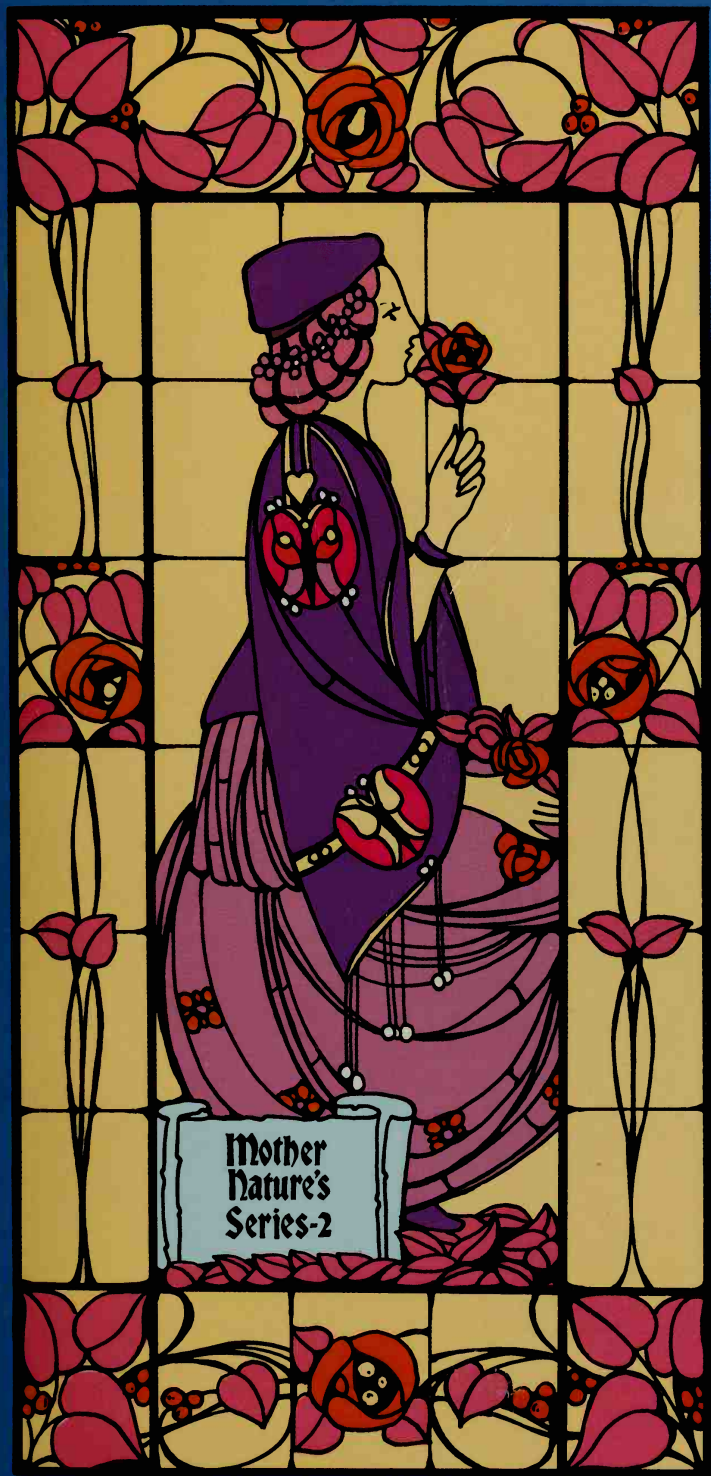


# Mother Nature's




# DYES & FIBERS

WILL BEARFOOT  
\$3.95



# **Dyes & Fibers**

Will Bearfoot



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MOTHER NATURE'S SERIES NUMBER FOUR

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WILL BEARFOOT

\$3.95

OLIVER PRESS  
WILLITS, CALIFORNIA

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# INTRODUCTION

Long before the first Europeans came to North America and started industrialization, the Indians were using the offerings of the world around them to make clothing, homes, paints and dyes. Even today, many people are unaware of the abundance of plants which can be utilized for natural dyes and fibers.

The purpose of this book is to partially revive the little-known skills which the Native Americans developed. There are a large number of plants from which, with a little preparation, a wide variety of stains, paints and dyes can be extracted. Also included are the basic sources for the fibers used by the Indians and a short history of their development.

We have tried to include as many sources for dyes and fibers as possible. We have excluded a few because of limited geographical distribution or due to their being protected species in danger of serious depletion. It is hoped that the reader will find this book useful, and that more people will become aware of Mother Nature's offerings. Happy hunting.



# NATIVE AMERICAN FIBERS

## BASKET FIBERS

In California alone, there are over seventy-eight basketry material plants. However, the majority of fibers found in west coast baskets consists of: alder, various species of ferns, hazel, redbud, dogwood, many kinds of grasses, rhus, willow and sedge.

Among west coast basket weavers two principal weaves can be found. The majority of California Indians utilize the coiling and twining technique, while several other peoples use the twining only. The Pomo of Northern California were able to make doubly strong baskets by using a lattice twine technique. By the 19th century the Pomo Indian weavers had achieved an excellence which could not be matched by their contemporaries. Unfortunately, through the interference of the government and the passing of time, some of these intricate weaves have been lost.

The close weaves of many of the Pomo baskets made them water tight, while the people of the south used pitch on the inside of the baskets to make them more water tight. Some tribes, including the Yokuts and Miwoks, were able to make their basketry water tight by applying hot soaproot juice, which sealed them quite effectively.

There are usually five colors found on baskets: red, white, brown, black and yellow. These colors were obtained by either using naturally tinted fibers or by dyeing. The intensity of the color varied with the tribe, weaver and type of basket. Many tribes used materials other than plant fibers for decorating their baskets. Dyed porcupine quills were used by the Klamath. Many weavers incorporated bird feathers into their basketry patterns.





## **BUFFALO WOOL**

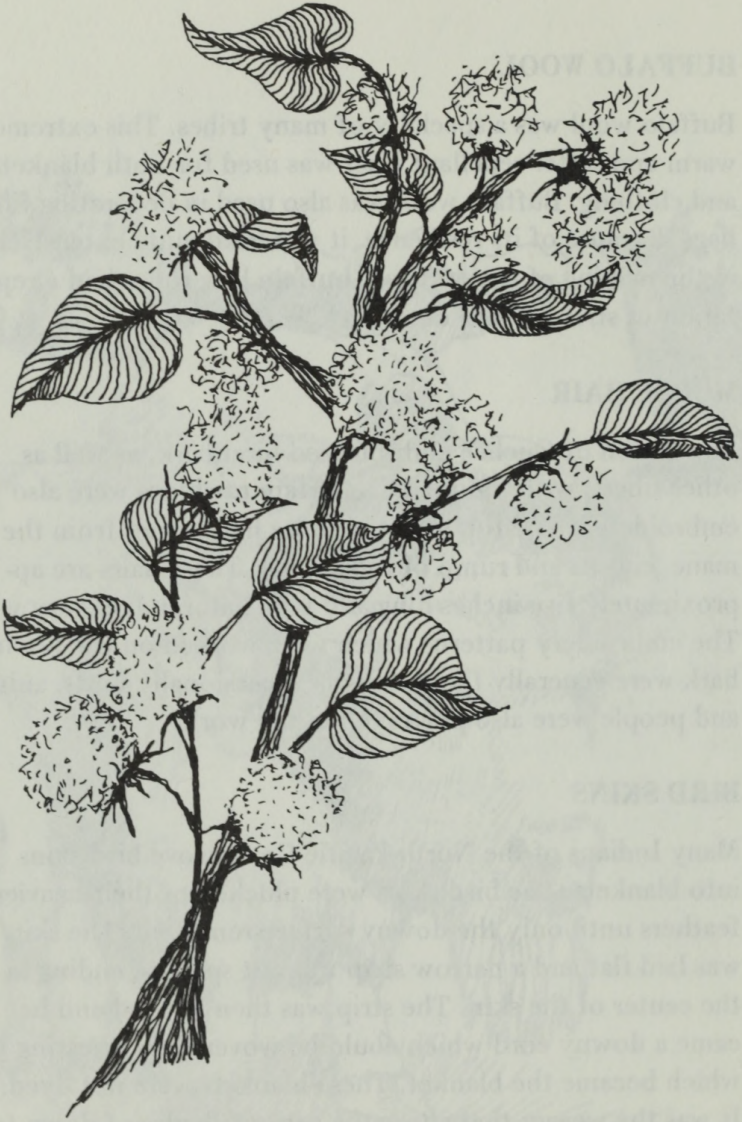
Buffalo wool was a specialty of many tribes. This extremely warm and water repellant fiber was used for both blankets and clothing. Buffalo wool was also used in decorating fiber bags. Because of its resilience, it was used quite extensively in the making of ropes. These buffalo hair ropes had a reputation of strength and durability.

## **MOOSE HAIR**

The Huron of Quebec embroidered birchbark, as well as other fibers, with moose hair. Certain rawhides were also embroidered. The top quality moose hair comes from the mane, cheeks and rump of the animal. These hairs are approximately five inches long and take natural dyes very well. The embroidery patterns which were worked on the birch bark were generally floral designs. Occasionally birds, animals and people were also portrayed in the work.

## **BIRD SKINS**

Many Indians of the North Pacific Coast wove bird skins into blankets. The bird skins were plucked of their heavier feathers until only the downy surface remained. The skin was laid flat and a narrow strip was cut spirally, ending in the center of the skin. The strip was then twisted and became a downy cord which could be woven into a netting which became the blanket. These blankets were not dyed. It was the weaver that chose the various shades of down to create the blanket's design.



COTTON

## COTTON (*Gossypium hopi* L.)

The Pueblo began weaving and dyeing cotton over 1,200 years ago. It was one of the first North American agricultural crops. The use of cotton in weaving began somewhere in the 8th century. The Pueblo not only invented a loom on which to weave their cotton, but began cultivating it as a crop.

The Indians at Zuni Pueblo began growing cotton in the chili pepper fields and every available place where irrigation of the crop was possible. The Indians at Acoma Pueblo were able to cultivate cotton by planting it around springs and sheltered places. The seed was planted in July and the plants were harvested in late September.

The weaving of the cotton became more and more elaborate and advanced to a climax of complex weaves and elaborate designs in and around the 15th century.

The Spanish arrived, explored, and exploited the country beginning in the mid-16th century. In the 17th and 18th centuries the sweat shops of the *encomienda* system of Indian slavery are known to have wrung thousands of yards of cloth from the subjugated Indians. The beautiful complex openwork, damask and slit weave pieces were lost to history as the conquistadors demanded the more common plain and diagonal weaves.

The cultivation of cotton at Acoma stopped about 1850-55 due to the increasing dryness of the climate. Today very, very little cotton is grown by weavers, as commercial thread and yarn is readily available.



SOAPTREE YUCCA



## **MILKWEED (*Acerates angustifolia*)**

A high quality cotton thread can be made from the fibers of milkweed. The Pueblo people at Zuni became quite proficient in the use of this cotton. Many items have been made with it, including cord for ceremonial use.

## **FIREWEED**

These plants are indigenous to the open woodlands of the Pacific Northwest Coast. Many different tribes used the fibers of these plants to spin thread. The cotton thread made from these fibers was combined with long haired dog wool, mountain goat wool, and the down of geese and ducks.

## **YUCCA PLANT**

The *Yucca baccata* was used by the Navajo and Pueblo Indians of the American Southwest. The plant was important, as it was used for many different purposes. The yucca fibers were spun into a fine, strong thread which was used to make rabbit snares.

## **GRAPE STEMS**

The wild grapes of California were used by many tribes. The stems of these plants (*Vitis californica*) were wound into cords and ropes. The fibers were woven into highly prized utility ropes which served a number of purposes.



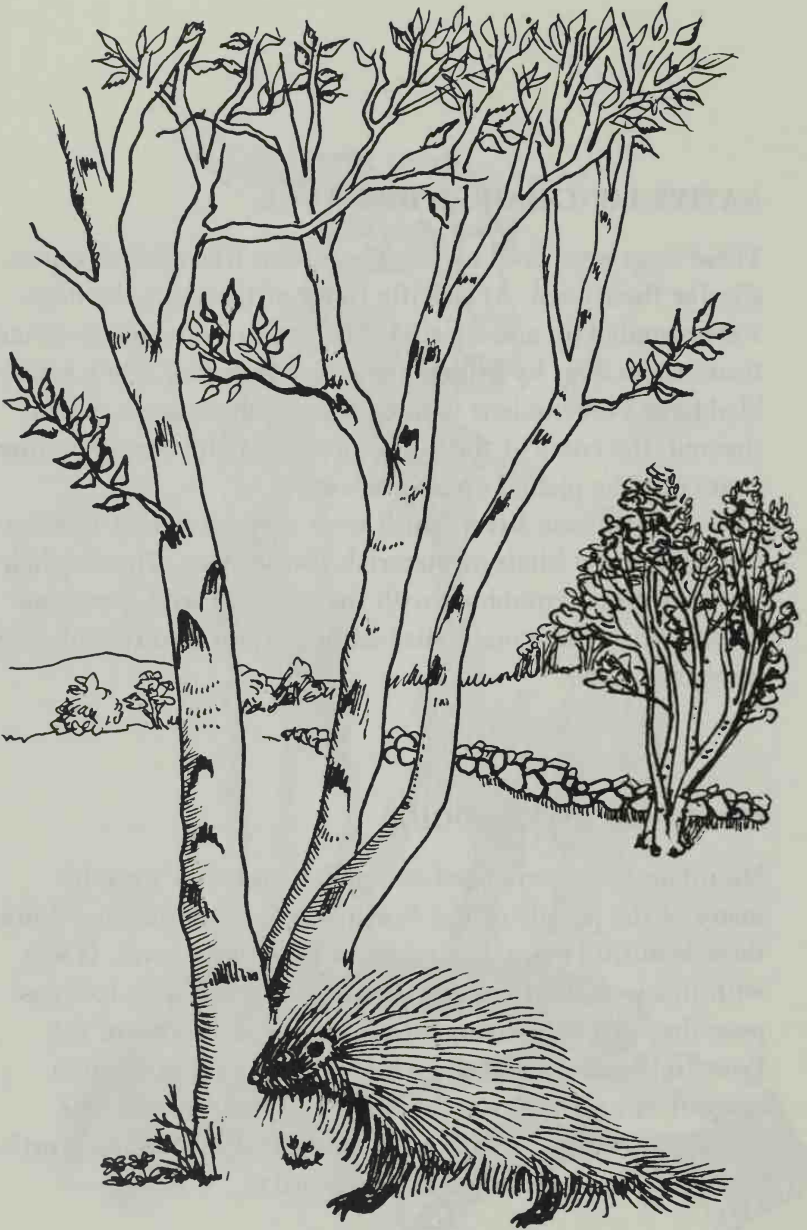
## **NATIVE LONG-HAIRED DOG WOOL**

These dogs were bred by the Thompson River Salish especially for their wool. At specific times of the year, the dogs were rounded up and sheared. The Salish were able to domesticate these dogs by utilizing selective breeding. They resembled large Pomeranians with extremely thick coats. When sheared, the coats of these dogs were so tight that the entire coat could be picked up by one corner.

The Thompson River Salish were very proficient weavers and used many kinds of materials for weaving. The dog hair was sometimes combined with the down of wild geese and ducks. When these materials had been spun into thread, they were then dyed.

## **MOUNTAIN GOAT WOOL**

Mountain goats were used as a major source of wool by many of the people of the Northwest Coast. The wool from these beautiful animals was prized by every weaver. It was with this wool that the craftsman weaver was able to transpose the craft of weaving into infinite dimensions of art. Prior to the coming of the white man, the range of these magnificent animals was far wider and their number far greater. However, as with most wildlife of the Pacific Northwest, they have dwindled into obscurity.





## **PORCUPINE QUILLS**

Porcupine quills were used for decorative art forms by the Indians of the northeast section of the United States, the northwestern section, and throughout Canada and Alaska. The quills take natural dyes quite well, and many of the dyes were used exclusively for the quills. The quills were used widely for embroidery work. The art of dyeing and embroidering porcupine quills has not been lost, thanks to the efforts of many Native American craftsmen.

Birch bark objects are traditional articles which are embroidered with the quills. By tinting the quills with various natural dyes, and placing them very close together, mosaic-like decorations can be created. Many of the eastern groups prefer geometric patterns in which the birch bark item does not show. Around the Great Lakes region realistic scenes are preferred. Plants, trees and birds are woven into a background of bark.

## **BIRCH BARK**

Birch bark is one of the major cornerstones of life for the Northern forest zone Indians. It was as important to the material economy of these people as the buffalo was to the plains people, or the cedar tree was to the people of the Northwest Coast. The bark was cut into sheets and used to cover their domed dwellings. Sheets of bark were also sewn into containers for food and water storage. The thread used was spruce root fibers. In the case of water storage containers, they were sealed with pitch after being sewed with the root fibers.



## SHEEP WOOL

When the conquistadors first “discovered” the great Indian civilizations of the American Southwest, they brought with them sheep, cattle and horses. They brought with them what was to be the basic economic cornerstone of the Pueblo and Navajo for the next three hundred years: sheep.

The Navajo had learned the art of weaving from the Pueblo and began producing their textiles with the newly introduced sheep. The handspun wool thread has been traditionally spun by the men in the Pueblo society, while the women are the spinners in the Navajo society. The red sheep, as they are called by the Navajo, still resemble the sheep that were introduced by the Spanish in the 16th century. The sheep are watched over by the women.

Kit Carson’s brutal roundup of the Navajo in 1864 interrupted their sheep raising, until they were released from captivity by the United States military in 1868. In the interim, the sheep had been killed, strayed and lost. With the few remaining sheep, the Navajo were able to again restore their great herds, until 1934, when the federal government made it illegal for the Navajo to run enough sheep on the reservation to make it financially self-supporting. The excuse was that the Navajo rangelands were causing a threat to Hoover Dam through erosion and an accumulation of silt from the Colorado River drainage system, which happens to run through the reservation.

The Navajo were politically powerless, as they were not allowed to vote. The government offered absolutely no indemnity or opportunity to develop an alternative economy. Fortunately, through the efforts of many Hopi, Zuni and Navajo people, the art of spinning, dyeing and weaving of red-sheep wool has remained as a self-expressing tradition of a free people.



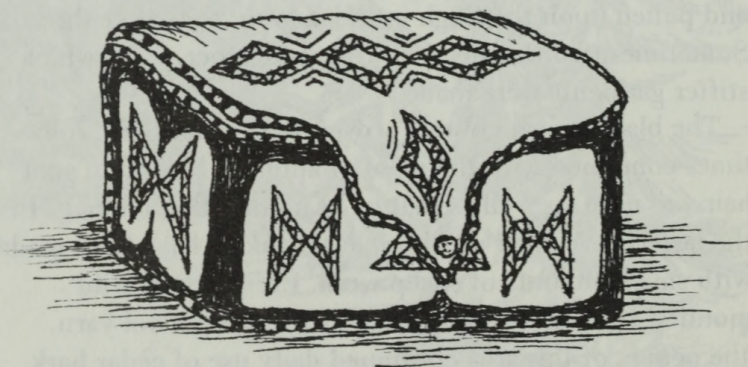
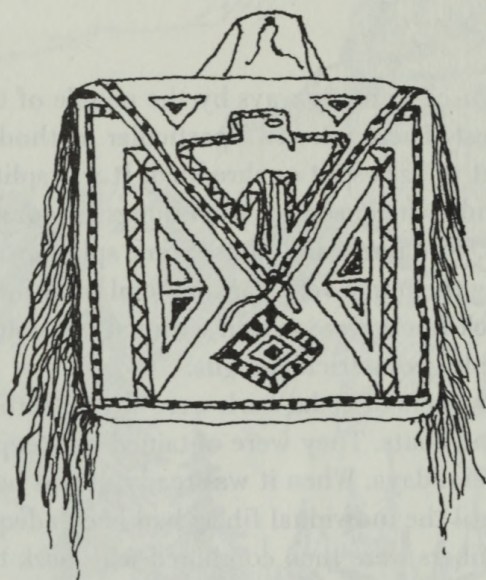


## CEDAR BARK

Cedar bark was used in many ways by the people of the Pacific Northwest. There were two particular methods in which it was put to use—split or shredded. It was split to about  $\frac{1}{4}$  inch wide when used for such things as storage baskets, wallets, containers and mats. Some splints were dyed by burying them in a very dark mineral mud for several days. These black fibers were woven with natural colored splints into simple geometrical designs.

The shredded fibers of cedar bark were woven into shirts, circular capes and coats. They were obtained by steeping the bark for several days. When it was ready, it was beaten with paddles until the individual fibers had been adequately separated. The fibers were then combined with bark to straighten them. At this point the fibers were loosely rolled into a warp thread. This loose warp thread was then rolled and pulled upon the thigh in order to make tighter thread. Sometimes two threads were rolled together, from which stiffer garments were made.

The blankets which were woven with cedar bark, sometimes combined with the wool of animals. Mountain goat hair was used, as well as that of bear and other animals. In the last 100 years or so, the cedar blankets have been made with small amounts of sheep wool. Even though wild mountain goat hair was replaced with sheep wool yarn, the people of this area continued daily use of cedar bark textiles long after the introduction of commercial cloth.



# STAINS AND PAINTS

## TOTEM POLES

By using the same dye plants, many kinds of paints and stains were and can be obtained by mixing various other substances with the dye liquor. The importance of color was reflected in the religious and political significance granted to these hues of nature by the various tribes.

The artistically carved totem poles of the Pacific Northwest were representations of real people, animals, birds and fish. These carvings not only personified the reality of nature, but symbolized deities as well.

A green stain was obtained for totem poles by mixing raw copper ores with animal fat. By mixing charcoal with the fat, a black stain was achieved. Salmon oil mixed with various substances was also used. A brown stain was obtained by combining bear dung with oil. Red stain came from the roots of the various berry bushes. Many people along the coast were able to obtain a white paint by baking clam shells.

## RAWHIDE

Rawhide was widely used by many different people of the Indian Nations. Wherever the buffalo ranged, the people would utilize the hides. Elk were used as a lesser source of rawhide, as were deer. As these animals, and the hunting rights of Native Americans, vanished, the use of domesticated cattle and horses as a source of rawhide arose.

The paints and stains used to dye the rawhide articles were pretty much the same as those used in dyeing fibers. However, many of the dyes were mixed with oils to help preserve the hide. Parfleches, an example of these brightly colored rawhide articles, were used chiefly for storage and transportation of foods and herbs.

## PREPARATION AND MORDANTING

### GATHERING MATERIALS

The gathering of natural dye materials must be done with a great deal of care. The means of collecting these materials may differ in the various bio-geographic regions, but the care and awareness of the environment must remain paramount to the feeling collector. Many of the fine natural dye plants are rather scarce, and to rip a rare plant up by the roots, or gather all the flowers of an uncommon annual plant, is nothing short of a violent infringement upon the rights of nature.

LICHEN should be gathered only when it has been correctly identified, as many varieties are extremely rare. A great number of lichen are extremely slow growing, reaching a five inch diameter in fifty years.

BERRIES are best used as dye material when they are completely ripe. Many beautiful colors can be achieved with the use of berries. However, they are not very color fast.

FLOWER BLOSSOMS are best gathered when they reach full bloom. Do not gather more flower heads than can be used or stored properly so they will be usable as dye material in the future.

ROOTS AND BARKS contain the greatest amounts of dye properties when the sap is flowing. The early spring is the best time to gather these materials. Only small sections of root systems can be gathered without causing permanent



damage to the tree or shrub. Bark is the lifeline of the tree and should be gathered only from downed limbs and the like.

LEAVES, TWIGS AND STEMS should be collected as late in the season as is possible and still have the plant material in good condition.

## PREPARATION

While working with natural dye stuffs it is important to realize the many variables involved. The colors which are listed for each recipe are only guides to the shades which might be obtained. Plants grown in different altitudes, slope exposures, soil compositions and seasonal conditions will produce distinct dye liquors. Leaves picked off of the same plant will yield different shades depending on the time of year in which they are harvested. Even phases of the moon will affect the plants' dye properties. The recipes presented in this book should be used as a guide for the imagination of creative natural dyers.

The undyed wool should be washed before dyeing to remove the oils which it may contain. Soft water such as rain water should be used in conjunction with a mild ph-balanced soap. The *Yucca baccata* is an excellent soap plant which was used extensively by the Navajo. After washing, the wool yarn is ready to be dyed or mordanted. Many people prefer to mordant the wool before dyeing; however, the recipes in this book mordant the wool in the dye bath.

In order to keep the yarn from tangling in the dye bath, it is best to tie it with cotton thread into  $\frac{1}{4}$  pound skeins. This is accomplished by wrapping the yarn around the legs of a stool or chair and then tying it in several spots with the thread.

The wool yarn should be thoroughly soaked with water before being placed in the dye bath. It is quite important to pre-wet the wool because of the water-repellant properties of the fibers. If it is not entirely wet when added to the dye liquor, it may not absorb the dye properly.

## MORDANTS

Most dye plants and materials will dye natural fibers without the use of a mordant. In fact, most native dyes are quite adequate in that, if they do fade, they will fade in their own color scale. In other words, a natural yellow will just fade into another shade of natural yellow. The earthy tones of these natural dyes are much more subtle than the chemical dyes of the American supermarket.

However, by adding a mordant to some dye liquors the color of the material can be radically changed. The use of mordants generally makes the dyed fibers more color fast to both light and washing. Many people feel that for every dye plant which needs a mordant, one can be found close at hand.

**IRON** — Many colonial and Indian dyers added rusty nails to the dyebath. Simmering the dyebath in a rusty iron kettle works quite well. The use of rusty iron in the dyebath will darken any of the recipes given in this book, as well as making them more color fast.

**URINE** — Urine is one of the classic mordants which has been used for centuries. "Chamber lye" has always been a ready source of ammonia and other salts. Many blue dyes use urine as a mordant.

**TANNIC ACID** — Tannin is an excellent mordant which darkens the dyed material after it has been exposed to light. It is easily obtainable by grinding up gallnuts. Tannin is also available by using tree bark and roots. The recipes given in this book are for animal fibers. The use of cotton fibers will require an extra step by mordanting with tannic acid. If alum is called for in the recipe, use the same amount of tannin. The use of tannin as a mordant will result in a different shade.

**ALUM** — Alum is a very common mordant which is called for in many of the recipes in this book. A plant found in the Plains areas is an excellent source of alum. *Heuchera glabella* or alum root is a small plant which has its mordanting proper-

ties in the roots. A finger length of root is all that is necessary in most of these recipes. White chunks of raw alum can be found around sulfur spring deposits in the New Mexico area. Another source of alum is the local grocery store, which will sometimes carry ammonium alum. Potassium aluminum sulfate crystals work quite well. For dyeing purposes, this latter alum is much better than the ammonium alum. When using alum for a mordant, be sure to rinse the dyed yarn quite well, as it will leave the wool yarn sticky and gummy. Many people prefer to pre-mordant the wool yarn rather than adding alum to the dyebath.

VINEGAR — Acetic acid is the mordanting agent of vinegar. Vinegar is excellent for neutralizing alkaline water. If rain water is not available for dyeing, it is helpful to add a touch of vinegar to the tap water.

DRIP LYE — Drip lye is nothing more than wood ashes, and is used by a number of dyers as a mordant. Many different tribes used the ashes of various trees and shrubs to mordant their dyebaths. Juniper, cedar and oak are just a few which are used.

TIN — Tin is used as a mordant usually in the form of stannous chloride crystals. It is used many times to brighten the dyebath. The easiest way to obtain the effect is to use a tin vessel for the dyebath.

CREAM OF TARTAR — This must be bought from the store and is usually in the form of white crystalline powder. It is most always used as a combination mordant with alum. One teaspoon added to the alum-mordanted recipes listed in this book will slightly modify the dyebath's qualities and will enhance the effects of the dyed wool yarn.



ALDER



# DYE PLANTS AND HOW TO USE THEM

## ALDER (*Alnus tenuifolia*)

Also known as Mountain Ash, Mountain Alder.

**HABITAT:** *A. tenuifolia* is found growing along streams, rivers and water areas of Arizona and New Mexico. It prefers the cooler mountainous zones.

**DESCRIPTION:** The Mountain Alder is a small deciduous tree much prized for its dye properties by the Zuni, who used it for dyeing deerskin. The tree does not grow to more than 20 feet in height. The male trees have yellow drooping inflorescences (catkins) of varying length. It is the bark of these male trees that is used in dyeing. It will yield a stronger color if gathered in autumn when the leaves begin to fall.

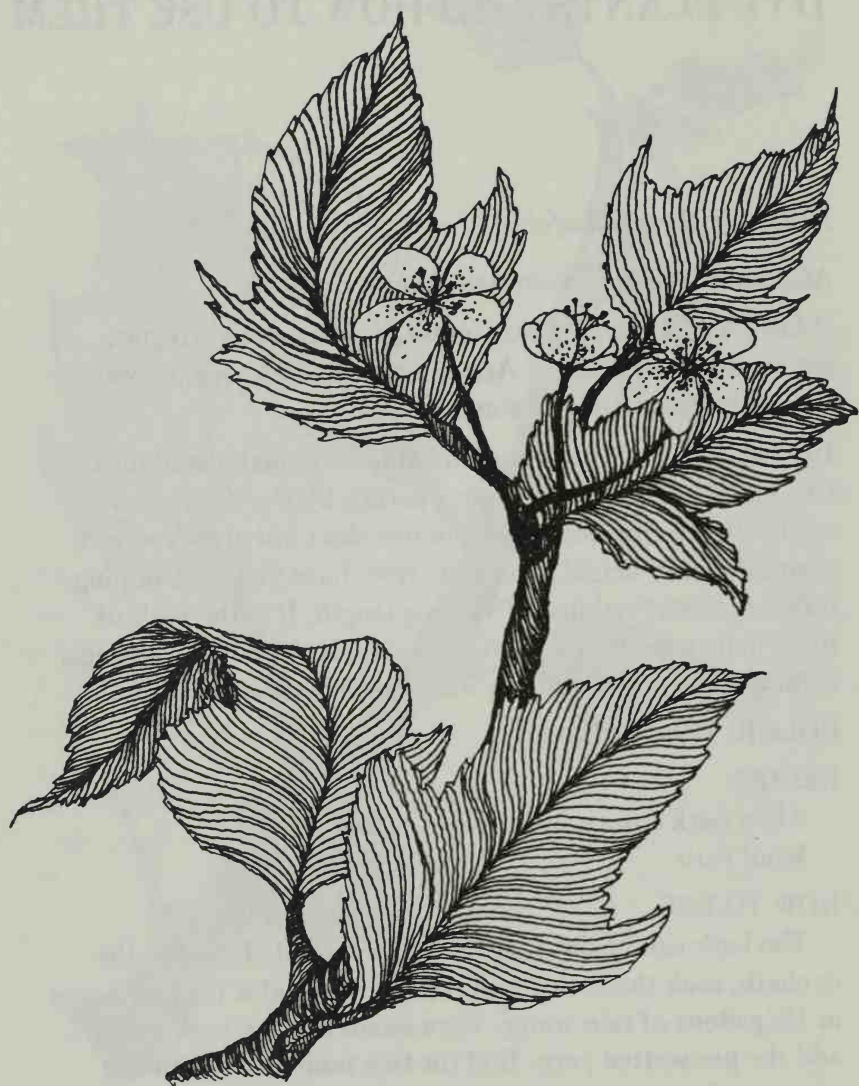
**COLOR:** Delicate Brown

### RECIPE:

Alder bark from a male tree	½ lb.
Wool yarn	¼ lb.

### HOW TO USE:

The bark can be used either fresh or dried. To make the dyebath, soak the bark for one day, then boil it for two hours in 1½ gallons of rain water. Then strain out the bark and add the pre-wetted yarn. Boil for two more hours, stirring occasionally. Turn off the heat and let the yarn set in the dyebath several hours. Remove from dyebath and rinse well.



APPLE

## **APPLE** (*Malus* species)

**HABITAT:** Apple trees are quite common throughout the northern half of the United States and many areas of Canada. They have been cultivated from pre-historic times and grow throughout the temperate zones.

**DESCRIPTION:** Apple trees reach a height of about 25 to 30 feet at maturity. The beautiful spring blossoms produce the edible fruit in the late autumn. Many of the early American homesteaders used the bark of the apple as a dye source.

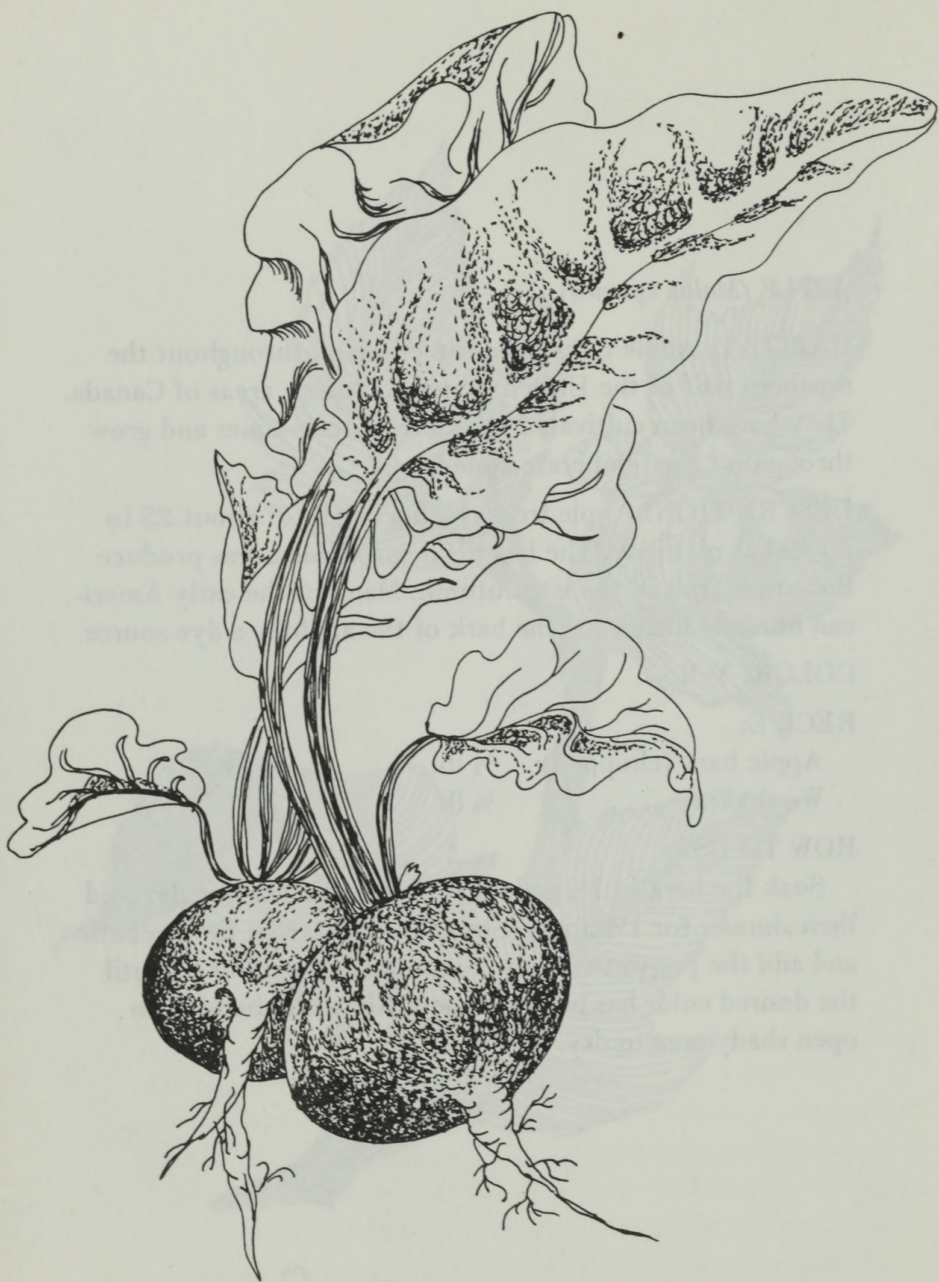
**COLOR:** Yellow

### **RECIPE:**

Apple bark (chopped)	½ lb.
Wool yarn	¼ lb.

### **HOW TO USE:**

Soak the bark in 1½ gallons of rain water for one day and then simmer for 1½ hours. Strain the bark from the dyebath and add the pre-wetted yarn. Simmer for one hour or until the desired color has been attained. Rinse and hang in an open shady area to dry.





## BEETS (*Beta vulgaris*)

Also known as Beetroot.

**HABITAT:** These plants can be grown in many parts of the United States. Most vegetable gardeners prefer to plant varieties with large, sweet, edible roots. However, there are many varieties such as swiss chard which produce edible leaves.

**DESCRIPTION:** The bulbous root of these plants are usually purplish to red in color. The rather large elongated leaves are usually reddish-green with enough density to prevent scalding of the plant's upper root. A strong yellow dye can be obtained from the roots.

**COLOR:** Yellow

### RECIPE:

Beet roots (chopped)	1½ pts.
Rain water	
Wool yarn	¼ lb.

**HOW TO USE:** Place the beets in an enamel vessel and cover them with rain water. Boil for an hour and a half, then strain the plant material from the dye liquor and add the pre-wetted wool yarn. Simmer for another hour and a half or until the desired color has been obtained. Rinse and hang in an open shady area to dry.



RABBIT BRUSH

## BIG RABBITBRUSH (*Chrysothamnus latisquameus*)

Also known as *g'itsoih* (Navajo).

**HABITAT:** The *Chrysothamnus* genus are native to the alkali plains of North America. They are very often found in gullies and watercourses. They are able to grow where a little water is available to the roots.

**DESCRIPTION:** These low branched shrubs grow four to five feet in height. In the late summer and early fall they cover themselves with clusters of golden yellow flowers. The Hopi utilized the twigs and flowers to create a yellow dye which they used for tinting particular areas of their bodies on certain occasions.

**COLOR:** Bright Yellow

### RECIPE:

Blossoms and twigs	1 lb.
Alum, raw or refined	1¼ tbsp.
Wool yarn	¼ lb.

### HOW TO USE:

Soak the twigs and blossoms in three quarts of rain water for three days and three nights. Strain the flowers and twigs from the dye liquor and heat the dyebath to a simmer. Add the alum, stir until it's dissolved. Add the pre-wetted yarn and simmer for about three hours or until the desired hue is reached. Rinse well and hang in an open shady area to dry.



CANOE BIRCH



## BIRCH (*Betula* species)

Also known as White Birch, Paper Birch (*B. papyrifera*).

**HABITAT:** Birch trees are quite common in the northern half of the United States and Canada. There are *Betula* species growing as far north as Alaska. They are often found growing near creeks and streams, as they prefer cool moist lowlands.

**DESCRIPTION:** Birch trees have a very distinctive white bark with lush deep green foliage. The leaves are usually heart or wedge shaped, and sometimes "toothed". The Birch was as important to the material economy of the forest zone Indians as the buffalo was to the plains tribes. The bark was used for making domed dwellings, storage containers and canoes. Some part of the tree was used in almost every facet of life. The Ojibwa used the inner bark of the Paper Birch (*B. papyrifera*) and mixed it with the ashes of dogwood, oak and cedar bark to obtain a red dye used in tinting porcupine quills.

In the recipe given on this page also, the inner bark should be used rather than the dead outer bark, as it will yield a stronger dye liquor.

**COLOR:** Light Brown

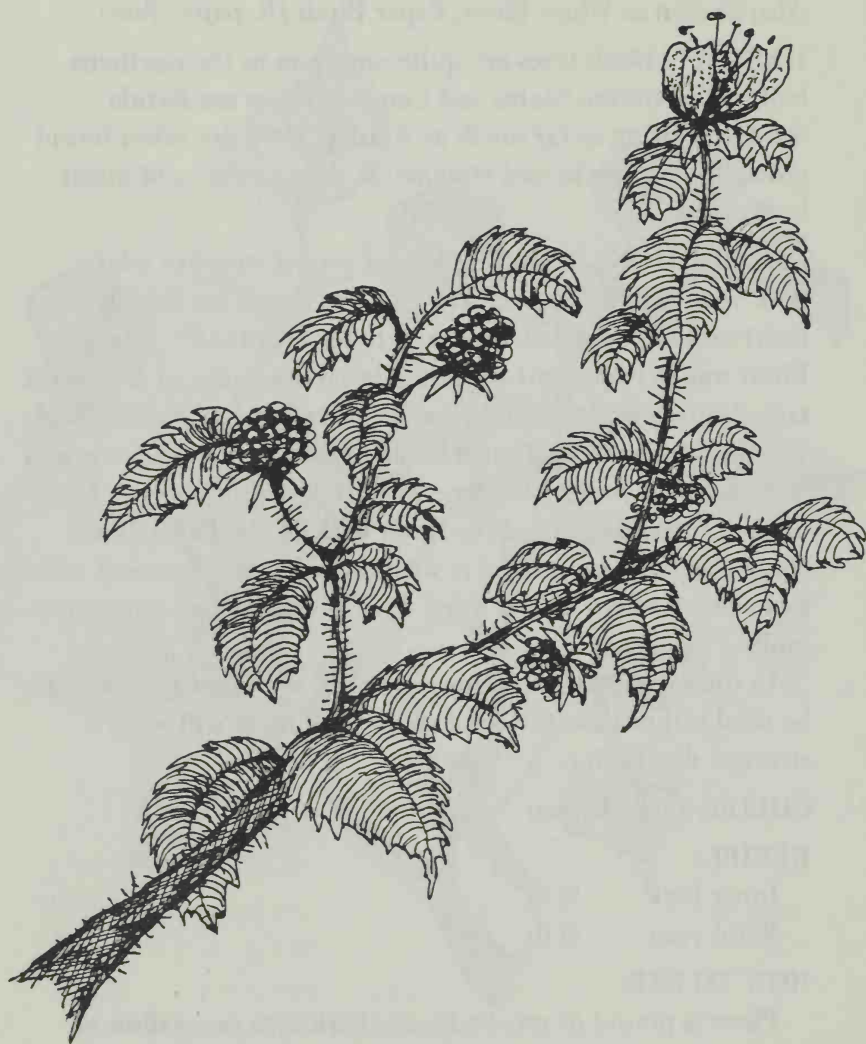
### RECIPE:

Inner bark      ½ lb.

Wool yarn      ¼ lb.

### HOW TO USE:

Place ½ pound of crushed inner bark into one gallon of lukewarm rain water and let it set overnight. Then heat it slowly to a simmer and leave it on the heat for an hour. Strain the bark from the dye liquor and let it cool. Add the pre-wetted yarn and let it simmer for an hour. Rinse and hang the dyed yarn in an open shady area to dry.



Black Berry

## BLACKBERRY (*Rubus* species)

Also known as Wild Blackberry, Dewberry.

**HABITAT:** *Rubus* species can be found growing throughout Canada and the United States. These plants are favorite haunts for birds and creatures of the forest. They can be found growing in open woodlands, stream banks, moist meadows and in drainage ditches. Many of the wild species will yield a deeper, faster dye than the cultivated berries.

**DESCRIPTION:** These plants have thorny stems which produce white to pink flowers on their second year and older growth. The flowers bear dark fruit which may be purple or bluish black or black. The leaves usually consist of three to five leaflets. There are many recipes for extracting dye properties from the berries; however, none are extremely color fast. The Luiseno used the dye from the fruit as a wood stain.

**COLOR:** Bluish Gray

### RECIPE:

Berries	2½ qts.
Alum, raw or refined	1 tbsp.
Urine	10% solution
Wood ashes	½ cup
Wool yarn	¼ lb.

### HOW TO USE:

Place the berries in 1½ gallons of rain water and let them set for one day. Let them simmer for half an hour and then strain any plant material that has not been liquified. Add the alum and stir until it is dissolved. Let the dyebath cool and then add the pre-wetted yarn. Let this simmer for another half hour and then place the yarn in a vessel containing the 10% solution of urine and half cup of wood ashes. This solution should be heated to the same temperature as the dyebath, and the yarn should only have to be placed into it for half a minute. Rinse the dyed yarn and dry.



Black-Eyed Susan



## BLACK-EYED SUSAN (*Rudbeckia* species)

Also known as Yellow Daisy, Coneflower.

**HABITAT:** These North American wild herbs are found in the eastern half of the United States. The majority are found east of the Mississippi. Depending on the species, they may be found on stream banks, ponds or other moist areas. Some species prefer open fields, dry woods and dusty roadsides.

**DESCRIPTION:** The Potawatomi were quite aware of this plant and used it to obtain a yellowish dye for their mats. The daisy-like yellow flowers of this biennial bloom from mid-summer till late fall. The bright flower petals are set off by the dark conical centers. These handsome plants with their lustrous rich foliage grow to five feet in height.

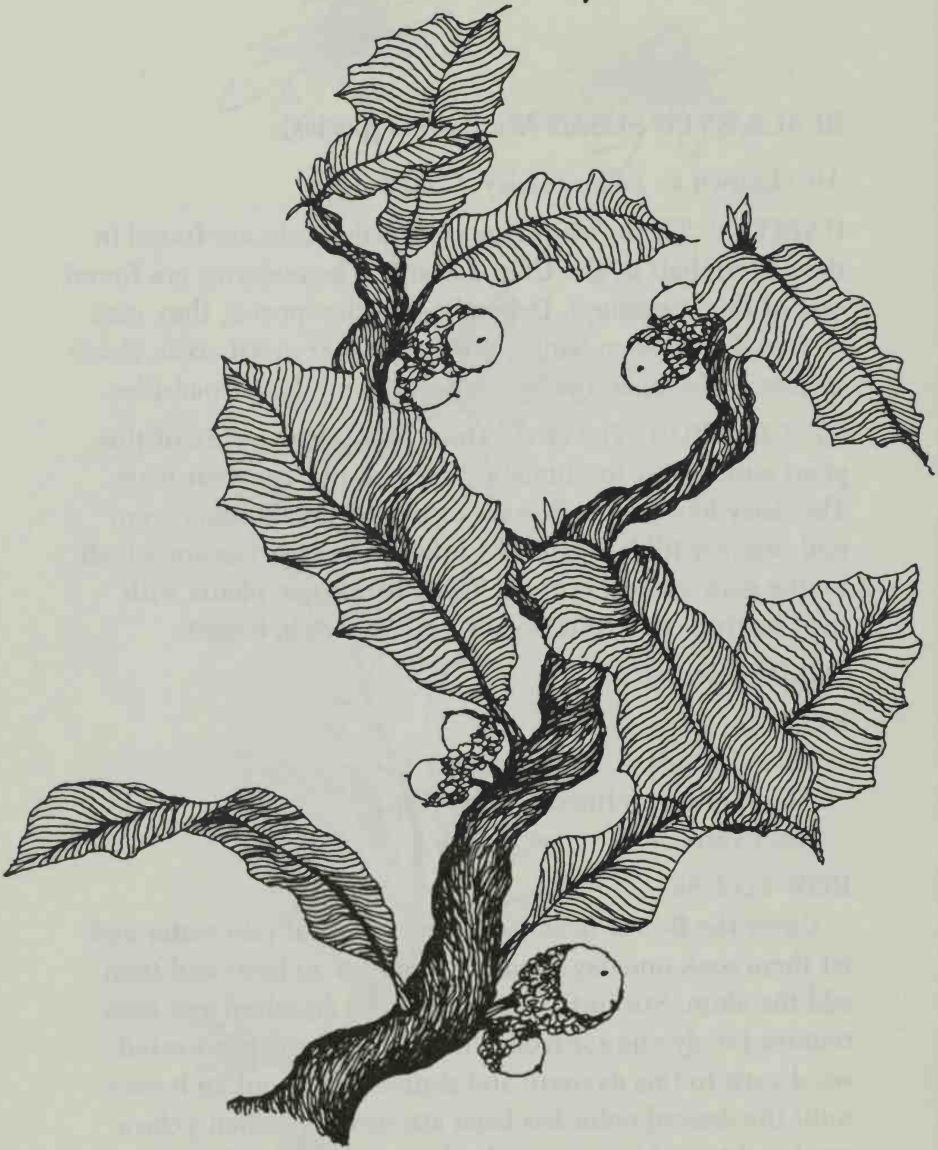
**COLOR:** Green

### RECIPE:

Flower heads	2 qts.
Alum, raw or refined	1¼ tbsp.
Wool yarn	¼ lb.

### HOW TO USE:

Cover the flower heads with one gallon of rain water and let them soak one day. Simmer them for an hour and then add the alum. Stir until it is completely dissolved and then remove the dye liquor from the heat. Add the pre-wetted wool yarn to this dyebath and simmer for about an hour or until the desired color has been attained. A golden yellow can be obtained by using only the petals of the flowers. Rinse the dyed yarn and hang in an open shady area to dry.



BLACK OAK

## BLACK OAK (*Quercus velutina*)

Also known as American Oak.

**HABITAT:** The Black Oak is indigenous to North America. It usually grows in dry sunny areas with moderate amounts of rainfall. The Black Oak is a very prolific tree growing in many varied sections of the United States.

**DESCRIPTION:** The leaves of the Black Oak are dark glossy green on the upper side with a pale and downy underside. Black Oaks have downy twigs and soft fuzzy buds. The thin-shelled acorns of the Black Oak are oval with a rounded full cup.

The Ojibwa used Black Oak bark to obtain the color reddish brown for dyeing porcupine quills.

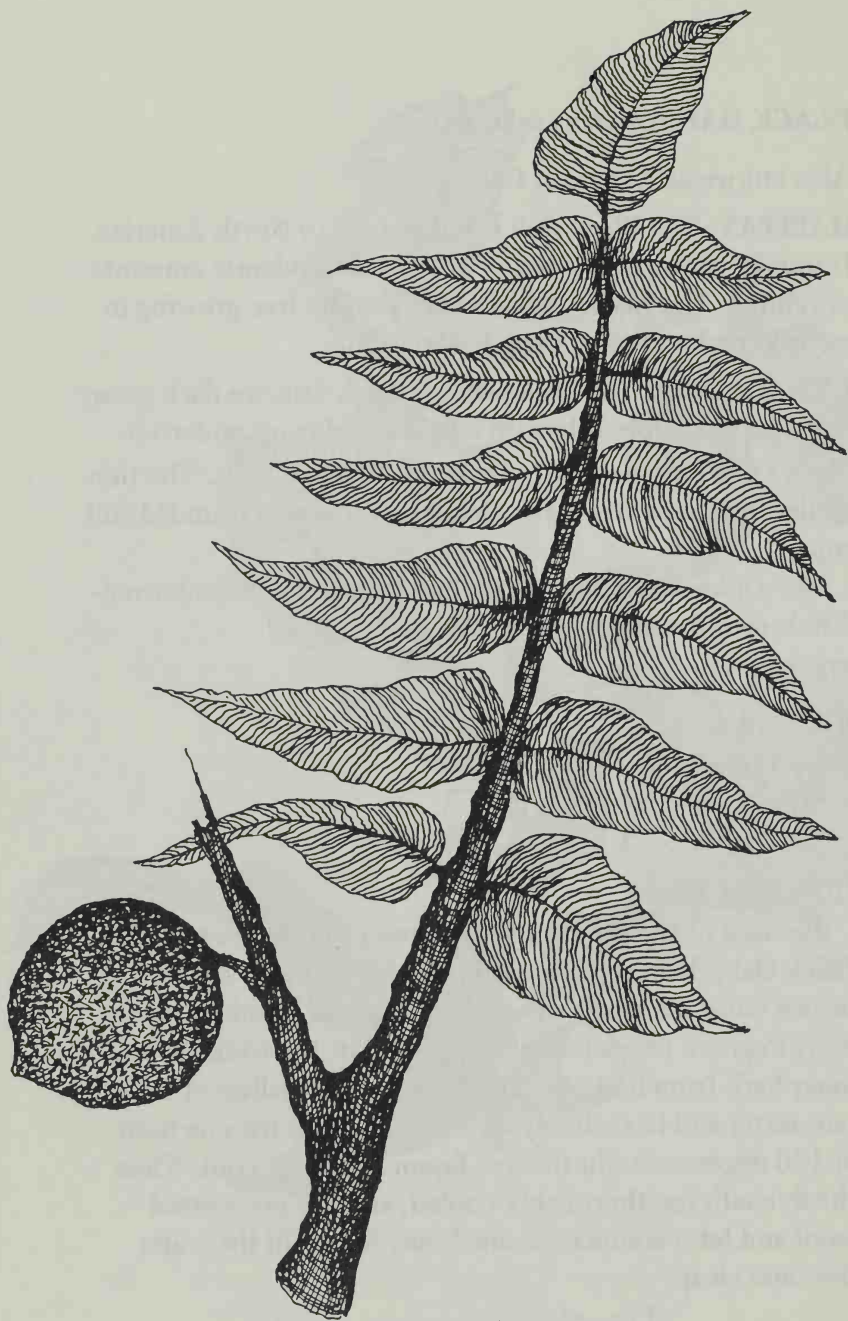
**COLOR:** Soft Brown

### RECIPE:

Soft inner bark	1 lb.
Wool yarn	¼ lb.

### HOW TO USE:

Because of the tannin already present in the bark of the Black Oak, there is no mordant needed to make this soft brown color. (A small amount of alum can be added, however, to give a beautiful yellow hue.) Put the fresh, soft inner bark from limbs or felled trees in one gallon of cold rain water and heat slowly. Simmer the bark for one hour at 190 degrees. Strain the dye liquor and let it cool. When the dyebath has thoroughly cooled, add the pre-wetted wool and let it simmer for one hour. Rinse till the water becomes clear.



BLACK WALNUT



## BLACK WALNUT (*Juglans nigra*)

Also known as American Walnut.

**HABITAT:** Black Walnut trees are native to the eastern section of the United States and the southeastern section of Canada. They range as far west as Minnesota and North Dakota. Rich acid soils of the hardwood forests are favored by these trees.

**DESCRIPTION:** These deciduous trees with their rich chocolate brown bark were a favorite black dye source for the Pawnee, Winnebago, Sioux and Ponca. The trees obtain a massive size at maturity, reaching more than 130 feet in height. The leaves are finely toothed, two to five inches in length, and have downy undersides.

**COLOR:** Black

### RECIPE:

Black Walnut leaves	½ gal.
Black sheep wool yarn	¼ lb.
Rusty nails	

### HOW TO USE:

Place some rusty iron in a gallon of water and let it set for a week or two. Add water as it evaporates. Now place one half of the leaves in the bottom of an enamel vessel. Add the skein of yarn and then cover it with the rest of the leaves. Now add just enough rusty water to cover the leaves and yarn. Set the dye pot aside to let the leaves ferment. In three or four days check the yarn to be sure it is being completely dyed by the fermenting leaves. The process should take about two weeks. Add small amounts of the rusty water to compensate for the evaporation. Rinse the dyed yarn and hang it in an open shady area to dry.



Broad Root

## BLOODROOT (*Sanguinaria canadensis*)

Also known as Turmeric, Red-root.

**HABITAT:** The Bloodroot is a plant that can be found growing in dark soil and rich forests. They range from southeastern Canada to Florida, and as far west as the Dakotas. They grow on shaded banks, north slopes and in heavily wooded areas.

**DESCRIPTION:** These plants have thick orangish red roots, which are the source of the dye. They usually have only one leaf, which is heavily lobed to form several segments. The leaf sits upon a stalk not more than eight inches in height. Bloodroots usually bloom in the spring and have beautiful white flowers which die rather quickly. They may be recognized in the summer by their fruit, which is a capsule about an inch long, pointed at both ends. The Menomini, Ponca, Winnebago and Omaha used this root for obtaining their red dye. They used Bloodroot dye to tint porcupine quills, rattles and matting. A few also used the dye obtained from the roots on their bodies.

**COLOR:** Red

### RECIPE:

Roots (chopped)	1½ pints
Oak bark (chopped)	¼ cup
Wool yarn	¼ lb.

### HOW TO USE:

Place the roots and bark in an enamel dye pot together with 1½ gallons of rain water. Let these soak overnight and then simmer them for an hour. Strain the roots and bark from the dye liquor and add the pre-wetted wool yarn. Simmer the yarn for an hour and then rinse. Hang the dyed yarn in an open shady area to dry.



BLUE BERRIES



## BLUEBERRY (*Vaccinium* species)

Also known as Huckleberry, Deerberry.

**HABITAT:** These native shrubs grow only in acid ph soils. Some species of blueberries are found in almost every state. Many species prefer mountainous forest environments. Blueberries are ecologically important to many pine, oak and redwood forests. They provide a vital link between plant and animal.

**DESCRIPTION:** The leaves of these hardy shrubs are usually oval to oblong, and pointed. The clusters of small flowers give way to the masses of fruit in the late autumn. The berries vary from a reddish brown to a dark blue and sometimes black. The Tlinkit made use of the berries by making a purple dye for their fantastic basketry.

**COLOR:** Pink or Purple

### RECIPE:

Blueberries (crushed)	1½ lbs.
Wool yarn	¼ lb.

### HOW TO USE:

Place the crushed blueberries in one gallon of rain water and simmer for 20 to 30 minutes. Strain the berries from the dye liquor and cool it to room temperature. Add the pre-wetted yarn and simmer for half an hour, stirring occasionally. The yarn is now dyed pink. If purple is desired, simmer for one more hour. Rinse the yarn and hang in an open shady area to dry.



BROKEN FERN

## BRACKEN FERN (*Pteridium aquilinum*)

Also known as Brake Fern.

**HABITAT:** The Bracken Fern grows almost everywhere in the United States. It thrives in waste areas, open woods, grasslands, and in just about any environment where the moisture is sufficient to support it.

**DESCRIPTION:** These large, coarse ferns can attain seven feet in height under good conditions. However, they usually never grow more than two or three feet. The best dyes are obtained from this plant by using the young fronds which have not completely uncoiled. Many tribes used the Bracken Fern for a variety of purposes. A few Northern California tribes used these ferns for dye purposes. They obtained a clear greenish yellow dye from the young shoots:

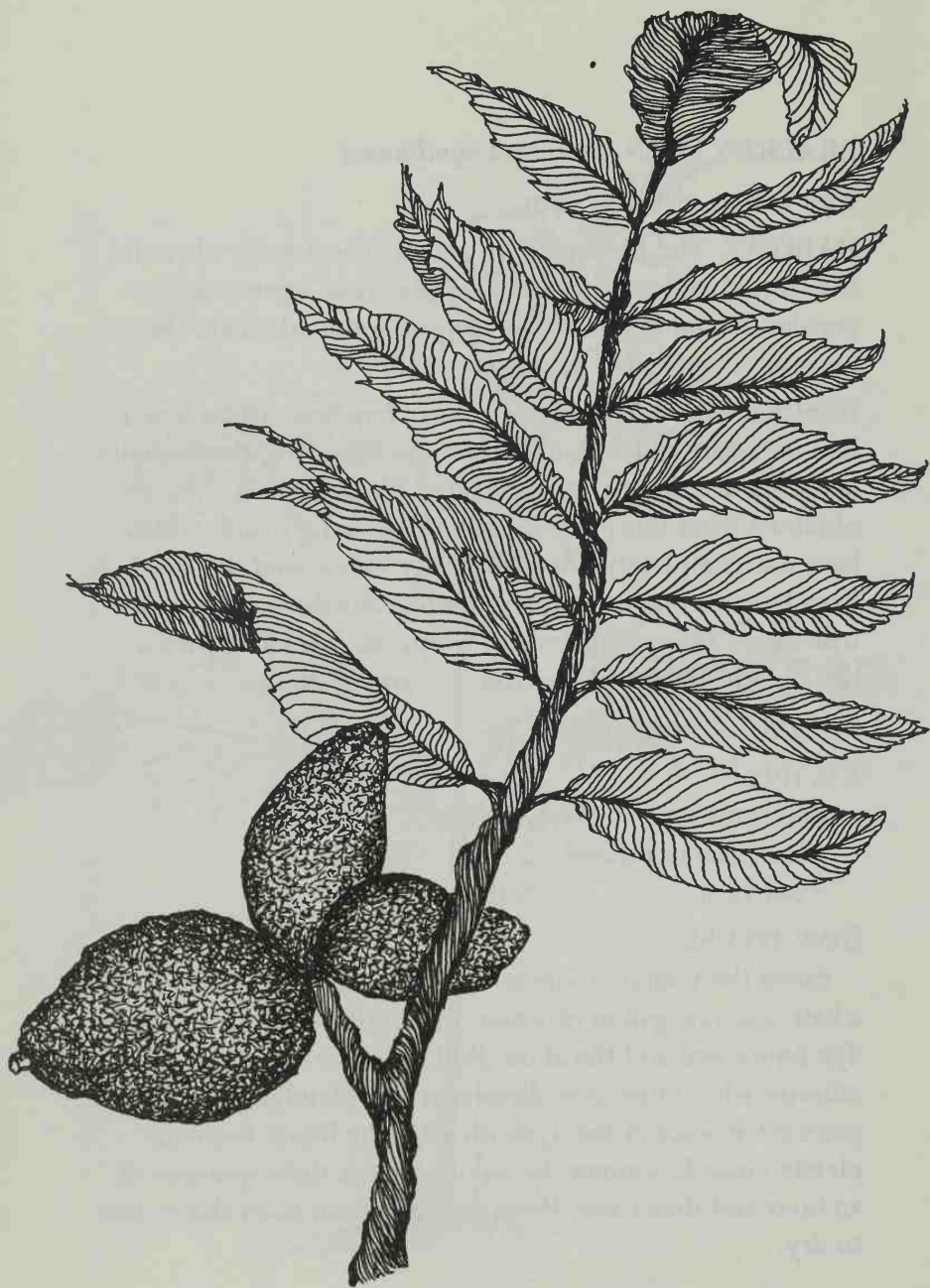
**COLOR:** Greenish Yellow

### RECIPE:

Bracken Fern	2 quarts
Alum, raw or refined	2 tsp.
Wool yarn	¼ lb.

### HOW TO USE:

Steep the young shoots in hot rain water for an hour and a half. Use one gallon of water. Strain the shoots from the dye liquor and add the alum. Boil the alum for about ten minutes while stirring to dissolve it completely. Place the pre-wetted wool in the dyebath after the liquor has completely cooled. Simmer the wool yarn for three quarters of an hour and then rinse. Hang the yarn in an open shady area to dry.



Butter Nut

## BUTTERNUT (*Juglans cinerea*)

Also known as White Walnut.

**HABITAT:** The Butternut is a deciduous North American tree. It grows in the Eastern and North Central States and is usually found growing at higher elevations. It prefers moist areas, and is an extremely hardy tree that is able to thrive in most all midwest territories.

**DESCRIPTION:** The bark of the Butternut is gray and it has large spreading branches. The leaves of the tree are about two to five inches long and slightly elongated. At maturity the tree may reach a height of 100 feet. The nuts are large and are ridged. They grow in bunches of two to five. The hulls used in dyeing are best collected while still green in the fall.

**COLOR:** Tan

**RECIPE:**

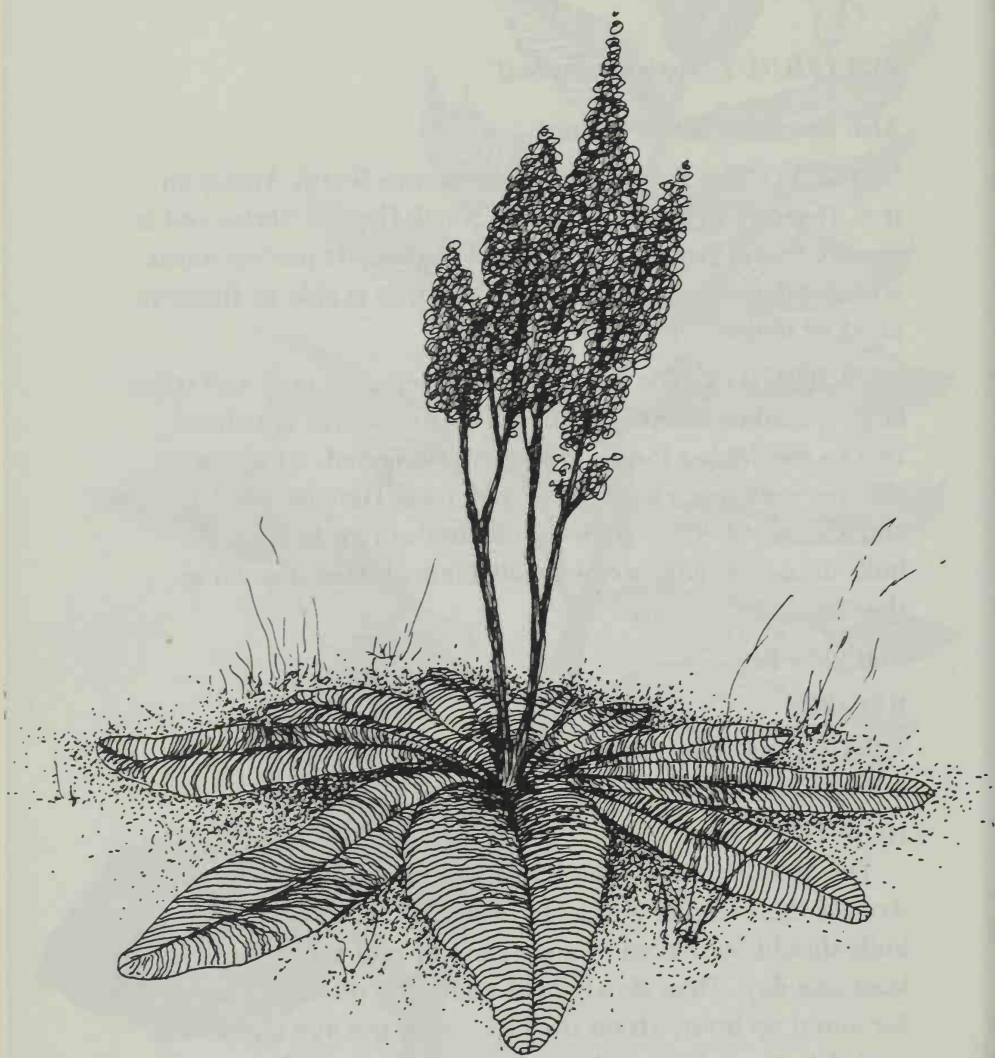
Butternut hulls     $\frac{1}{2}$  gallon

Wool yarn         $\frac{1}{4}$  lb.

**HOW TO USE:**

The Menomini used the Butternut in obtaining a brown dye for their leather goods. In order to obtain a dye, the hulls should be soaked in one gallon of rain water for at least one day. Then slowly heat and bring them to a simmer for about an hour. Strain the hulls from the dye liquor and cool it to room temperature. Add the pre-wetted yarn and simmer it for about an hour or until the desired color has been reached. Rinse and hang the dyed yarn in an open shady area to dry.





CANAIGRE

## CANAIGRE (*Rumex hymenosepalus*)

Also known as Dock, *Chaad'iniih* (Navajo).

**HABITAT:** *Rumex* are native to all of North America. Species *hymenosepalus* can be found growing on the mesas of the American Southwest, as they prefer arid climate and sandy soils.

**DESCRIPTION:** Canaigre was used as food by many Indians of the Southwest. The small flowers of this native dock grow near the top of the plant's stalk. The elongated dark green leaves grow to about two inches in width. The Navajo used the roots of these plants to obtain dye. The roots resemble sweet potatoes and contain tannic acid. This acid can be used as either a dye or a mordant, therefore the use of alum in this recipe is optional. If no alum is used, however, the dyebath will yield a light brown color.

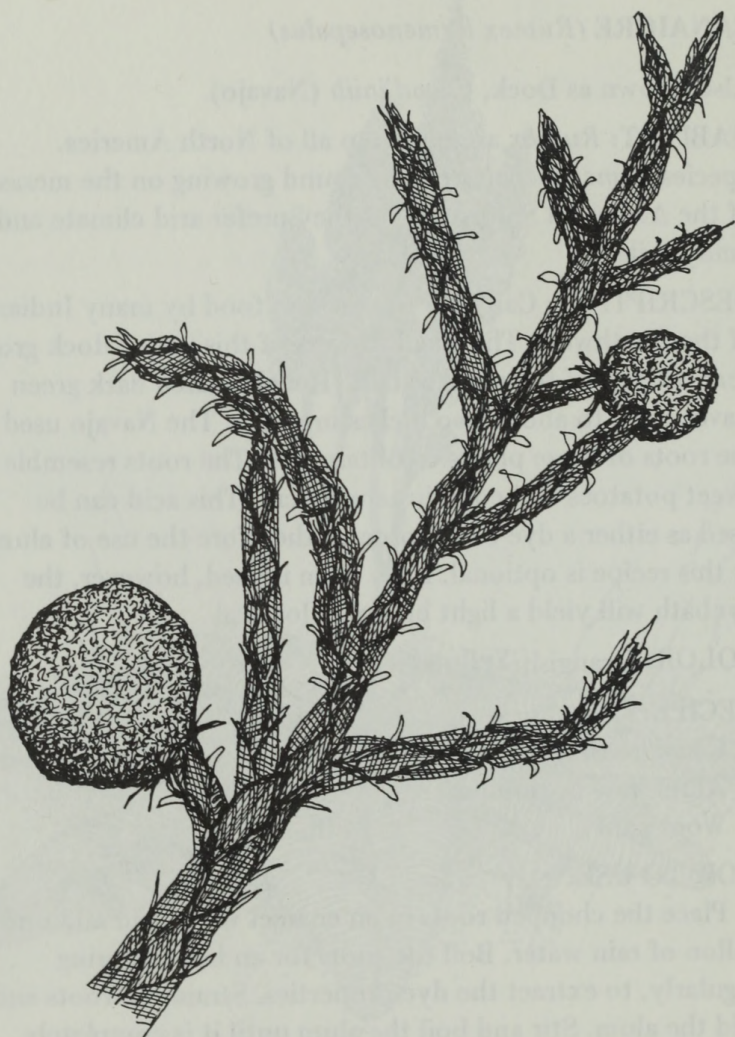
**COLOR:** Orangish Yellow

### RECIPE:

Canaigre roots (chopped)	2 oz.
Alum, raw or refined	1 tbsp.
Wool yarn	¼ lb.

### HOW TO USE:

Place the chopped roots in an enamel vessel and add one gallon of rain water. Boil the roots for an hour, stirring regularly, to extract the dye properties. Strain the roots and add the alum. Stir and boil the alum until it is completely dissolved. Let the dye liquor cool and then add the pre-wetted yarn. Boil for one to two hours. Rinse and hang the yarn in an open shady area to dry.



CEDAR

## CEDAR (*Juniperus virginiana*)

Also known as Red Cedar, Red Juniper.

**HABITAT:** These beautiful evergreens prefer poor soils and open dry areas. They can be found in southeastern sections of Canada and as far south as Florida.

**DESCRIPTION:** These conifers can reach over 100 feet in height at maturity. The shredding red outer bark is quite soft to the touch. The reddish hue of the bark may darken to a tannish brown on more mature trees. The foliage is distinctly aromatic. The Yavapai used these trees to obtain a dye which they used as face paint.

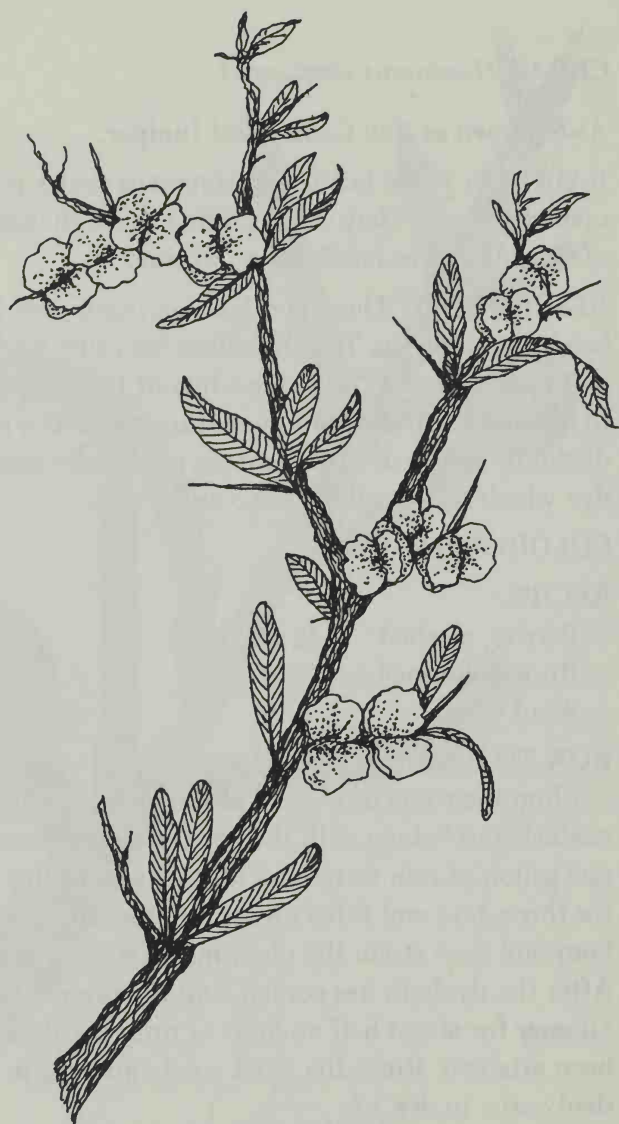
**COLOR:** Purple

### RECIPE:

Berries, mashed	½ qt.
Roots, chopped	½ qt.
Wool yarn	¼ lb.

### HOW TO USE:

Chop the roots into small pieces and place them in an enamel vessel along with the berries. Cover them with about one gallon of rain water and let them set in this container for three days and three nights. Simmer them for about an hour and then strain the plant material from the dye liquor. After the dyebath has cooled, add the pre-wetted yarn. Simmer for about half an hour or until the desired color has been attained. Rinse the dyed wool and hang in an open shady area to dry.



CHAMIZO



## CHAMIZO (*Atriplex canescens*)

Also known as *Diwozhiibaih* (Navajo).

**HABITAT:** These shrubs are very common in the American Southwest. They can be found growing on the mesas of Arizona and New Mexico. These native American plants need very little precipitation to thrive because of their water-retentive abilities.

**DESCRIPTION:** Chamizo shrubs are very hardy evergreens, which the Navajo have learned to utilize in making bright yellow dyes. They grow to about three feet in height and produce bracts of small blossoms. The leaves and twigs can be gathered any time of the year. The blossoms are also used if they're present at the time of picking.

**COLOR:** Mustard or Bright Yellow

### RECIPE:

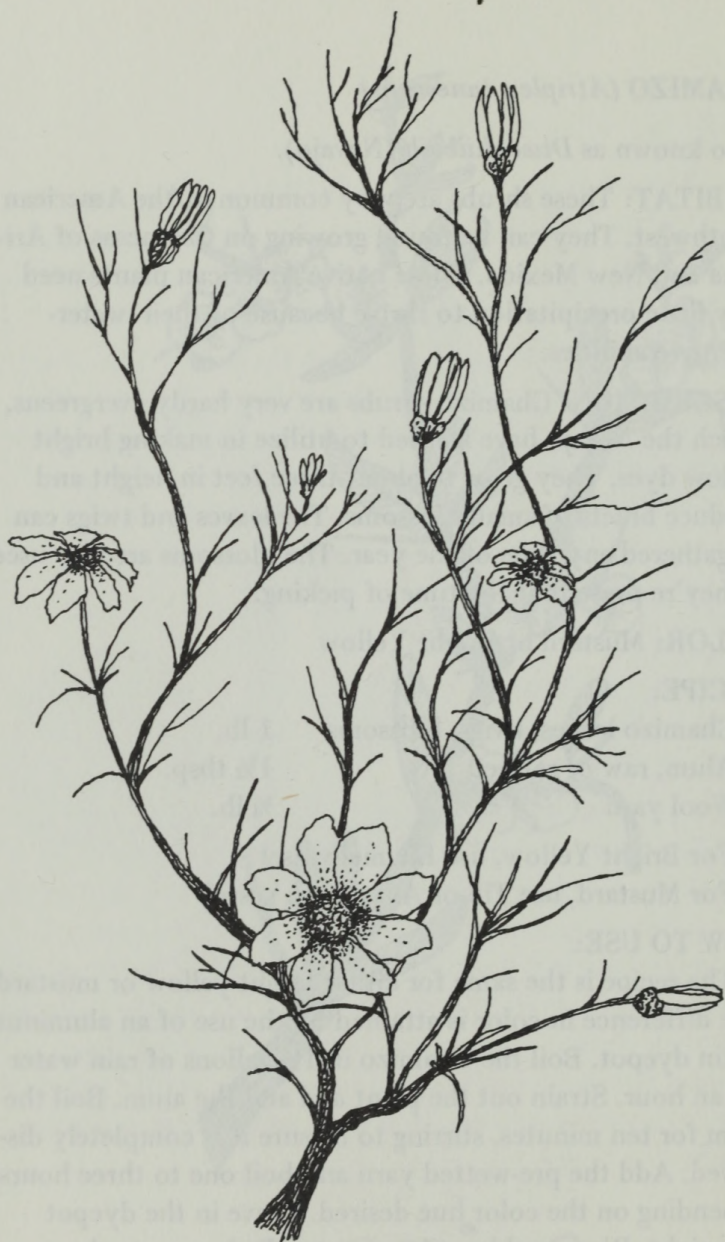
Chamizo leaves, twigs, blossoms	1 lb.
Alum, raw or refined	1½ tbsp.
Wool yarn	¼ lb.

For Bright Yellow, use Enamel vessel

For Mustard, use Tin or Aluminum vessel

### HOW TO USE:

The recipe is the same for either bright yellow or mustard. The difference in color is attained by the use of an aluminum or tin dyepot. Boil the Chamizo in 1½ gallons of rain water for an hour. Strain out the plant and add the alum. Boil the alum for ten minutes, stirring to be sure it is completely dissolved. Add the pre-wetted yarn and boil one to three hours, depending on the color hue desired. Leave in the dyepot overnight. Rinse and hang in an open shady area to dry.



TICK WEEED

## COREOPSIS (*Coreopsis* species)

Also known as Tickseed, Dye-flower.

**HABITAT:** There are many species of *Coreopsis* growing throughout the United States and many areas in Canada. These plants are very adaptable and grow in a wide variety of habitats. They can be found in open meadows, woodland hillsides and dark forests. There are over 70 species of *Coreopsis* native to America, many of which are now cultivated.

**DESCRIPTION:** The daisy-like blossoms of *Coreopsis* are found in many shades of yellow. However, many of the cultivated species have bright crimson, yellowish red and maroon flowers. They may be either annual or perennials which have smooth stems and lobed leaves. The Zuni Indians used the flowers of the species *cardaminefolia* to obtain dyes. These dyes were used on many different kinds of articles.

**COLOR:** Yellow

### RECIPE:

Flower heads	1 qt.
Wool yarn	¼ lb.
Tin vessel	

### HOW TO USE:

Cover the flower heads in one gallon of rain water, using a tin vessel. Simmer for 30 minutes. Strain the plant material and let the dyebath cool. Place the pre-wetted wool yarn in the dye liquor and simmer for 30 minutes or until the desired color has been attained. Rinse and hang in an open shady area to dry.



COTTON

## COTTON (*Gossypium* species)

**HABITAT:** These plants have become a major crop to many southern states such as Texas, Mississippi and Arkansas. Cotton is grown quite extensively in the central valley of California and in Arizona and New Mexico. The species *hopi l.* is native to the southwest.

**DESCRIPTION:** These plants are annuals or perennials, depending on the species and the climatic conditions. They are quite common in the cotton belt, as an average of 15,000,000 acres are harvested each year. The cotton bolls contain not only the seeds but also the downy white fibers which are spun into thread.

**COLOR:** Orange-Yellow

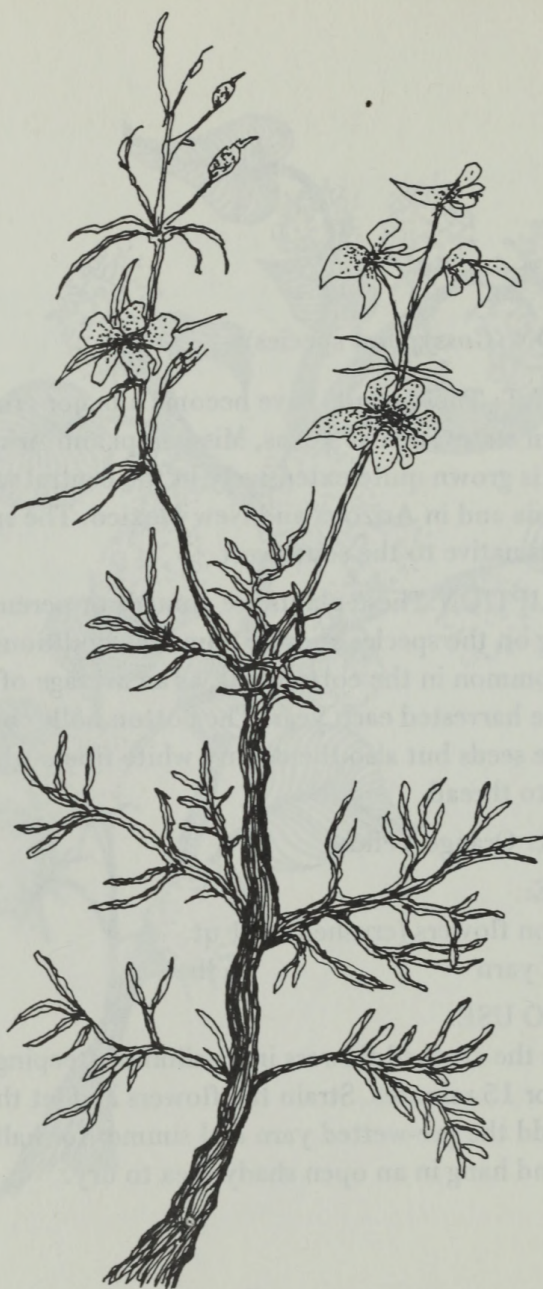
### RECIPE:

Cotton flowers (crushed)	1 qt.
Wool yarn	¼ lb.

### HOW TO USE:

Place the crushed flowers in a gallon of steeping rain water for 15 minutes. Strain the flowers and let the dyebath cool. Add the pre-wetted yarn and simmer for half an hour. Rinse and hang in an open shady area to dry.





LARKSPUR

## DELPHINIUM – PURPLE, BLUE & WHITE (*Delphinium* species)

Also known as Larkspur, Stagger Weed and *TxadidiidootL'izh* (Navajo).

**HABITAT:** Delphiniums are indigenous to the United States and prefer growing in dry, open, sunny areas. They can be found growing in open wood lots, along highways and road sides, and *s. scaposum* can be found growing in the desert of the American southwest. Hybrid species are grown in flower gardens all over the United States.

**DESCRIPTION:** Delphiniums are upright branching perennials and are extremely hardy. Native species may reach a height of 2½ to 3 feet, and the hybrids under ideal conditions will attain a 6 to 7 foot height. Many small flowers, borne closely together, grow on long spikes above the deeply lobed leaves. Species *menziesii* was used by the Thompson River Salish Indians to dye their clothing, while the Hopi used species *scaposum* to dye their basket material. This latter species is a sacred plant to the Navajo, its purple petals being used in some ceremonies.

**COLOR:** Greenish Gray

### RECIPE:

Delphinium petals (purple)	½ lb.
Wool yarn	¼ lb.

### HOW TO USE:

A process of fermentation is used to extract the dye properties from the flower petals. First cover the petals with one gallon of warm water and let them soak overnight. The next day smash the petals and add the pre-wetted yarn. Let the yarn set in this dyebath for a week, mixing occasionally. Rinse and hang in a shady open area to dry.



DODDER

## DODDER (*Cuscuta* species)

Also known as Love Vine.

**HABITAT:** These plants are so hardy that they can be found in all parts of Canada and the United States. They are very often found in fields of alfalfa, clover and flax. Because they lack sufficient chlorophyll, most species are found growing as parasites. They grow on, and use, many diversified plant hosts. However, they can usually be found in grain crop fields.

**DESCRIPTION:** These reddish yellow thread-like plants made an excellent dye plant for the Pawnee, who used the entire plant. They were able to extract an orangish yellow dye to use for a tint in coloring bird feathers. In this recipe, the entire plant is used, along with some alum.

**COLOR:** Yellow

### RECIPE:

Dodder, whole plant	1 qt.
Alum, raw or refined	1¼ tbsp.
Wool yarn	¼ lb.

### HOW TO USE:

Add the mordant to one gallon of rain water, boil and dissolve. Place the pre-wetted wool in the mordanting vessel and simmer for an hour. Now cover the Dodder plants (chopped) with rain water and simmer them for an hour. Strain off the plants and let the dye liquor cool. Add the yarn and let it simmer for 20 to 30 minutes. Rinse the yarn and hang it in an open shady area to dry.



Dogwood



## DOGWOOD (*Cornus* species)

Also known as Flowering Dogwood, Western Dogwood,

**HABITAT:** The shrubs and trees of this genus are found flourishing in astonishingly diverse climatic conditions. There are species indigenous to extremely different biogeographical areas, such as Alaska, Florida, New England and Oklahoma. Great numbers of these trees can be found along the Pacific Northwest.

**DESCRIPTION:** The bracts of small white or pink flowers cover these trees and shrubs in the early spring. Later these blooms bear great quantities of red berries. Many different people of the Indian Nation used the Dogwood for obtaining dye. The Thompson River Salish used the branches and bark of the Western Flowering Dogwood for dyeing basketry material. The Ojibwa dyed their porcupine quills red using the inner bark of the Red-Osier Dogwood. With this inner bark is mixed Birch and Oak. The bark of Cedar is then burned and the ashes are mixed with the simmering dyebath.

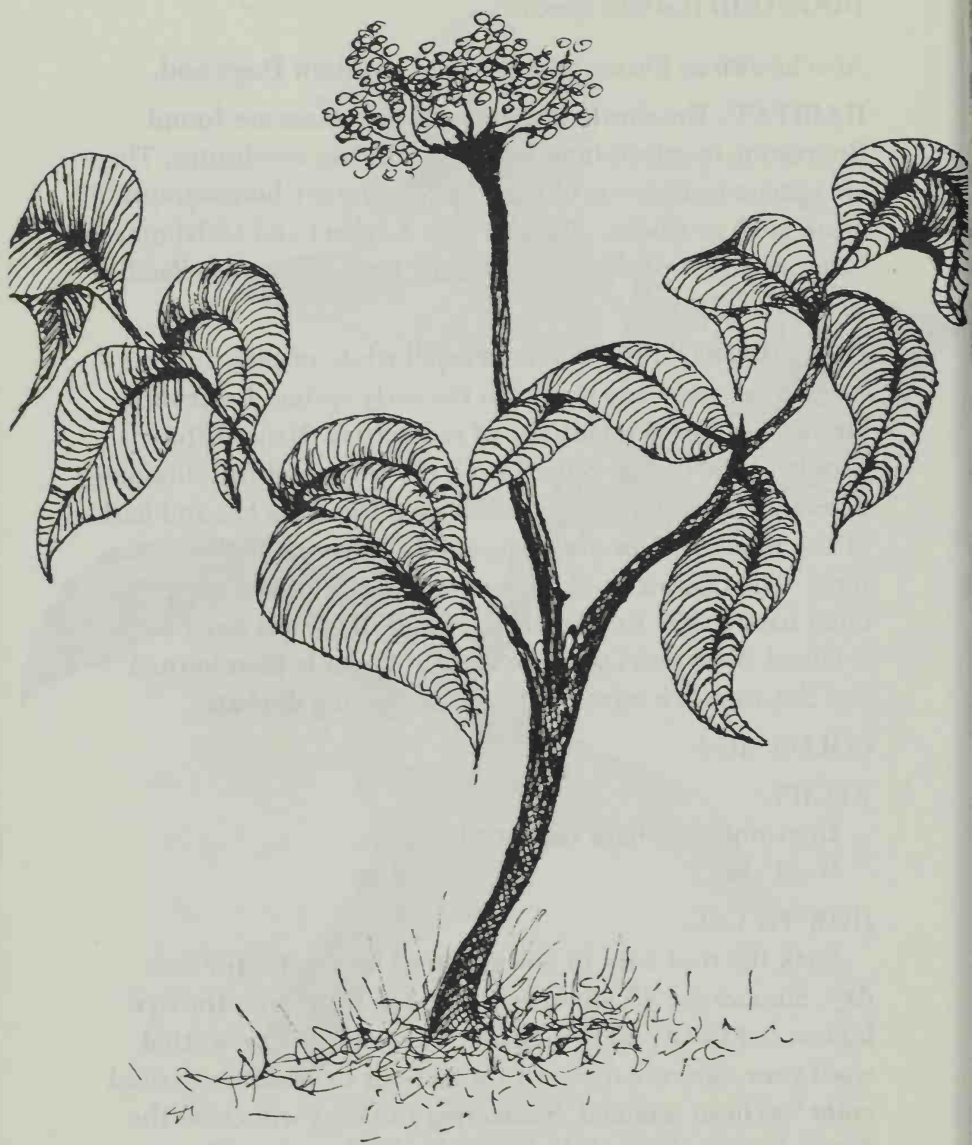
**COLOR:** Red

**RECIPE:**

Dogwood root bark (chopped)	1 qt.
Wool yarn	¼ lb.

**HOW TO USE:**

Soak the root bark in one gallon of rain water for one day. Simmer for 45 minutes. Strain the bark from the dye liquor. Let the dyebath cool and then add the pre-wetted wool yarn. Simmer the yarn for an hour or until the desired color has been attained. Simmering too long will cause the dye to become "muddy". Rinse the dyed yarn and hang it in an open shady area to dry.



ELDER BERRY

## ELDERBERRY (*Sambucus* species)

Also known as Sweet Elder.

**HABITAT:** Elderberries grow in many sections of south-eastern Canada and range as far south as Florida. They can also be found growing along roadsides and fields of the Gulf Coast states. They grow in many varied eco-systems but always prefer damp, rich soils.

**DESCRIPTION:** These hardy shrubs bear beautiful clusters of fragrant white or pink flowers in the early summer. Later, great quantities of edible, purplish berries appear between the branches of bright green leaflets. There are usually five to eleven leaflets per branch and they are usually lance shaped. The Cahuilla used the species *mexicana* to obtain a dark tinted dye. This dye was used primarily for their basketry materials.

**COLOR:** Dark Beige

### RECIPE:

Elderberry leaves (crushed)	4 qts.
Alum, raw or refined	1½ tbsp.
Wool yarn	¼ lb.

### HOW TO USE:

Soak the crushed leaves in 1½ gallons of rain water for three days and three nights. Simmer them for an hour and then strain. Add the alum and boil for ten minutes, stirring occasionally to completely dissolve the mordant. Cool the dye liquor and add the pre-wetted wool. Simmer for an hour, stirring regularly. Rinse and hang the dyed yarn in an open shady area to dry.



GOLDEN ROD

## GOLDENROD (*Solidago* species)

Also known as *Goldrute* (German).

**HABITAT:** Goldenrod is a native American plant which can be found flourishing along roadsides, open fields and country gardens. Goldenrod was one of the first dyeplants used by the American colonists. It was used for dyeing wool. However, the plant had been used for dyeing baskets by Native Americans for many centuries prior to the arrival of the colonists.

**DESCRIPTION:** The tall slender stalks and leaves of the Goldenrod plant can be used for dyeing wool. However, it is best to use only the flower heads of the plants. Each plant will produce many tiny yellow flower heads that should be picked fresh and used immediately for best results.

**COLOR:** Lemon Yellow

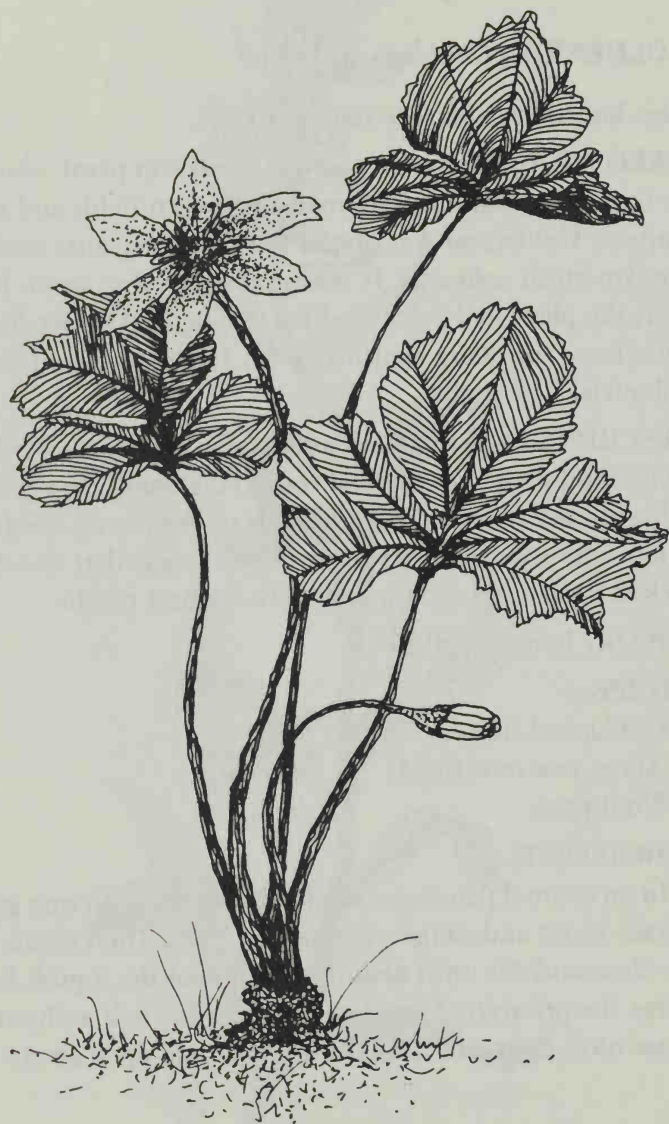
### RECIPE:

Goldenrod flowers	1 qt.
Alum, raw or refined	1½ tbsp.
Wool yarn	¼ lb.

### HOW TO USE:

In an enamel pan cover the fresh flowers with one gallon of rain water and simmer for half an hour. Then strain, add the alum and stir until dissolved, and cool the liquid. Immerse the pre-wetted wool and simmer for half an hour. Rinse until clear and hang out to dry in an open shady area.





GOLDTHREAD

## **GOLDTHREAD** (*Coptis* species)

Also known as Canker Root.

**HABITAT:** These plants can generally be found in moist areas such as marshes, ponds and swamps. They are indigenous to the eastern half of Canada and the United States. They can be found as far south as North Carolina.

**DESCRIPTION:** The Ojibwa used the roots and leaves of these low growing plants to obtain yellow dyes for tinting quills. The singular whitish flowers grow on stalks not more than a foot in height.

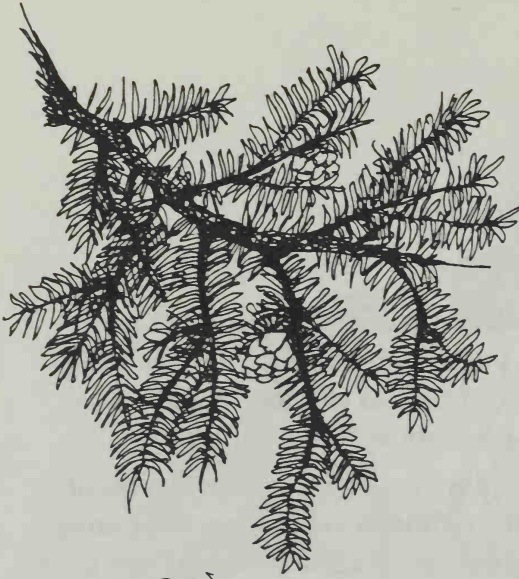
**COLOR:** Yellow

### **RECIPE:**

Goldthread roots and leaves	1 pt.
Alum, raw or refined	1 tbsp.
Wool yarn	¼ lb.

### **HOW TO USE:**

Chop the leaves and roots of the plant and place them in one gallon of rain water for one day. Simmer them for about an hour and then discard the plant material. Add the alum and stir until it is completely dissolved. Cool the dyebath and add the pre-wetted yarn. Simmer for half an hour and then rinse. Hang the dyed yarn in an open shady area to dry.



WESTERN



MOUNTAIN

HEMLOCK

## HEMLOCK (*Tsuga* species)

Also known as White Hemlock, Western Hemlock, Canadian Hemlock.

**HABITAT:** These large evergreen trees are native to the higher elevations of the Pacific Northwest Coast. They can also be found in great numbers in the Canadian wilderness and the northeastern section of the United States. They prefer moist areas.

**DESCRIPTION:** These graceful coniferous trees can be identified by their flattened leaves. Many mature Hemlocks reach a height of over 100 feet. The bark, which is rich with tannic acid, is used for dye. The Tlingit used this dye for coloring their blanket wool. Many other people have used the bark of *T. canadensis* to tan deer, bear and elk hides.

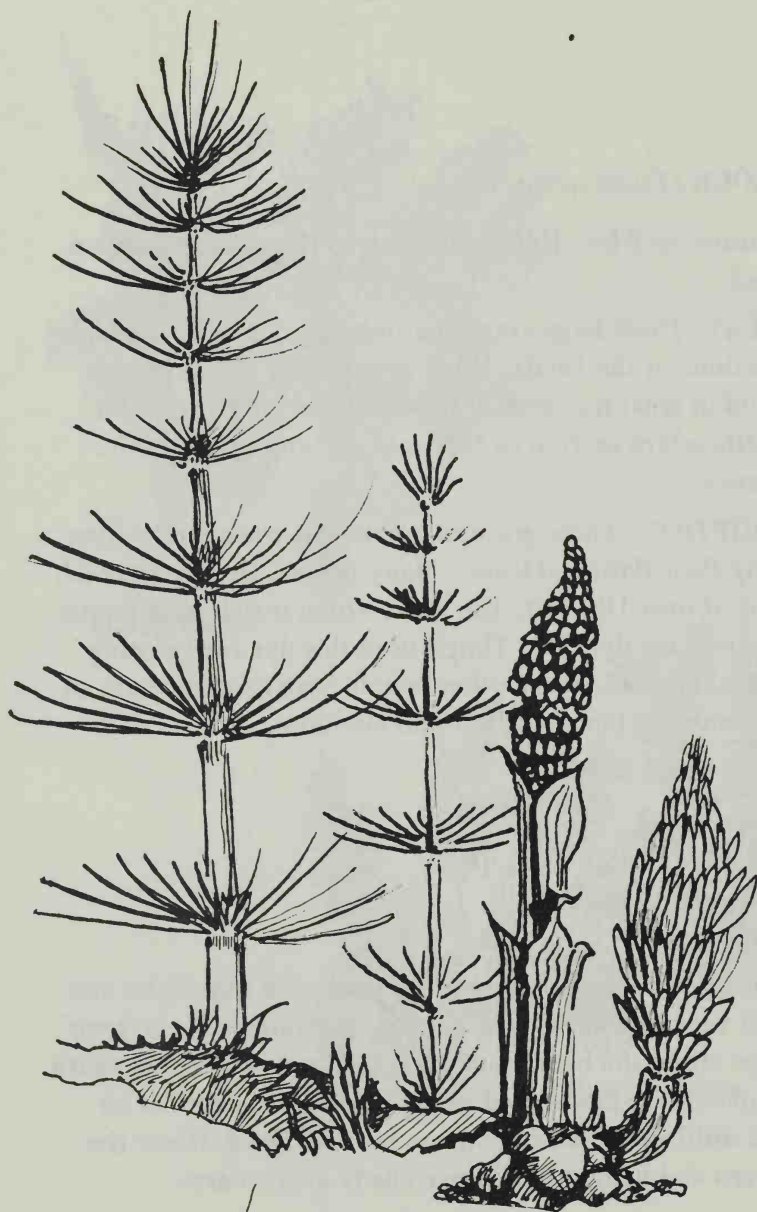
**COLOR:** Warm Brown

### RECIPE:

Bark (chopped)	1½ qts.
Wool yarn	¼ lb.

### HOW TO USE:

Cover the chopped bark with one gallon of rain water and let it set for three days and three nights. Simmer for an hour and then strain the bark from the dye liquor. Let the dyebath cool and add the pre-wetted yarn. Simmer the yarn for an hour or until the desired color has been attained. Rinse the dyed yarn and hang it in an open shady area to dry.



HORSE TAIL



## **HORSETAILS** (*Equisetum* species)

Also known as Mares' Tail.

**HABITAT:** These plants are indigenous to North America as well as other parts of the world. They can be found in moist areas such as small creeks, ponds and along roadside ditches. They are quite plentiful along the Pacific Coast, especially in the moisture-laden redwood forests.

**DESCRIPTION:** Horsetails are primitive plants and are related to club mosses and ferns. They grew to great heights in ancient forests. They are perennial flowerless plants with a maximum height of about four feet. Horsetails have jointed hollow stalks with rings of lacy needles protruding from each joint.

**COLOR:** Yellowish Green

### **RECIPE:**

Horsetails	1 qt.
Alum, raw or refined	1 tbsp.
Wool yarn	¼ lb.

### **HOW TO USE:**

It is best to pre-mordant the yarn for this recipe. Place the alum in one gallon of rain water and heat and stir the alum to completely dissolve it. Add the yarn and simmer for an hour. In the dye vessel place a layer of Horsetails on the bottom and then place the ¼ lb. skein of yarn on top. Then place another layer of Horsetails on the yarn. Cover this with rain water and simmer for half an hour. Rinse the dyed yarn and hang it in an open shady area to dry.



INDIAN ANTelope

## INDIAN PAINTBRUSH (*Castilleja* species)

Also known as Painted Cup, *Dahitzihidaa'* (Navajo, "Hummingbird Food").

**HABITAT:** These herbaceous plants are indigenous to the western half of the United States. The species *C. integræ* was used as a dye plant by the Navajo, and can be found growing in the foothills of the Southwest. Other species can be found growing at higher elevations in forest meadows and open woods.

**DESCRIPTION:** This genus is related to the cultivated Snap Dragon. They will grow to about 2½ feet under good conditions and bear brightly colored flower bracts in June and July. The Salish used the root of the plant for their dye, the Navajo used the blossoms. The Zuni used the bark of the roots, with minerals, to get black for dyeing deerskin.

**COLOR:** Tan

### RECIPE:

Paintbrush blossoms	1 lb.
Wool yarn	¼ lb.

### HOW TO USE:

Pour just enough cold rain water over the flowers to cover them. Soak them overnight and then crush them, removing the hard stems. Then add the pre-wetted yarn to the dyebath and allow it to ferment in a warm area for a week. Be sure to mix the yarn occasionally. Rinse, and hang the dyed yarn in an open shady area to dry.



LARCH

## LUPINE, BLUE FLOWER (*Lupinus kingii*)

Also known as *Azee düilch' iliih* (Navajo).

**HABITAT:** Lupines are quite common in the mountainous areas of the Southwest. Many varieties are grown for cover crops in the South Atlantic and Gulf Coast states. The Blue Flower Lupine, which is quite common in Arizona and New Mexico, was used by the Navajo to obtain a greenish yellow dye.

**DESCRIPTION:** The Blue Flowered Lupine is a leguminous upright plant which reaches a height of two feet. They have coarse stems and medium-size digitate (fingered) leaves. The large attractive upright clusters of pea-like flowers can be found glistening in the sun all through the summer months, beginning in June.

**COLOR:** Greenish Yellow

### RECIPE:

Lupine (entire plant)	1 lb.
Alum, raw or refined	1¼ tbsp.
Wool yarn	¼ lb.

### HOW TO USE:

Bring 1½ gallons of rain water to a boil and add the flowers, stems and leaves. Boil these plant parts for two hours and then strain. The Navajo then added the raw alum to the dye-bath. Stir in the alum while the water is still boiling and then add the pre-wetted yarn. Boil the yarn for two hours and then let it set in the dyebath overnight before rinsing.





## MAHONIA (*Mahonia* species)

Also known as Oregon Grape.

**HABITAT:** This popular shrub is indigenous to the western half of North America. It grows in protected areas of the foothills and mountains. It is very tolerant of shade and can be found growing in open woods.

**DESCRIPTION:** Mahonia or Oregon Grape, as it is known on the Pacific Coast, is an evergreen that grows to an average of three feet in height. The small ornate flowers produce great quantities of the dark blue berries that go in to making Oregon Grape jelly. The berries were used by the early homesteaders to create a purplish blue dye, and the dye recipe is still being used by many of the "backwoods" people today.

**COLOR:** Purplish Blue

### RECIPE:

Oregon Grape berries	1 lb.
Wool yarn	¼ lb.

### HOW TO USE:

Place the berries in one gallon of cold rain water and then heat very slowly to a simmer. Let the water and berries simmer for a little less than an hour and then remove them from the heat. Strain the berries through a seive and let the dye liquor cool. When it is entirely cool, place the pre-wetted wool into the vessel and simmer until the desired color is attained. Rinse and hang the yarn in an open shady area to dry. This is not an extremely color fast dye. However, natural dyes will fade only into a lighter shade of the same color, giving beautiful natural tones.



MAPLE

## MAPLE (*Acer saccharinum*)

Also known as Soft Maple, White Maple, Silver Maple.

**HABITAT:** This Maple extends from the northeastern section of the United States and Canada to Washington. It prefers cool and moist areas but is hardy enough to be found under a variety of growing conditions.

**DESCRIPTION:** This is a large, handsome, fast growing tree reaching a height of 60 feet. The leaves are three to five inches long and deeply lobed. The leaves have a silvery underside and turn to a clear yellow in the fall. The small flowers produce clusters of winged fruit popularly called "keys". Because this species of Maple has such brittle wood, it is particularly subject to heavy storm damage. The Winnebago collected the twigs and bark of downed trees to use as a dye for their hides. They were able to obtain the color black by mixing the bark with ferrous clay.

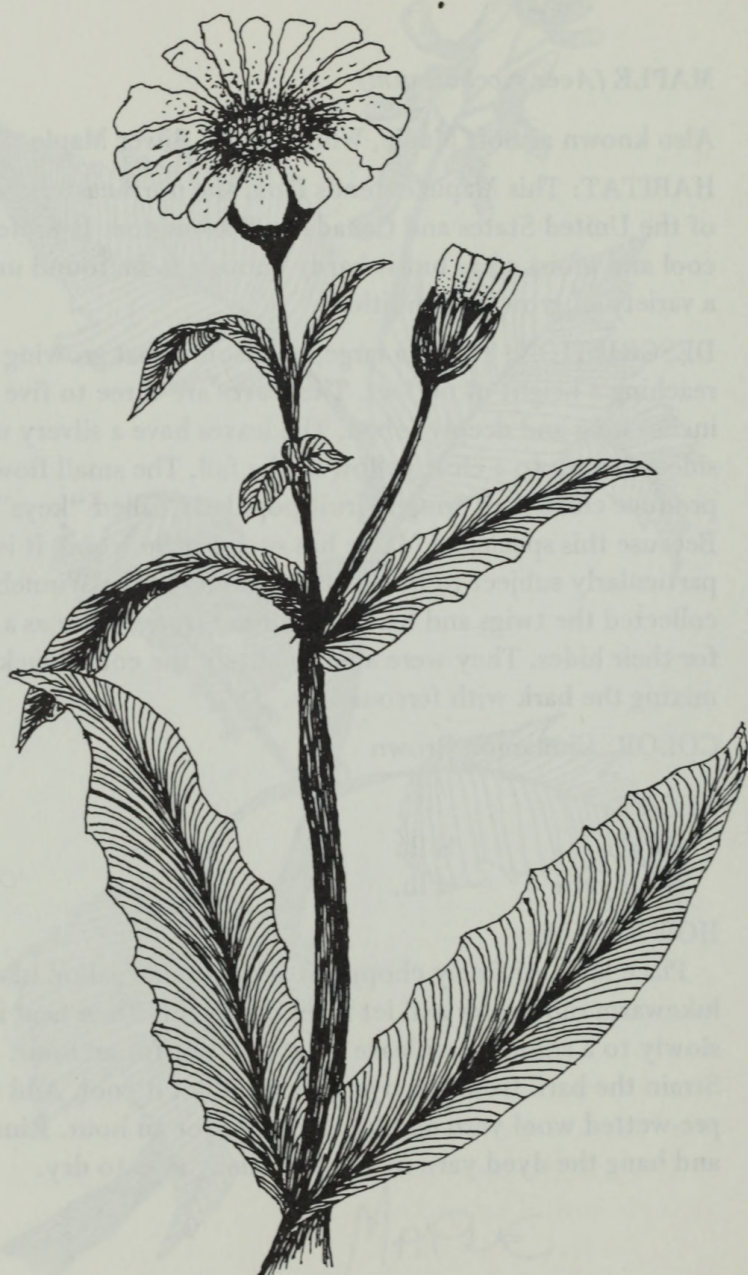
**COLOR:** Cinnamon Brown

### RECIPE:

Bark	¼ lb.
Wool yarn	¼ lb.

### HOW TO USE:

Place ¼ lb. of finely chopped bark into one gallon of lukewarm rain water and let it set overnight. Then heat it slowly to a simmer and leave it on the heat for an hour. Strain the bark from the dye liquor and let it cool. Add the pre-wetted wool yarn and let it simmer for an hour. Rinse and hang the dyed yarn in an open shady area to dry.



MARIGOLD



## MARIGOLD (*Tagetes* species)

Also known as Mary's Gold, *Biiyildjaaih* (Navajo), Bitterball.

**HABITAT:** Marigolds are indigenous to the North American continent, particularly to the southwestern portion of the United States and northern Mexico. Through hybridization many new varieties have been developed, and the plants can now be grown in every state, including Alaska and Hawaii.

**DESCRIPTION:** Marigold's strikingly beautiful flower heads bloom profusely in many shades. The blossoms range from creamy white to vivid orange and are the source of the dye properties. They grow from six to thirty-six inches in height. Their lower leaves are stalked, the upper leaves are attached to the stem.

**COLOR:** Yellow

### RECIPE:

Flower heads	1 qt. dried
Alum, raw or refined	1¼ tbsp.
Wool yarn	¼ lb.

### HOW TO USE:

Crush the dried flowers and soak them for three days and nights in 1½ gallons of rain water. Then bring to a simmer for an hour. Add the alum and stir until it is dissolved. Cool the dyebath, add the pre-wetted wool yarn, and simmer for 45 minutes. Let the yarn cool in the dyebath. Rinse and hang the dyed wool yarn in an open shady area to dry.



## MORNING GLORY (*Ipomoea*)

Also known as Wild Sweet Potato.

**HABITAT:** These beautiful native plants can be found growing throughout the United States. They prefer growing in areas where their twining and climbing characteristics are advantageous to their blossoming flowers. Fence rows, orchards, and open brushlands are favorite haunts of these attractively charming plants.

**DESCRIPTION:** The funnel shaped flowers open their petals each morning to greet the new dawn with a burst of color which could have only been conceived by mother nature. These delicate blooms are produced in great quantities on stems of alternating leaves. There are many wild and domestic varieties which all yield a very mellow green dye.

**COLOR:** Green

### RECIPE:

Morning Glory blossoms	1 qt. chopped
Alum	1 tbsp.
Rain Water	
Wood yarn	¼ lb.

**HOW TO USE:** Simmer the chopped blossoms in rain water for one hour. Strain them from the dye bath and add the alum, stirring over heat until it is completely dissolved. Now add the pre-wetted wool yarn and simmer for half an hour or until the desired color has been reached. Rinse and hang in an open shady area to dry.



Mountain Mahogany

## MOUNTAIN MAHOGANY (*Cercocarpus montanus*)

Also known as *Tse'esdaaziih* (Navajo).

**HABITAT:** These native shrubs prefer to grow in the foothills and mountains, and range as far as the 10,000 foot elevation. They are native to the American Southwest and can be found in the Arizona mountains.

**DESCRIPTION:** The wood of these shrubs is dark brown to reddish brown. The wood is close grained and hard. The small flowers produced each year grow between the slightly serrated leaves. The Navajo, Hopi and Zuni had many recipes for the shrubs, one of which was a soft, reddish brown. The bark of the root is utilized in extracting the dye properties from these plants.

**COLOR:** Reddish Brown

### RECIPE:

Root bark	1 lb.
Wool yarn	¼ lb.

### HOW TO USE:

Place the chopped root bark in an enamel vessel and add 1½ gallons of rain water. Boil the plant material for two hours and then strain. When the dyebath has cooled, add the yarn and boil for two more hours. Leave the yarn in the dyebath overnight. Rinse and hang in an open shady area to dry.





MULLEIN

## MULLEIN (*Verbasum thapsum*)

Also known as Common Mullein.

**HABITAT:** These native plants can be found in almost every state, as well as large areas of southern Canada. They prefer dry areas such as open fields, southern slopes and freeway right-of-ways.

**DESCRIPTION:** There are several species of these herbaceous plants which are chiefly biennial. A tall spike of bright yellow flowers rises up to six feet from the cluster of velvety leaves. The Yurok and Karok used the roots of a certain species of Mullein to tint their porcupine quills yellow.

**COLOR:** Yellow

### RECIPE:

Mullein leaves (chopped)	1 qt.
Alum, raw or refined	1½ tbsp.
Wool yarn	¼ lb.

### HOW TO USE:

After gathering the Mullein leaves, chop them into small pieces and place them in 1½ gallons of rain water. Leave them in this water for at least one day, preferably two. Simmer them for an hour and then strain the leaves from the dye liquor. Add the alum to the dyebath and stir until it is completely dissolved. Add the pre-wetted wool yarn and simmer for half an hour or until the desired color is reached. Rinse the yarn well and hang it in an open shady area to dry.



NETTLE

## NETTLE (*Urtica* species)

Also known as Stinging Nettle.

**HABITAT:** Nettle grows in southern Canada, New England and most northeastern states. The Tlingit of the Northwest Coast used a species of Nettle, *Urtica lyalii*. The leaves, stems and roots were used to obtain a dye which was utilized in dyeing basket weaving fibers. The Nettle plants can be found growing on roadsides, country fields and woodland meadows.

**DESCRIPTION:** Depending on climatic conditions and species, Nettle may be an annual or perennial. Many tribes of the eastern woodland culture used these plants medicinally and for fibers. The stems of these plants are covered with hairs which are quite unpleasant to the touch and can cause a rash. The greenish flower clusters grow near the top of the plants.

**COLOR:** Greenish Yellow

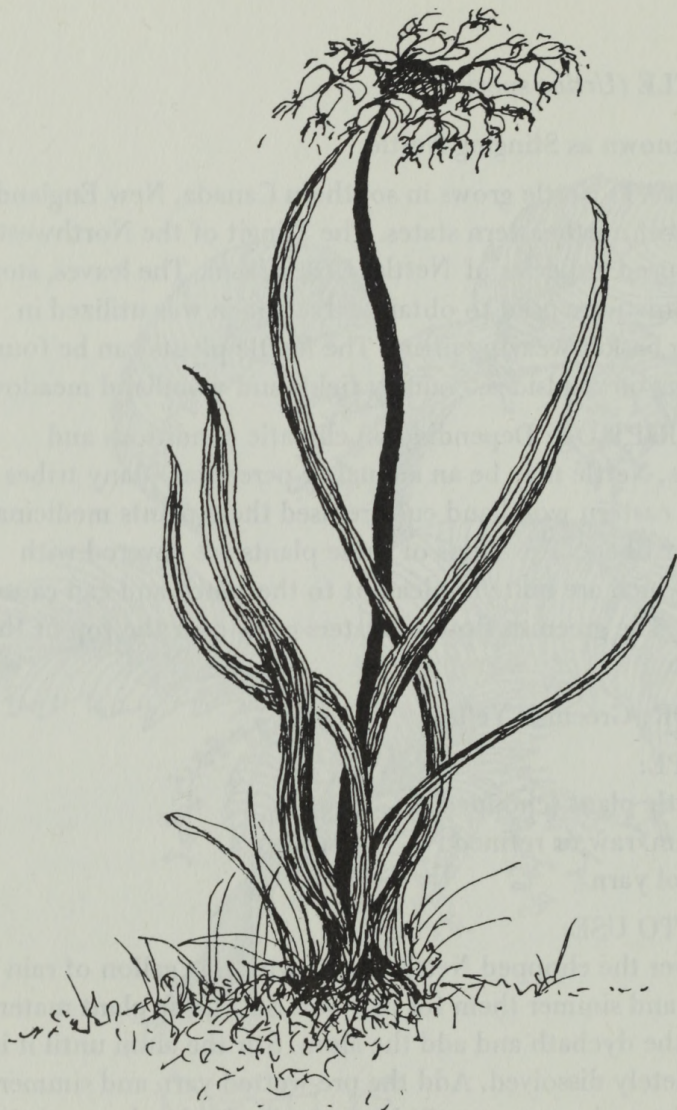
### RECIPE:

Nettle plant (chopped)	2 qts.
Alum, raw or refined	1¼ tbsp.
Wool yarn	¼ lb.

### HOW TO USE:

Cover the chopped Nettle plants with one gallon of rain water and simmer them for an hour. Strain the plant material from the dyebath and add the alum. Stir the alum until it is completely dissolved. Add the pre-wetted yarn and simmer for thirty minutes or until the desired color has been attained. Rinse and hang the dyed yarn in an open shady area to dry.





WILD ONION



## ONION (*Allium cepa*)

Also known as Yellow Onion.

**HABITAT:** These plants have been cultivated from pre-historic times. They grow throughout the United States and Canada.

**DESCRIPTION:** Onions are either annual or biennial bulbous plants. The flower stalks rise above the hollow leaves and produce great numbers of lavender to white blossoms. Onions make an excellent dye source and the color is relatively fast. There is no additional mordant needed.

**COLOR:** Yellow

### RECIPE:

Onion skins (crushed)	1 oz.
Wool yarn	¼ lb.

### HOW TO USE:

Place the crushed Onion skins in an enamel vessel and add one gallon of rain water. Set it aside and let it soak overnight. Then simmer the crushed skins for 45 minutes. Strain the plant material from the dye liquor. Now place the pre-wetted wool yarn in the cooled dyebath and simmer for 20 minutes to an hour, depending on the desired color. Remove the dyed yarn from the dyebath and rinse well. Hang it in an open shady area to dry.



## OREGON GRAPE (*Berberis* species)

**HABITAT:** This shrub is native to western North America and is commonly found at very high elevations. It is not uncommon to find the species *B. aquifolium* high in the mountains at elevations of 8,000 feet or more. Other species thrive only in the lower elevations of the western foothills.

**DESCRIPTION:** *Berberis aquifolium* is a small, low growing shrub. The leaves are slightly serrated. The Navajo used the entire plant, including the roots, for making a greenish yellow dye. The Klikitat, Snohomish, Hupa and Thompson River Salish used the twigs and bark of another species (*B. nervosa*) to add a yellow tint to their basketry.

**COLOR:** Greenish Yellow

### RECIPE:

<i>Berberis</i> species	1 lb.
Alum, raw or refined	1¼ tbsp.
Wool yarn	¼ lb.

### HOW TO USE:

Boil the entire plant for one and a half hours in 1½ gallons of rain water. Then strain the plant from the dyebath. Add the alum and let the dye liquor boil for about ten minutes while the alum is dissolving. Add the pre-wetted yarn and stir. Remove from heat and let the yarn set in the dyebath overnight. Rinse and hang the dyed yarn in an open shady area to dry.



OSAGE ORANGE

## OSAGE ORANGE (*Maclura pomifera*)

Also known as Bow-wood.

**HABITAT:** These native American trees are found in New England, south to the Carolinas, and around the Mississippi regions. They prefer open dry areas with lots of sun.

**DESCRIPTION:** These small trees grow only to about 30 feet in height. The greenish flower clusters produce a yellowish green fruit. Many eastern Indians used the Osage Orange as a dye plant. By using the roots of the tree they were able to obtain a yellow dye which was used for a variety of purposes.

**COLOR:** Tan

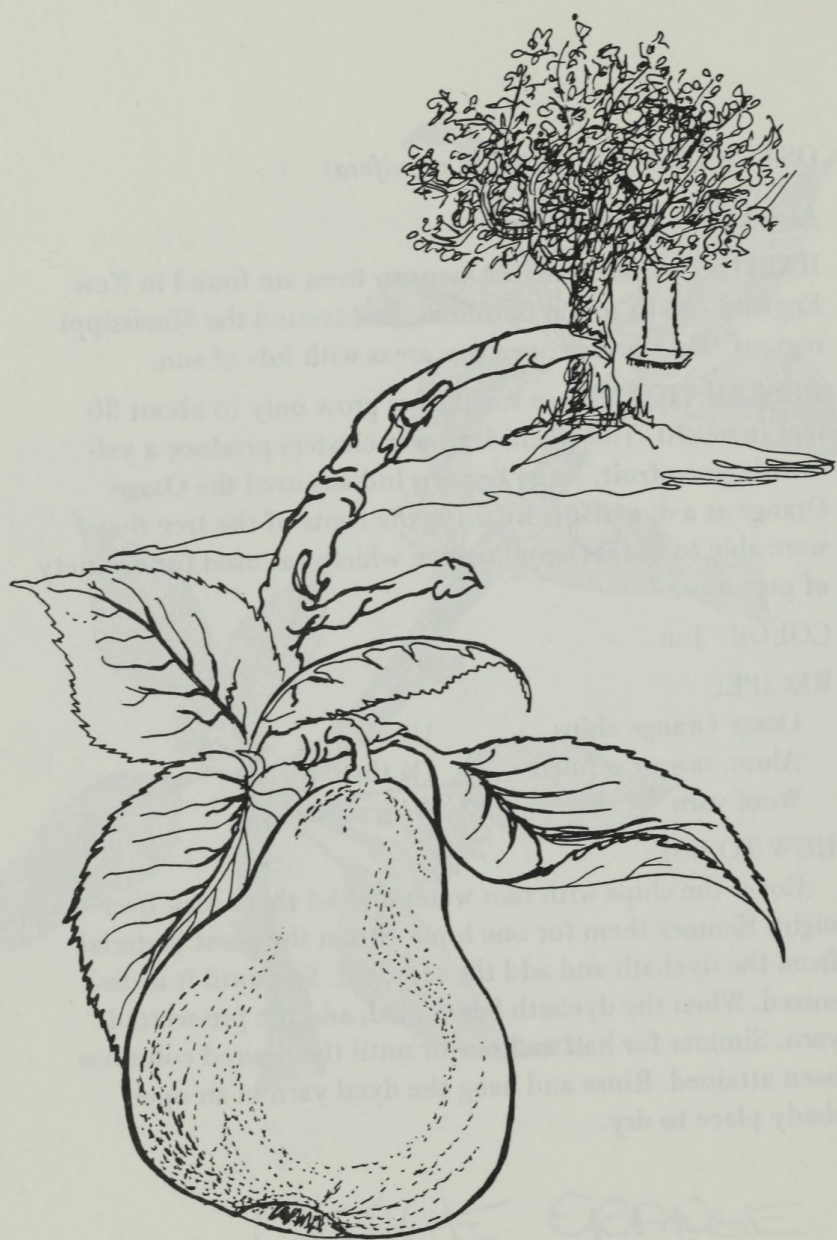
### RECIPE:

Osage Orange chips	1½ oz.
Alum, raw or refined	1¼ tbsp.
Wool yarn	¼ lb.

### HOW TO USE:

Cover the chips with rain water and let them soak overnight. Simmer them for one hour. Strain the plant material from the dyebath and add the mordant. Stir until it is dissolved. When the dyebath has cooled, add the pre-wetted yarn. Simmer for half an hour or until the desired color has been attained. Rinse and hang the dyed yarn in an open shady place to dry.





## PEAR (*Pyrus*)

Also known as Partridge fruit.

**HABITAT:** Pear trees thrive in temperate zones. The varieties found in the U.S. are originally bred from the European pear (*Pyrus pyrifolia*).

**DESCRIPTION:** These close relatives of the apple tree bear a fleshy fruit which varies in fragrance and tartness with each particular variety. However, the bark of all pear trees will yield a beautiful soft yellow dye which is unobtainable with the chemicalized dyes. A good time to gather pear bark is in the pruning season. The bark must be finely chopped before it is added to the dye bath.

**COLOR:** Soft yellow

### RECIPE:

½ lb. pear bark (chopped)

1 gallon rain water

**HOW TO USE:** Place the chopped bark in an enamel vessel and completely cover it with the rain water. Bring the dye bath to a simmer and leave the bark simmer for two hours. Strain the bark and place the pre-wetted wool yarn into the dye liquor for an hour or until the desired color has been obtained. Rinse and hang the dyed yarn in an open shady area to dry.



POKE BERRY

## POKEBERRY (*Phytolacca americana*)

Also known as Redweed, Inkberry, Bear Grape, Pigeon Berry.

**HABITAT:** The Pokeberry covers the eastern half of the United States from Florida and Texas to New England. The plant also grows in many parts of southeastern Canada. This plant is one of Mother Nature's right hands in that it helps her cover the earth in green vegetation where man has strip-mined and plundered. It can be found in open country fields and along rural highways.

**DESCRIPTION:** Pokeberry is an American perennial herb which can grow to 15 feet in height. It has elliptical leaves 4 to 12 inches in length with purplish tinted undersides. The clusters of small white flowers grow on separate stalks, producing great numbers of poisonous purple berries which are the source of the dye. The Pawnee and Ponca used the juice of the berries to obtain the red coloring for their personal belongings.

**COLOR:** Soft Red

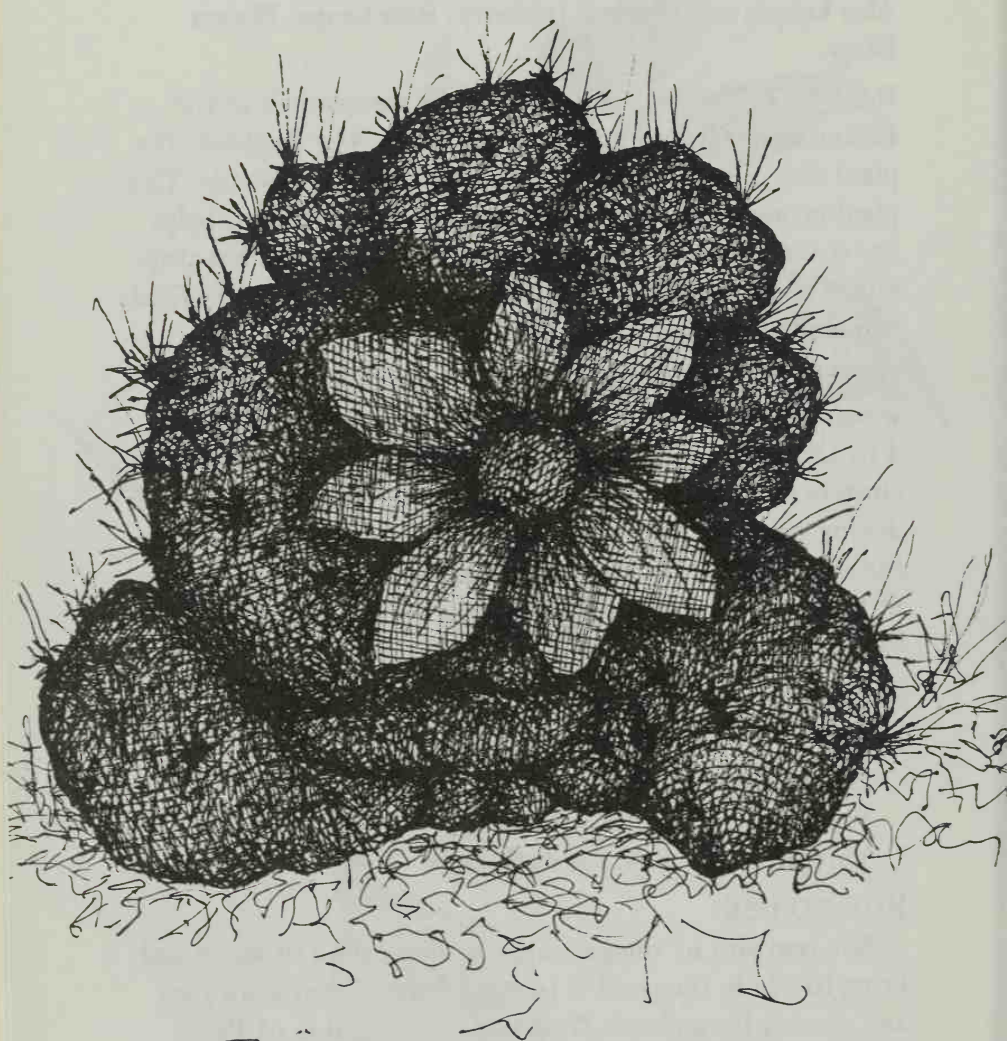
### RECIPE:

Pokeberries	½ gallon
Vinegar	1 pt. for mordant
Vinegar	1 qt. for dyebath

### HOW TO USE:

Mix one pint of vinegar with one half gallon of water and bring to a boil, then add ¼ pound of pre-wetted wool yarn and simmer for an hour. Next combine ½ gallon of Pokeberry juice with one quart of vinegar and bring to a boil. Add the mordanted wool yarn and simmer 45 minutes to an hour, stirring frequently and checking for desired color hue. Remove the yarn from the dyebath and hang up in a shady area to dry. After it has dried thoroughly, rinse well.





PRICKLY-PEAR  
CACTUS



## PRICKLY-PEAR CACTUS (*Opuntia polycantha*)

**HABITAT:** The Prickly Pear Cactus is quite common on the mesas of Arizona and New Mexico. These drought-resistant plants are able to thrive in areas of very little precipitation.

**DESCRIPTION:** This is a low growing cactus which bears beautiful yellow blossoms. The flowers yield a red fruit which ripens in September and October. The Navajo used the fruit of the Prickly Pear to obtain rose and pink dyes. After picking the fruit, they would rub them in the sand with their feet to remove the spines. Peeling the fruit with leather gloves is also quite effective. The fruit may be used either fresh or dried.

**COLOR:** Rose

### RECIPE:

Cactus fruit	1 lb. dried
Wool yarn	¼ lb.

### HOW TO USE:

Soak the dried fruit and then squeeze the juice into 1¼ gallons of rain water. Add the pre-wetted wool and let this stand in a warm area for about a week—a little longer will help set the dye. Work the dye into the wool occasionally. A darker color can be obtained by placing the dyed wool into a fresh dyebath. A light rose can be obtained by adding undyed yarn to the after-bath of the first batch. After the fermentation period, rinse and hang the yarn in a shady area to dry.



RABBIT BRUSH

## **RABBIT BRUSH (*Chrysothamnus bigelovii*)**

Also known as *G'ii Tsoididjoolih* (Navajo).

**HABITAT:** Rabbit Brush species are indigenous to the alkali plains of North America. This species can be found in the open mesas of the Southwest.

**DESCRIPTION:** This shrub grows to about two feet in height. It is most outstanding in the late summer and early fall when it is in full bloom. It covers itself with fluffy, gold-en yellow flowers. The Zuni, Tewa and Navajo used the blossoms for dyeing their wool bright yellow.

**COLOR:** Bright Yellow

### **RECIPE:**

Blossoms and twigs	1 lb.
Alum, raw or refined	1¼ tbsp.
Wool yarn	¼ lb.

### **HOW TO USE:**

Soak the twigs and blossoms in three quarts of rain water for three days and three nights. Strain the flowers and twigs from the dye liquor and heat the dyebath to a simmer. Add the alum, stir until it is dissolved. Add the pre-wetted yarn and simmer for about three hours or until the desired hue is reached. Rinse well and hang the dyed yarn in an open shady area to dry.



RHODODENDRON

## **RHODODENDRON** (*Rhododendron* species)

Also known as Rose Bay.

**HABITAT:** These acid-loving shrubs are native to many areas of the United States. Many species can be found in the hardwood forests in the eastern and southeastern sections of the country. Rhododendrons are quite common in the Pacific coastal forests of California, Oregon and Washington.

**DESCRIPTION:** Rhododendrons are usually evergreen. However, there are some deciduous species. The leaves are usually dark green and elongated. They are noted for their beautiful blossoms, and many species have been cultivated for this reason. They all prefer acid, woodsy soils and partial shade.

**COLOR:** Gray

### **RECIPE:**

Rhododendron leaves (chopped)      2 qts.

Wool yarn       $\frac{1}{4}$  lb.

Use a copper vessel

### **HOW TO USE:**

Soak the leaves for one day in a gallon of rain water. Simmer for 2½ hours in a copper vessel and then strain. When the dyebath has cooled, add the pre-wetted wool yarn and simmer for 30 minutes or until the desired color has been attained. Rinse and hang in an open shady area to dry.





SASSAFRAS

## SASSAFRAS (*Sassafras albidum*)

Also known as Cinnamon Wood.

**HABITAT:** Sassafras trees are native to the eastern half of the United States. There are also a number in the southeastern section of Canada. These trees prefer growing in the hardwood forests. However, a number can be found in abandoned fields and open meadows.

**DESCRIPTION:** These large native trees can reach a height of 125 feet at maturity. The leaves are scented and have two or three lobes. The blossoms bear dark blue fruit. Many of the early homesteaders used the bark for tea and root beers. The roots and bark were also used as a dye source.

**COLOR:** Brown

### RECIPE:

Roots, twigs, leaves (chopped)	1 qt.
Alum, raw or refined	1 tbsp.
Wool yarn	¼ lb.

### HOW TO USE:

Soak the material for one day in a gallon of rain water, then simmer for one hour. Strain the plant material and add the alum. Stir until it is completely dissolved. When the dye-bath has cooled, add the pre-wetted yarn and simmer for 30 minutes. Rinse and hang in an open shady area to dry.



scrub oak

## SCRUB OAK (*Quercus pungens*)

Also known as Small Oak.

**HABITAT:** The *pungens* species of Oak are found in the foothills of the Southwest. However, there are many species of Scrub-type Oaks growing throughout the United States. They can be found growing in a variety of eco-systems, from chaparral to open woods. All species can be used for extracting dye, as they all contain varying amounts of tannin. This tannin can be used as a mordant as well as a dye.

**DESCRIPTION:** *Pungens* species Oaks are generally quite small, due to the amount of moisture available to them in their environment. Their leaves are not lobed but rather oval. The Navajo have used the gall, which grows upon this Oak, for many centuries. Gallnuts are abnormal growths that occur mainly on the branches and leaves of the infected trees. Gallnuts contain a concentrated amount of tannin and therefore make an excellent dye which needs no further mordanting.

**COLOR:** Golden Beige

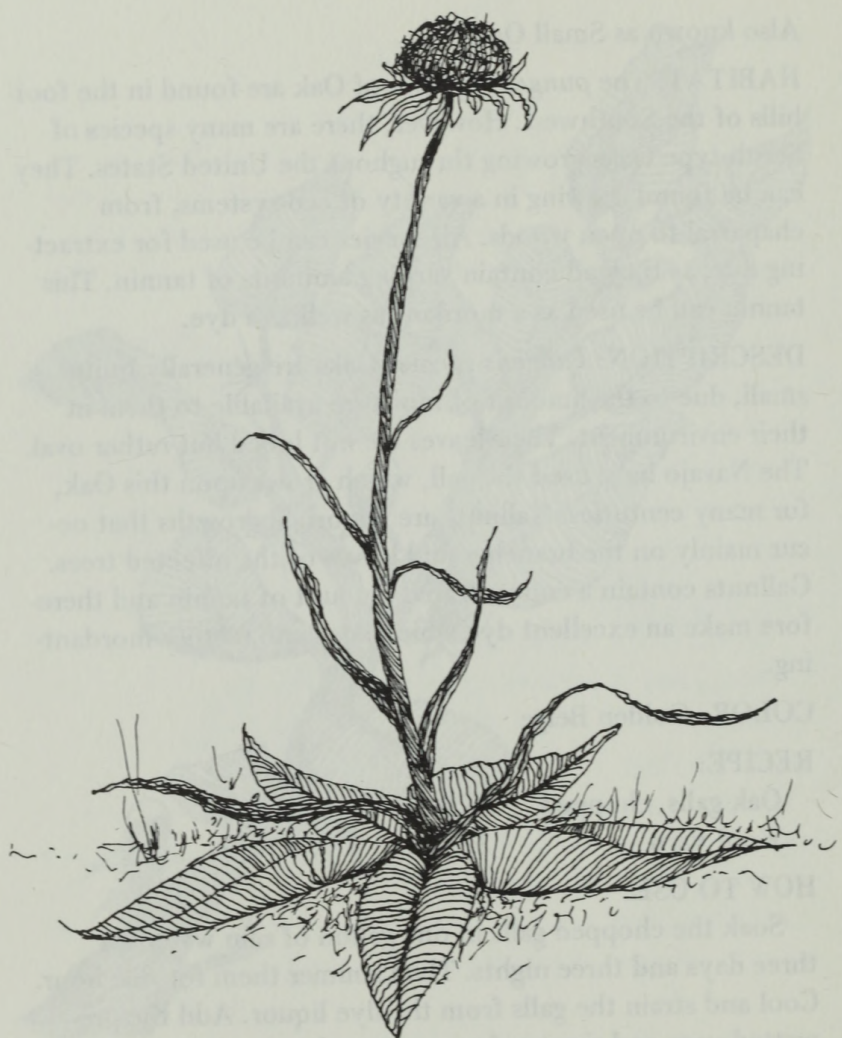
### RECIPE:

Oak galls, chopped	½ lb.
Wool yarn	¼ lb.

### HOW TO USE:

Soak the chopped galls in one gallon of rain water for three days and three nights. Then simmer them for one hour. Cool and strain the galls from the dye liquor. Add the pre-wetted yarn and simmer for one more hour, stirring regularly. Remove from heat and let the yarn cool in the dyebath. Rinse and hang the dyed yarn in an open shady area to dry.





SINGLE FLOWERED ACTINOPHORA



## SINGLE-FLOWERED ACTINEA (*Actinea gaillardia*)

Also known as *Be'oochidi bee' iikhoh* (Navajo).

**HABITAT:** These plants are indigenous to the southwestern section of the United States. They prefer growing at higher elevations in the mountains. They need the protection from the elements that the larger trees can provide, and therefore will be found growing in and around timber stands.

**DESCRIPTION:** These low growing plants have elongated leaves that grow directly from the stalk. They produce only one flower, which matures in mid-summer. The flower head is filled with seeds and is surrounded by yellow petals. The Navajo use this plant to obtain a yellow dye. The entire plant, excluding the roots, is used in extracting the dye.

**COLOR:** Yellow

### RECIPE:

Actinea	¼ lb.
Alum, raw or refined	1 tbsp.
Wool yarn	¼ lb.

### HOW TO USE:

Using an enamel vessel, boil the plant in three quarts of rain water for about two hours. Strain the flower from the dye liquor and add the alum. Stir until the alum is completely dissolved, then add the pre-wetted yarn. Boil for about two hours, stirring occasionally. Let the yarn set in the dyebath overnight before rinsing. Hang the dyed yarn in an open shady area to dry.



Dock Sorrel

## SORREL (*Rumex* species)

Also known as Dock, Veined Dock, Mountain Sorrel, Curled Dock.

**HABITAT:** These hardy plants are native to the entire North American continent. They range from Mexico to Canada and can be found over the entire continental United States. They are quite adaptable to many kinds of eco-systems.

**DESCRIPTION:** The small flowers of these plants bloom near the top of the plants. The stalks are usually erect with ovular to lance-shaped leaves on either side. The Cheyenne used the dried roots of the Veined Dock for coloring their feathers and quills. Many Plains Tribes used the leaves and stems of other species to dye quills and garments.

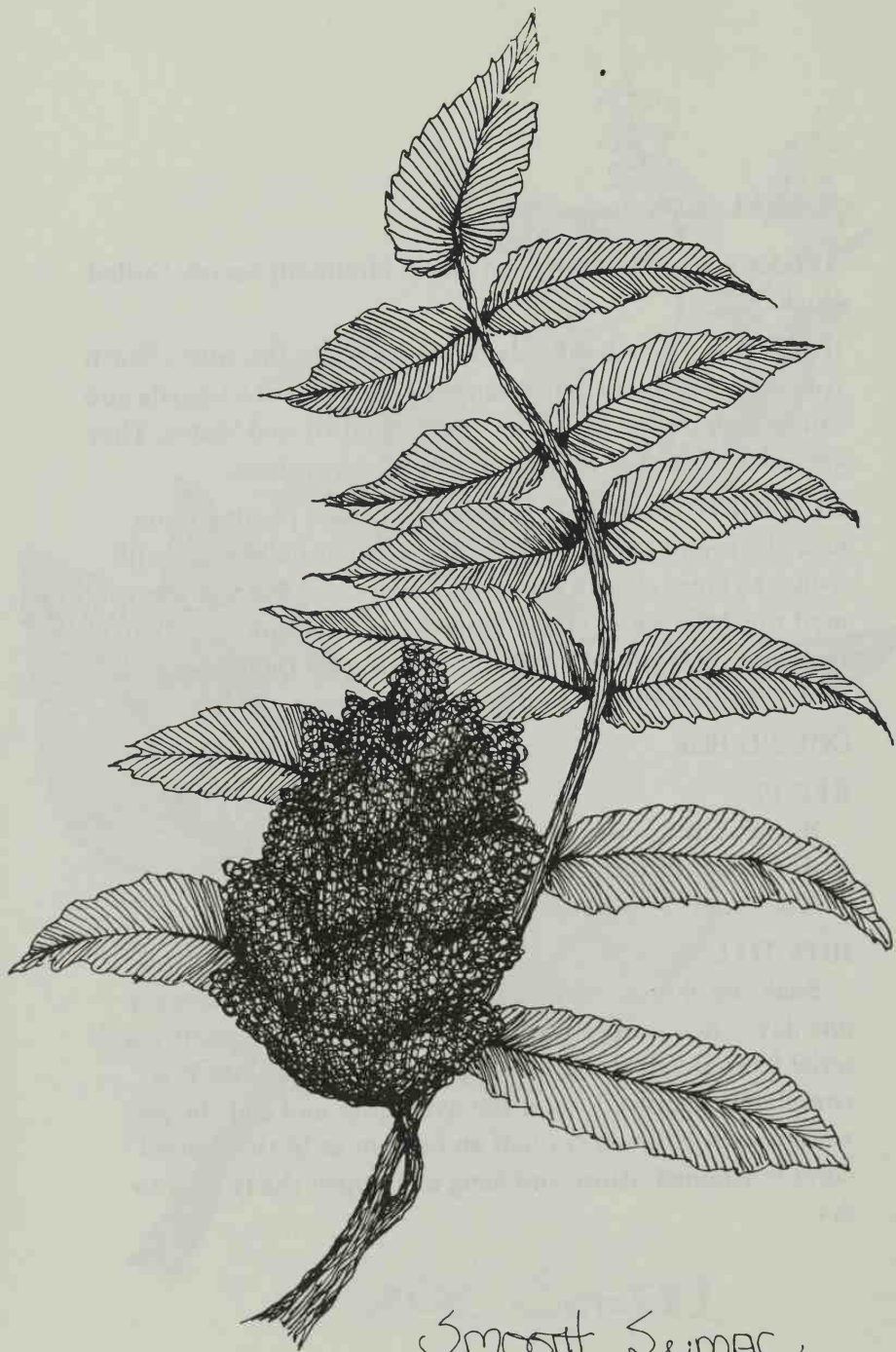
**COLOR:** Blue

### RECIPE:

Sorrel stalks, roots, leaves (chopped)	1½ qts.
Alum, raw or refined	1¼ tbsp.
Wool yarn	¼ lb.

### HOW TO USE:

Soak the chopped Sorrel in 1½ gallons of rain water for one day. Then simmer for an hour and strain the plant material from the dyebath. Add the alum and stir until it is completely dissolved. Cool the dye liquor and add the pre-wetted yarn. Simmer for half an hour or until the desired color is attained. Rinse and hang in an open shady area to dry.



Smooth Sumac

## SUMAC (*Rhus* species)

Also known as *Chii chin* (Navajo), Skunk Bush, Green Sumac.

**HABITAT:** There are members of this genus in every state of the United States. They grow throughout Mexico and Canada. The plants usually prefer dry soils. They can be found in pastures, country fields and woodland meadows. They need very little moisture to thrive, and will be found a little farther from the creek and stream banks than many other plants.

**DESCRIPTION:** There are species that mature at three feet in height and others that grow to 20 feet. The clusters of small greenish flowers produce an abundance of red fruit. Because the plants contain tannin there is no need to mordant the yarn. Many different Indian tribes made use of Sumac. The Menomini used the roots to obtain a dye for their quills and matting. The Thompson River Salish used the berries' dye properties, and the Navajo extracted the dye from the leaves, twigs and berries.

**COLOR:** Brown

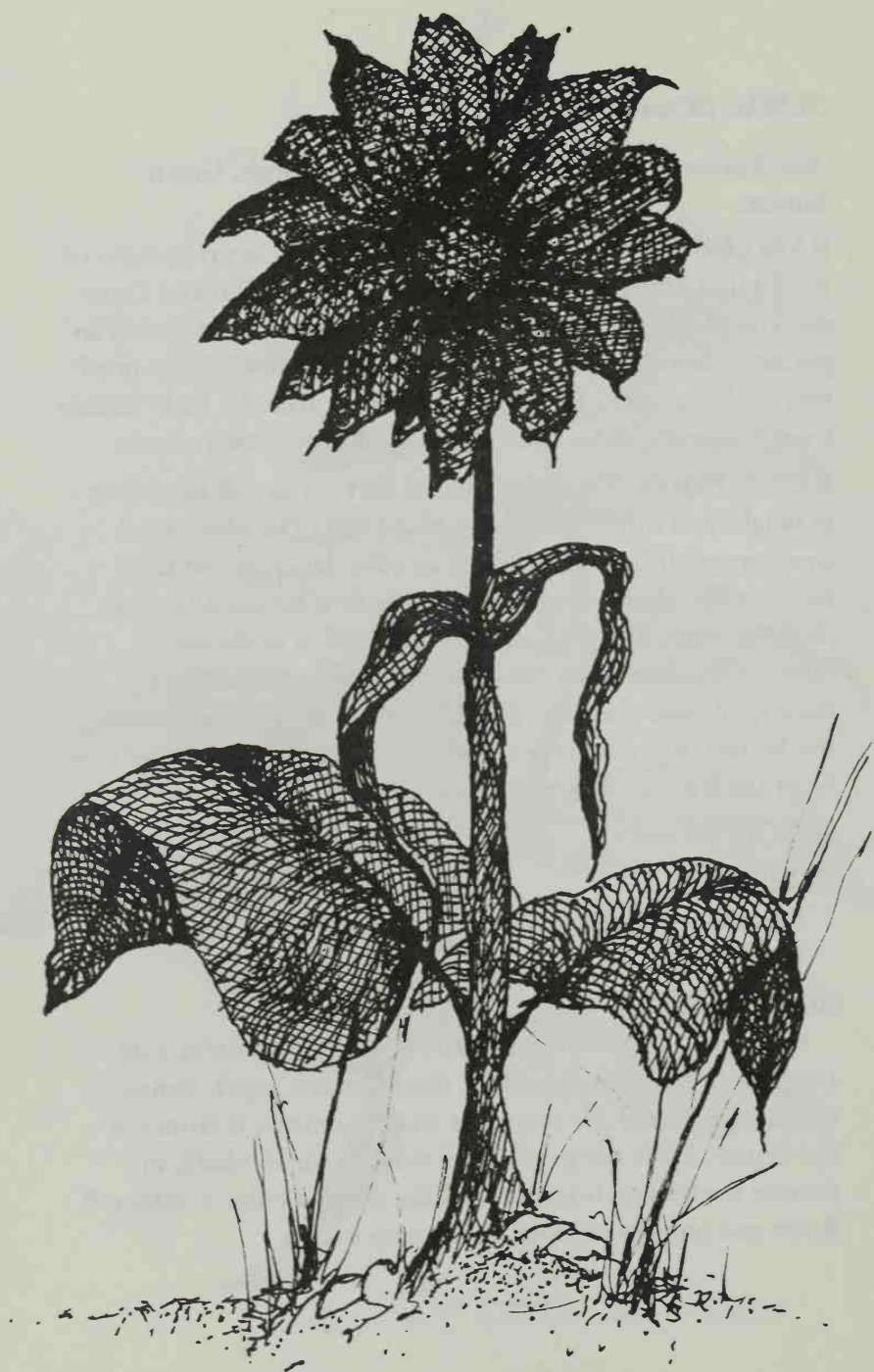
### RECIPE:

Sumac leaves, young shoots	1 lb.
Wool yarn	¼ lb.

### HOW TO USE:

Chop the leaves and young shoots and cover them with 1½ gallons of rain water. Soak them for one night. Simmer the plant material for one hour and then strain it from the dye liquor. Place the pre-wetted wool in the dyebath and simmer for half an hour or until the desired color is attained. Rinse and hang in an open shady area to dry.





## SUNFLOWER (*Helianthus* species)

Also known as Wild Sunflower (*H. annus*).

**HABITAT:** The bright, cheerful Sunflowers which can be found blooming in open fields are native to America. They were recorded as being cultivated for food by the Indians of Roanoke Island in 1586. Wild Sunflowers flourish in over-grazed pastures, fields and waste lands throughout the United States. They are particularly abundant in the Great Plains states.

**DESCRIPTION:** Sunflowers are erect annuals which grow from five to 20 feet in height. They have a rough hairy stem one to three inches in diameter, which terminates in a head three to 24 inches in diameter. The Hopi obtained a blue dye which was used on basketry material by utilizing the seeds. The recipe given here will yield a yellow dye by using the petals as the dye source.

**COLOR:** Yellow

### RECIPE:

Sunflowers	1 qt.
Alum, raw or refined	1 tbsp.
Wool yarn	¼ lb.

### HOW TO USE:

Place the flowers in one gallon of rain water and let them set for 24 hours. Simmer them for one hour and then add the alum. Stir well to dissolve the mordant. Let the dyebath cool and add the pre-wetted wool yarn. Let the dye liquor simmer for 30 minutes or until the desired color has been attained. Rinse the dyed yarn well and hang it in an open shady area to dry.



SWEET GALE

## SWEET GALE (*Myrica gale*)

Also known as Bog Myrtle.

**HABITAT:** These native North American plants thrive in moist acid soils. They can be found near forest streams and ponds.

**DESCRIPTION:** The unique scent of these plants makes them easy to distinguish. The long grayish leaves have been used for years as a medicinal tea. The Flambeau and Ojibwa used the tips of the woody stems to obtain a brown dye. This recipe uses just the leaves. To use the stems would dull the brightness of the dye.

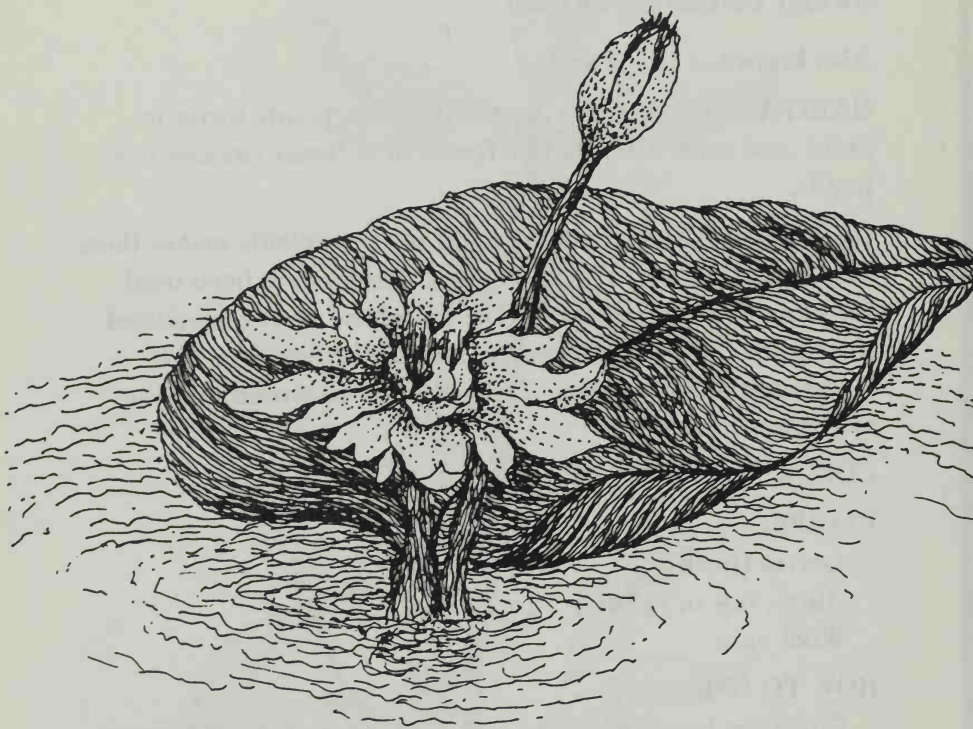
**COLOR:** Yellow

### RECIPE:

Leaves (fresh)	1½ qts.
Alum, raw or refined	2 tbsp.
Wool yarn	¼ lb.

### HOW TO USE:

Cover the leaves with one gallon of rain water and simmer them for an hour. Strain the leaves from the dyebath and add the alum. Stir until it is completely dissolved. Cool the liquid and add the pre-wetted wool yarn. Simmer for an hour or until the desired color has been reached. Rinse and hang in an open shady area to dry.



WATER Lily



## **WATER LILY** (*Nymphaea* species)

Also known as Floating Flower.

**HABITAT:** There are many species of these hardy aquatic plants native to North America.

**DESCRIPTION:** The large, roundish, floating leaves usually support just one blossom. The blossoms oftentimes are large, fragrant flowers which help beautify the still backwaters of America's wilderness. The Klamath used the seeds of a variety of Water Lily which contain tannin, and mixed them with mud in order to obtain a black dye which they used for dyeing basketry fibers.

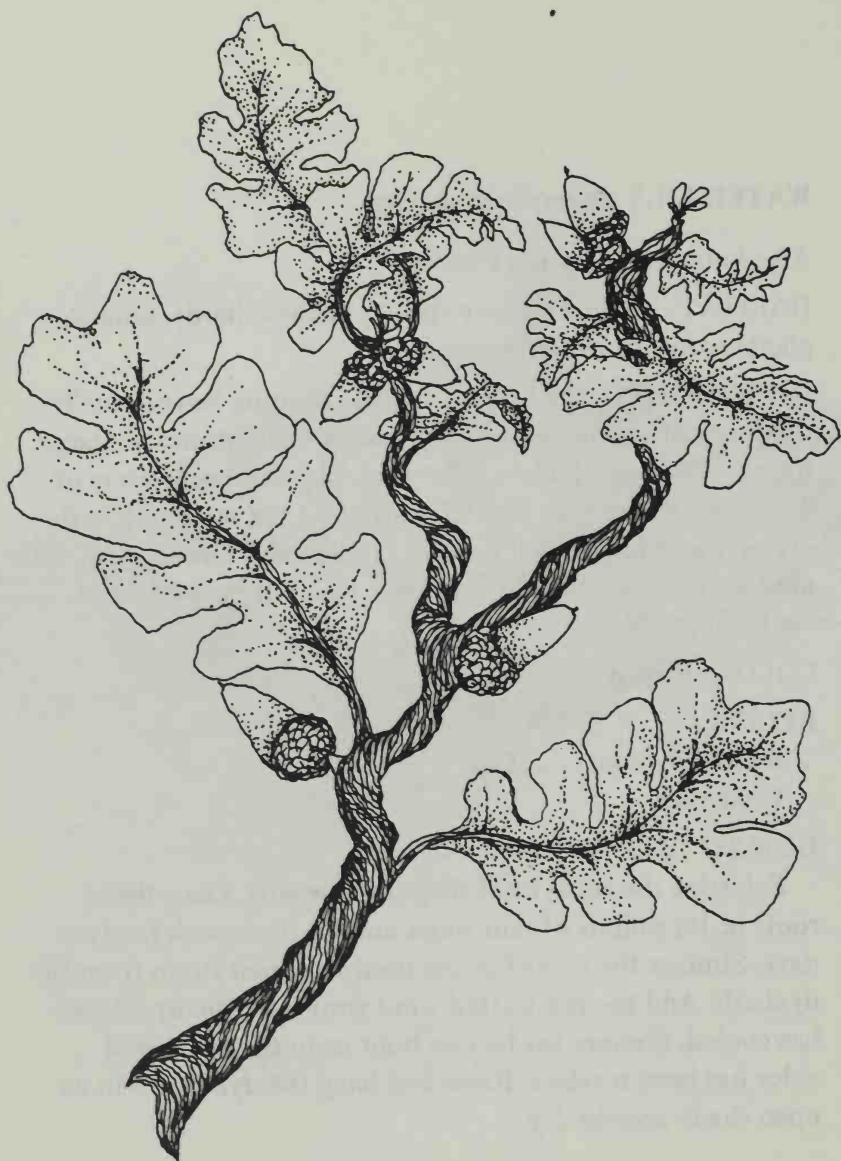
**COLOR:** Brown

### **RECIPE:**

Water Lily roots	1 qt.
Wool yarn	¼ lb.

### **HOW TO USE:**

Pulverize the roots until they become soft. Place these roots in 1½ gallons of rain water and let them soak for two days. Simmer the roots for one hour and then strain from the dyebath. Add the pre-wetted wool yarn after the dye liquor has cooled. Simmer for half an hour or until the desired color has been reached. Rinse and hang the dyed yarn in an open shady area to dry.



WHITE OAK

## WHITE OAK (*Quercus lobata*)

Also known as Valley Oak, California White Oak.

**HABITAT:** White Oak trees can be found growing in areas of moderate rainfall. They range from grassy hillside slopes to forest groves on the valley floors. The White Oak is one of 20 distinct species of *Quercus* that are native to North America.

**DESCRIPTION:** The White Oak is a deciduous tree with lobed verdant leaves. They may be identified also by their slightly elongated acorns which have a shallow cup. The bark casts a grayish white hue. The Maidu used the bark of the White Oak to dye their basketry material. They were able to obtain a black tint by adding rusty nails to the water.

**COLOR:** Buff Brown or Black Tint

### RECIPE:

Soft inner bark	1 lb.
Wool yarn	¼ lb.
Rusty iron (optional)	

### HOW TO USE:

Because of the high tannin content in White Oak bark, no other mordant will be needed to obtain a buff brown. In order to obtain a black tint, place a quantity of rusty nails in the water which will be used for the dyebath and let it set for a week. Place the bark into a gallon of water and heat slowly. Simmer the bark for one hour at 190 degrees. Strain the bark (and nails) from the dye liquor and let it cool. When the dyebath has thoroughly cooled, add the pre-wetted wool and let it simmer for one hour. Rinse till the water becomes clear.



WILD GRAPE

## WILD GRAPE (*Vitis* species)

Also known as Mountain Grape, Vining Grape.

**HABITAT:** Many different species of grapes are native to the United States. Excellent wine grapes are grown in many areas of California. Open woodlands are favorite growing areas of many wild grapes.

**DESCRIPTION:** The leaves are much smaller on the wild grapes, as are the fruits. The fruits are not as fleshy as the cultivated varieties. The wild grapes usually do not produce the quantity of fruit and are not as high in sugar content as the domestic species. However, they are an excellent source of natural dye material.

**COLOR:** Lavender to Gray

### RECIPE:

Fruit (crushed)	3 qts.
Alum, raw or refined	1¼ tbsp.
Vinegar	¼ cup
Wool yarn	¼ lb.

### HOW TO USE:

Place the crushed berries in 1½ gallons of warm rain water and let them set for one day. Add the alum and simmer for 30 minutes, stirring to thoroughly dissolve the mordant. Strain the plant material and add the pre-wetted wool yarn after the dyebath has cooled. Simmer the yarn for 20 minutes in the dye liquor, and then place it into an after-bath of ½ gallon of warm rain water and ¼ cup vinegar. Rinse and hang in an open shady area to dry.





Wild Plum

## **WILD PLUM** (*Prunus americana*)

Also known as Wild Prune, Wild Cherry.

**HABITAT:** These native shrubs and trees thrive in many areas of the United States and Canada. There are over 30 native species to be found growing in a variety of climatic conditions.

**DESCRIPTION:** Depending on the variety of plum, the trees may reach 35 feet in height at maturity. A shrub species of Wild Plum was used by the Navajo and several Pueblo tribes to obtain a red dye which was used on a variety of articles. The small white flowers grow in clusters of an umbrella shape. The flowers bear the reddish fruits which are highly prized by the woodland creatures.

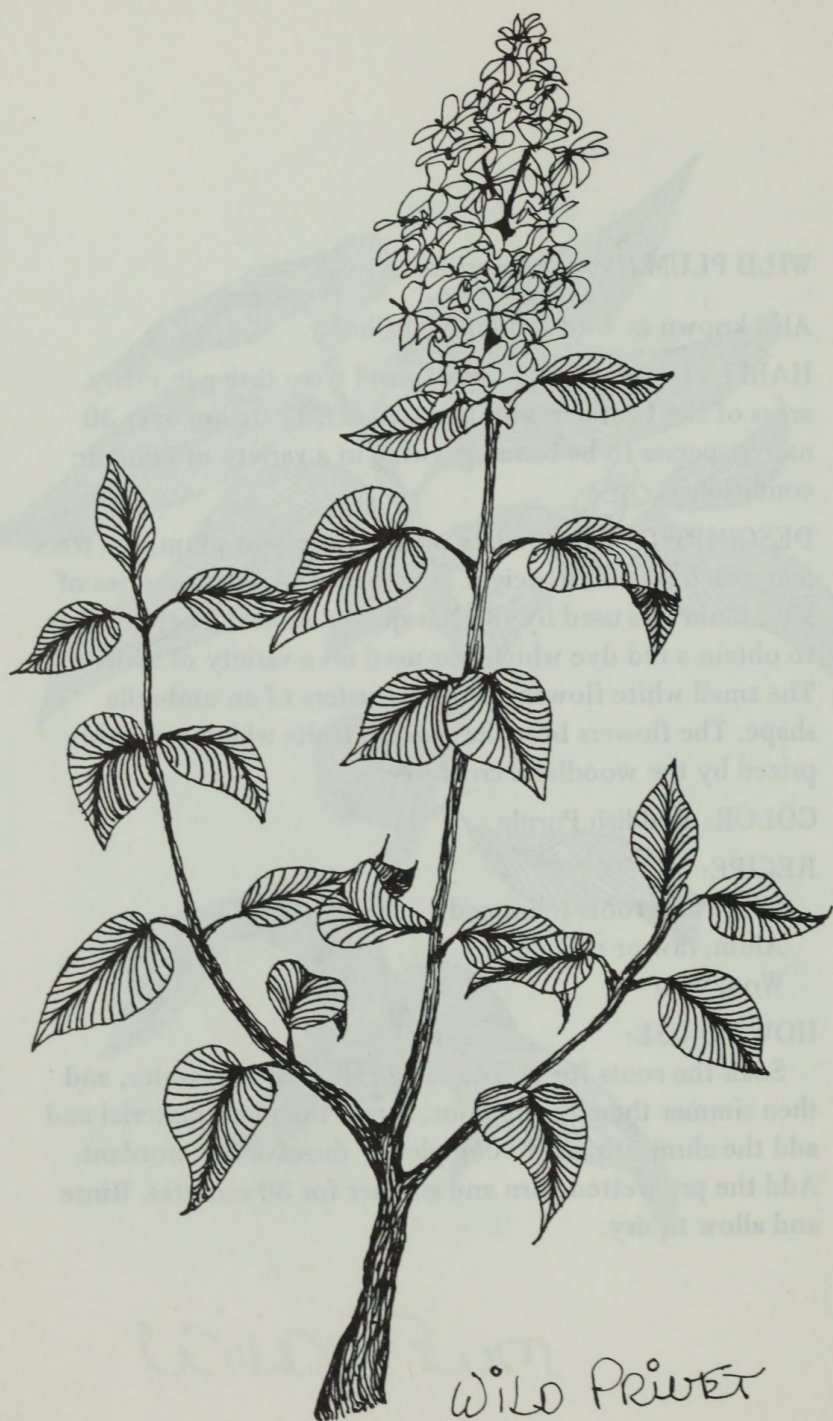
**COLOR:** Reddish Purple

### **RECIPE:**

Wild Plum roots (chopped)	½ qt.
Alum, raw or refined	1 tbsp.
Wool yarn	¼ lb.

### **HOW TO USE:**

Soak the roots for one day in a gallon of rain water, and then simmer them for an hour. Strain the plant material and add the alum, stirring to completely dissolve the mordant. Add the pre-wetted yarn and simmer for 30 minutes. Rinse and allow to dry.



WILD PRIVET

## WILD PRIVET (*Forestiera neomexicana*)

Also known as Ironwood, *Ma'iiada'* (Navajo, "Coyote Food").

**HABITAT:** Wild Privet is indigenous to the American Southwest. It grows in areas of accessibility to the Hopi and Navajo and prefers the lower elevations of the foothills.

**DESCRIPTION:** Wild Privet grows in either tree or shrub form, depending on the amount of moisture available. The wood of this shrub is exceptionally hard. The leaves are slightly elongated with fairly smooth edges. The small flowers produce numerous berries which ripen in the late summer. The Navajo make use of the berries and twigs for ceremonial purposes, and cannot eat them for this reason. However, they do make a gray dye from the berries when the fruit turns from red to blue in the latter part of August.

**COLOR:** Light Gray

### RECIPE:

Wild Privet berries	½ lb.
Wool yarn	¼ lb.

### HOW TO USE:

Boil the berries in a gallon of rain water for about 15 minutes and add the pre-wetted yarn. Continue to boil the liquid for another half hour before removing from the heat. Let the wool ferment in the dyebath for about four days, stirring occasionally. Rinse and hang the dyed yarn in an open shady area to dry.





Willow



## WILLOW (*Salix* species)

Also known as Weeping Willow, Black Willow, White Willow.

**HABITAT:** Willows grow throughout the United States and Canada. They are water-loving trees and will be found growing around creeks, ponds and lakes.

**DESCRIPTION:** These deciduous trees and shrubs produce catkins and are usually identified by their narrow, long leaves. The catkins usually appear early in the spring, sometimes before the leaves are out. The twigs of these trees were widely used by many Indians. There are many varieties that are suitable for basket weaving. The Potawatomi dyed their ornamental dress by extracting red dye properties from the roots of the Willow.

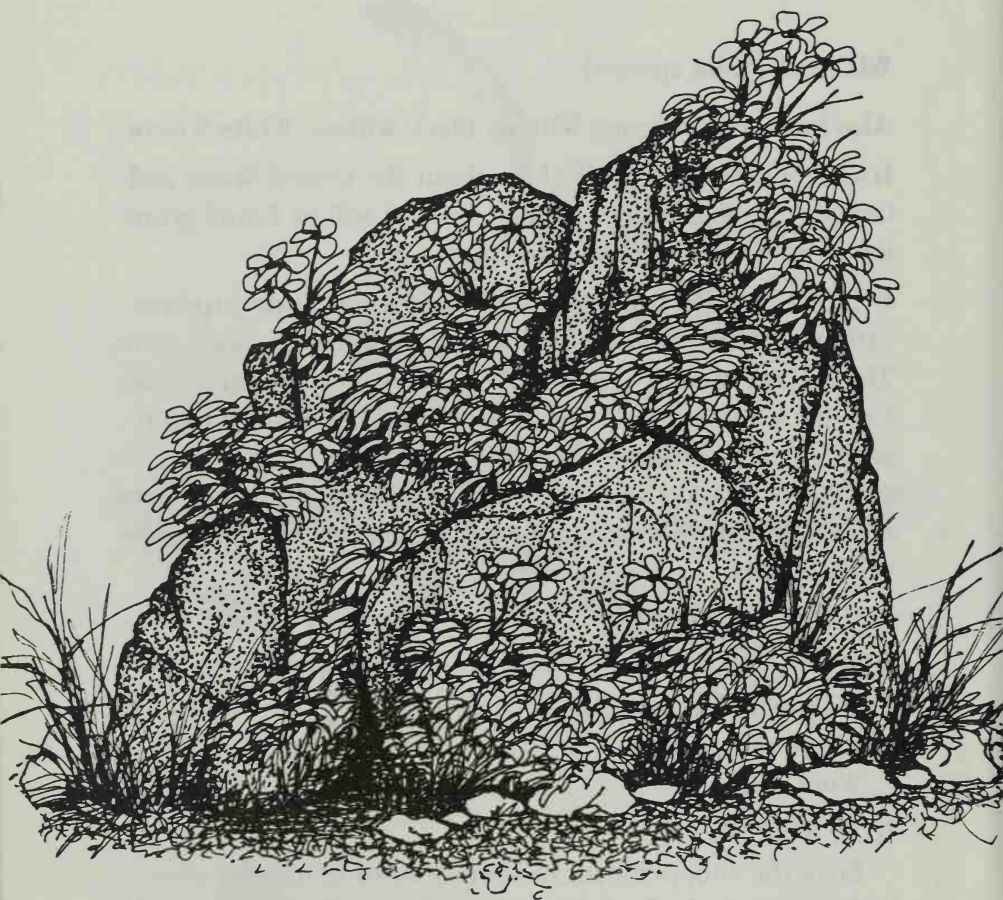
**COLOR:** Rose Tan

### RECIPE:

Willow bark (chopped)	2½ qts.
Alum, raw or refined	1½ tbsp.
Wool yarn	¼ lb.

### HOW TO USE:

Soak the chopped bark in 1½ gallons of rain water overnight. Simmer the bark for an hour. Strain the bark from the dyebath and add the alum, stirring until it is dissolved. Add the pre-wetted yarn and simmer for 20 to 30 minutes, depending on the color desired. Rinse and hang the dyed yarn in an open shady area to dry.



Wolf Moss

## WOLF MOSS (*Evernia vulpina*)

Also known as Lichen.

**HABITAT:** These lichen can be found growing on large rocks in California and Oregon. They are quite common and can be found in a variety of climates. The foothills of the Coastal Range are a good source of these species. It is best to look in semi-exposed areas where the large rocks are offered a little protection. If the lichen is harvested in August it will yield a stronger dye color.

**DESCRIPTION:** Wolf Moss can be distinguished from other lichen by its branched green appearance. Many tribes used Wolf Moss as a dye source to obtain yellow tinting material. The Hupa used the plant, as did the Klamath. The dye was used on a variety of articles, such as porcupine quills and baskets. It was also used to a lesser extent as a body paint.

**COLOR:** Yellow

### RECIPE:

Wolf Moss lichen      ¼ lb.

Wool yarn              ¼ lb.

### HOW TO USE:

Cover the lichen with three quarts of rain water and simmer for one hour. Strain the plant material and let the dye-bath cool. Place the pre-wetted wool in the dye liquor and let it simmer for half an hour or until the desired color has been attained. Hang the dyed wool in an open shady area to dry after it has been thoroughly rinsed. The Indians believed that a faster color would be obtained if the dyed material was laid on rocks to dry.

## WOLF MOSS (*Veronica vulgaris*)

Also known as *Veronica*.

HABIT: The plant can be found growing on large rocks in the mountains. They are quite common and can be found in the mountains of the Central Range. The plant is a small, low-growing, leafy plant with a little bit of a woody stem. The leaves are small and round, and the flowers are small and white. The plant will yield a greenish-grey dye.

DETAILED INSTRUCTIONS: The plant is a small, low-growing, leafy plant with a little bit of a woody stem. The leaves are small and round, and the flowers are small and white. The plant will yield a greenish-grey dye. The plant is a small, low-growing, leafy plant with a little bit of a woody stem. The leaves are small and round, and the flowers are small and white. The plant will yield a greenish-grey dye.

COVER THE PLANT WITH THE JUICE OF THE WATER AND THE JUICE OF THE PLANT. STAIN THE PLANT A LITTLE AND LET THE DYE SET FOR ONE HOUR. PLACE THE GREY-WOOL WOOL IN THE DYE BATH AND LET IT SIMMER FOR HALF AN HOUR OR UNTIL THE DESIRED COLOR HAS BEEN ATTAINED. RING THE DYE WOOL IN AN OPEN SHED, LET TO DRY AFTER IT HAS BEEN THOROUGHLY RINGED. THE INDIANS BELIEVED THAT A LARGER COLOR WOULD BE OBTAINED IF THE DYE WOOL WAS Laid ON TWICE TO DRY.



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## NOTES

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