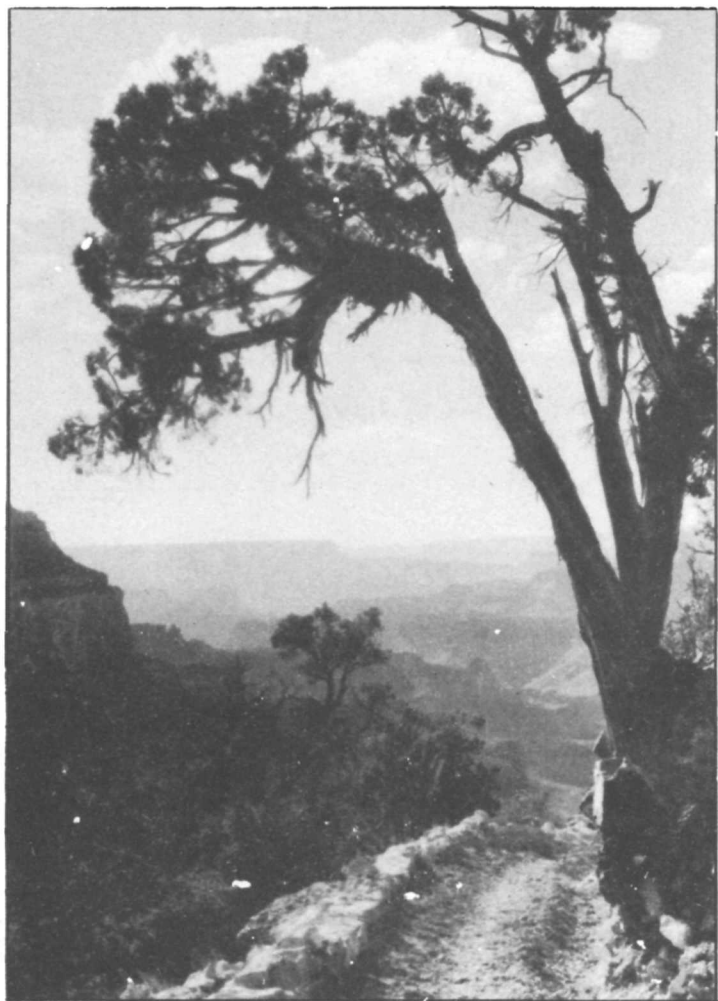


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UTAH
JUNIPER

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INDIAN USES OF JUNIPER IN THE GRAND CANYON REGION

By Donald Edward McHenry, Junior Naturalist.

Introduction

It has been said that the Indian of our Southwest can raise, clothe and feed his entire family on the sparse vegetation of the region where a white man would starve. Among the many plants which these Indians use is the so-called "Cedar". This tree, however, is not a true cedar; there are no true cedars native to the United States, although the name has been applied not only to our native junipers but also to such trees as hemlocks, some spruces and firs, and to the *Arbovitae*.

In the Grand Canyon region there are several species of juniper commonly called cedars. Of these, three are found within the limits of the Grand Canyon National Park; the Rocky Mountain Red Cedar (*Juniperus scopulorum*), the Utah Juniper (*Juniperus utahensis*) and a low, somewhat inconspicuous plant named the Dwarf Juniper (*Juniperus communis*). The Rocky Mountain Red Cedar is not very plentiful in the Grand Canyon region; the Dwarf Juniper is confined almost entirely to the underbrush of the higher parts of the Kaibab Forest; but the Utah Juniper is quite common throughout the entire region, extending well down the slopes of the canyon.

The Juniper Among Ancient Indians

From the junipers and related species found in the outlying parts of the Grand Canyon region come some of the food, clothing, medicine and ceremonial objects used, not only by the present day Indian, but also by his prehistoric ancestors as well. Harrington, who discovered in Gypsum Cave, Nevada, the remains of very ancient, prehistoric juniper cordage, gives us an insight into some of the practices of these early

Indians.¹ There are many similar evidences which help make the story fascinating. At the end of the Basket Maker II period, there appeared unfired clay containers, moulded in baskets to prevent cracking as the clay dried. A binder of juniper bark was used to further strengthen these containers.² At another time ten juniper bark cradles, bound with yucca fibres were found.³ There are many indications that juniper bark was a very important raw material in the Basket Makers' industry, as it was used in making cradles, sandals, torches, and as padding for bed nets and baby carriers. Sometimes it was woven into bags.⁴

An examination of the ruins of ancient pit-houses or earth-lodges reveals that "When the roof framework was completed, the whole was covered by pine bark, juniper bark or grass" which, in turn, was covered with earth.⁵ It is evident that the walls of these dwellings "were built by trenching around the floor on all four sides and poles were placed in these trenches touching each other. This also applied to sloping roof of poles. In this trench, poles of pine, pinyon or juniper, two and one half inches in diameter, were set on end in the form of a palisade, each touching those on both sides".⁶ In this construction, juniper bark was sometimes used to lash the timbers together. In another variation of the prehistoric pit house "a series of posts about six inches in diameter was set around the floor at intervals of about one foot. Behind these posts and fastened to them, was a wall-covering of reeds brush or bunch grass. Shredded juniper bark was also used. Charred remains of this matting have been found, but no evidence of the method of fastening the mat against the posts was ever seen".⁷

1. Harrington, 1933

2. Roberts, 1931, p. 3

3. Kidder & Guernsey, 1919, p. 165

4. Ibid, p. 175

5. Hargraves, 1933, p. 32

6. Ibid, p. 29

7. Ibid, p. 33

The Juniper Among the Modern Indians

USE AS A FOOD

THERE is a certain fascination in the archaeology of this region which merges imperceptibly into the customs and traditions of the present day Indians. Here we find nations with strange manners of living, unfamiliar religious beliefs, and ceremonies which intrigue the imagination. After seeing the unfamiliar and often weird forms of sparse vegetation which cover that area which these people call home, it is hard to believe that these are the things from which the Indians eke out a part of their living.

The Havasupai Indians, a small tribe who dwell near the bottom of Grand Canyon, eat the berries of the Utah Juniper as food.⁸ The Yavapai Indians to the south of the Grand Canyon eat the berries of the Alligator-barked Juniper (*Juniperus pachyphloea*), which they call djokyalka. These berries are collected after they have fallen to the ground, pulverized in a bed-rock mortar, soaked in water, put into the mouth by the hand-full, and the juice sucked. The solid matter is then spat out.⁹ Gifford,¹⁰ states that the Yavapais also parch and eat "cedar" berries which they call joka. At the Hopi pueblo of Hano the young people and children eat the berries as a delicacy. They are considered more palatable if heated in an open pan. The Hopis of this same pueblo also chew the gum of the juniper with relish.¹¹ At the Hopi pueblo of Oraibi the inhabitants eat the juniper berries only as a last resort.¹²

8. Father Garces Report

9. Gifford, 1932, p. 212

10. Ibid, p. 219

11. Robbins, Harrington, & Freire-Marreco, 1916

12. Otto Lomavitu, 1934

DOMESTIC USES.

Among the Havasupai Indians a pa'm drill is sometimes used to kindle a fire, using rubbed dry juniper bark for tinder.¹³ If the reader has ever enjoyed the aroma of burning juniper wood, he will understand one reason why it is the favorite fire-wood of the Tewa, Zuni, and other Indians of the Southwest. At the pueblo of Hano the juniper is used extensively for fire-wood, and the bark is in daily use as tinder and kindling material. Long shreds of juniper bark, bound compactly with yucca fibres, were formerly used as torches, in illuminating the home or in carrying fire from house to house.

In New Mexico the wood was formerly used by the Indians in making bows. At Hano small ceremonial bows of juniper branches provided with yucca strings are carried by some of the Katchinas during the K'awot'o.¹⁴

Among the Yavapais a slow-match of juniper bark, wrapped with yucca fibre, serves to carry fire and to warm the hands in snowy weather. By blowing, it becomes a torch for night travel which is, however, infrequent because of the fear of enemies rather than of ghosts.¹⁵ The Havasupais also find it convenient to carry a slow-match when traveling, as do the Navahos.¹⁶ Usually this torch is a rope of rubbed juniper bark, etc, blown on from time to time.

Many Indians manufacture water vessels from various vegetable fibres. "In water-proofing new twined bottle-necked basket, 'made by the Yavapais,' the exterior was first rubbed with pulverized juniper leaves mixed with water, sometimes with red clay added. This filled the interstices and made the surface ready for the application of piñon pitch."¹⁷

13. Spier, 1928, p. 143

14. Robbins, Harrington, & Freire-Marreco, 1916

15. Gifford, 1932, p. 205

16. Spier, 1928, p. 144

17. Gifford, 1932, p. 219

Among the Havasupais gourds grown in the bottom of the Grand Canvon are infrequently used as water vessels. The stem end of the neck is cut off square and stoppered with grass, crushed juniper bark or a corn cob.¹⁸

There are still other ways in which plant fibers play an important part in the home life of the Southwest Indians. In extracting the fibers from the yucca, the leaves are folded and placed in a pot of boiling water to which a small quantity of juniper ashes is added.¹⁹

Sleeping mats are made from juniper bark by the Havasupais. The bark is pounded until soft and then woven into rectangular mats. The ends are bound by stitching. Smaller mats, somewhat elliptical, are used by children. These smaller mats are coiled from the center outward, and the warp is held in place by twined wefts placed radially. Neither blankets nor clothing are made from juniper bark,²⁰ however, mats woven spirally, are found among the Navahos.

The life of the Havasupai baby is intimately associated with juniper. The baby is covered with juniper bark rubbed soft, then wrapped tightly in a blanket and placed in its cradle. Infants are kept in cradles most of the time until they are able to walk. Among the toys of the Havasupai children are dolls (gwedš'ē, meaning something to play with) made of juniper bark.²¹

The juniper often appears as part of the construction of the modern Indian home. At the pueblo of Hano the bark of the juniper is used to chink up the walls and roofs of log houses built after the Navaho fashion.²²

About their houses and lands some of the Navahos build wind-breaks and sand-break hedges or fences of juniper boughs. They also use it in making the Ye-bet-chi corrals.²³

18. Spier, 1928, p. 145

19. Stevenson, 1915, p. 78

20. Spier, 1928, p. 146

21. Ibid, p. 302

22. Robbins, Harrington, & Fire-Marreco, 1916

23. Smith, 1931, p. 240

Although the Havasupais apparently do not use the juniper in constructing their homes, "the winter house on the rim is located in a clearing, just big enough for the house alone in the midst of a dense 'cedar' (juniper) or piñon thicket because they are warmest."²⁴

MEDICINAL USES.

The Indians of the Southwest make more or less use of real or supposed medicinal properties of native plants. Among the Havasupais the leaves of the juniper and of two unidentified plants, (ágwa Oika and tcikáválá) which grow on the Tonto Plateau down in the Grand Canyon, are boiled together for a cold.²⁵

The Havasupais believe that burning with a juniper bark torch prevents rheumatism and throwing the torch over the shoulder improves the memory.²⁶ A Havasupai boy is instructed to run towards the dawn as far as he can before turning back. He carries a slow-match. When he starts to return he touches this to his ankles, knees, wrists and elbows to keep them from becoming rheumatic, then throws the slow-match back over his head. This is supposed to enable him to recall a forgotten article before he is far from camp.²⁷

The Yavapais give a woman a warm decoction of juniper leaves to drink after the birth of her first child.²⁸ "Delicate twigs are roasted in the fire-place and then steeped in hot water and the tea is drunk by women previous to childbirth to promote muscular relaxation. The tea must not be taken long before parturition, otherwise the child (will) be dark in color. When possible, twigs bearing mistletoe are collected as they are supposed to be more efficacious. The tea is taken also after childbirth to hasten the cessation of catamenia."²⁹ At the Santa Clara and San Ildefonso pueblos in

24. Spier, 1928, p. 173

25. Ibid, p. 285

26. Ibid, p. 287

27. Ibid, p. 323

28. Gifford, 1932, p. 199

29. Stevenson, 1915, p. 55

New Mexico this decoction is also used, the mother not only drinking it but also bathing in it.³⁰ On the fourth day after child-birth, the "lying in" women of Hano pueblo were formerly fumigated with juniper leaves placed on hot coals during the first four days after delivery. The Yavapais at McDowell, Arizona, say they have used juniper for this purpose as long as they have lived in the mountains.³¹

Because juniper is considered "hot" by many of the Indians almost every part of it is used for "cold" conditions. The Tewa Indians use the berries as well as a decoction of them in water. They are said to be an active diuretic.³¹

Other ills are treated in various ways by the use of juniper. At Hano pueblo the leafy twigs are toasted and bound tightly over a bruise or sprain to reduce the pain and swelling. At Santa Clara pueblo the juniper gum is used to fill decayed teeth.³¹

At the pueblo of Oraibi the raw juniper gum as it is taken from the tree, is applied to a sore to draw out infection and build up healing tissue. It is necessary to remove the gum at the proper time, as under its healing influence new tissue will accumulate and produce a noticeable protusion of the flesh.³² The Havasupais use both juniper and piñon gum for covering a cut or sore in much the same manner as we use New-Skin or similar preparations. This practice seems to be rather common among all the Southwestern tribes.³³

CEREMONIAL USES.

The many ceremonies of the Southwestern Indians are some of the most fascinating phases of their lives. Some of the dances of the Hopis are of a purely social aspect, while others are as deeply religious to them as the most sublime Chris-

30. Robbins, Harrington, & Freire-Marreco, 1916
31. Ibid

32. Otto Lomavitu, 1934
33. Henry Hanna, 1933

tian church service. Among the Havasupais the dances are merely times of thanksgiving and merry making. Between these extremes are the dances of the Navahos which are performed principally for the purpose of getting rid of evil spirits which they believe inhabit the body of a sick person. Even in these dances the purely social side is not neglected. Whether the ceremony is one of religious import or a time of gay festivity, the various plants of the region are used extensively, either as symbols or merely as decorations.

On occasion, it is quite a common practice for some Indians to paint not only their persons but also the various instruments which they employ. The Yavapai shamans paint blue green designs of their bull-roarers with a pigment made by macerating together sticky juniper leaves with the leaves of a tree called wiltoki, which grows at high altitudes. A green juice exudes from the latter when squeezed. No pine pitch is mixed with the pigment to make it adhere.³⁴

Juniper branches are used in some dances, and at Hano they are sometimes used as a hasty substitute for Fsele (Douglas Spruce).³⁵ At Santa Clara the impersonator of an 'Ok'uwa called ju'ndi''sendo (a katchina) wears a head-dress of juniper bark.³⁶

In the fire dance of the Night Chant of the Navahos, the dancers leap into the flames and light the thick rolls of juniper bark they carry. As the dance comes to a close, four priests, singing a slow chant, approach the sick man. With juniper boughs they touch his mouth, eyes, ears, the soles of his feet and the palms of his hands. Then these branches which have drawn the last lingering devil from the man seeking relief, are tossed into the fire and the ceremony ended.³⁷

In the Ye-bet-chi ceremony of the Navahos, a clown brings up the rear of the dancers. His costume consists only of juniper branches tied to various parts of his person which, as

34. Gifford, 1932, p. 200

35. Smith, 1931, p. 40

36. Ibid, p. 40

37. Ibid, p. 250

he capers, keep slipping down.³⁸

At the end of a Navaho burial the twomen who have attended the departed one, back carefully away from the grave carrying bunches of juniper twigs in their hands and smoothing out their tracks so that the devil cannot follow them from the grave.³⁹

Juniper is a favorite fire-wood of the Zuni Indians, but its most important place is in their ceremonials. The fibrous bark is used as tinder to ignite the sparks from the fire stick used in making the New Year fire. At other times, fire brands are made of the bark and carried by impersonators of certain gods, the most conspicuous being Shu-laa-witsi, deputy to the Sun Father.⁴⁰

The Hopi Indians use a tea brewed from juniper twigs in the "baptism" of a child, and also bathe the mother. At the end of the ceremony a very hot rock is dropped into the brew and a blanket thrown around it and the mother, symbolizing the sweat bath and the mother's final purification.⁴¹

These and doubtless many other uses make the juniper one of the most valued plants among the Indians of the Southwest. It may be that with such interesting glimpses into the lives of these people, as illustrated by their use of juniper and pinyon,⁴² we may better realize the truth of the axiom that the Indian of the Southwest, and the Grand Canyon region in particular, can raise, clothe and feed his entire family on the sparse vegetation of a region where a white man would starve to death.

38. Smith, 1931, p. 250

39. Ibid, p. 214

40. Stevenson, 1915, p. 93

41. Smith, 1931, p. 142

42. Grand Canyon Nature Notes,
Vol. 8, #9, Dec. 1933.

BIBLIOGRAPHY and AUTHORITIES

American Ethnology, Bureau of,
Bulletin 32,
Washington, D.C. 1926

Coolidge, Mary Roberts and Dane,
The Navajo Indians,
Houghton Mifflin Co., New York, 1930

Gifford, E. W.,
The Southwestern Yavapai,
Univ. of Calif. Publications, Vol. 29, No. 3,
Berkeley, California, 1932.

Hanna, Henry,
Personal Communication 1934
Havasupai Indian Reservations, Arizona.

Hargrave, L. L.,
Bulletin 4,
Museum of Northern Arizona. 1933

Harrington, M. R.,
Gypsum Cave
Southwest Museum Papers, No. 8.,
Los Angeles, California, 1933

Judd, Neil M.,
Ruins North of the Rio Colorado,
Bulletin 32, Bureau of American Ethnology,
Washington, D. C. 1926

Kidder and Guernsey,
Archaeological Explorations in Northeastern Arizona.
Bulletin 65, Bureau of American Ethnology,
Washington, D. C. 1919

Nature Notes, Grand Canyon,
Vol. 1, Nos. 3, 4, 1926 Pinon Pine by G. E. Sturdevant,
Vol. 5, No. 12, 1931, Pinon Pine Nuts, by R. A. Redburn.

BIBLIOGRAPHY and AUTHORITIES (Continued)

Lomavitu, Otto,
Personal Communication 1934,
Pueblo of Araibi,
Hopi Indian Reservation, Arizona.

Robbins, W.W., Harrington, J.P., & Freire-Marreco, Barbara,
Ethnobotany of the Tewa Indians,
Bulletin 55, Bureau of American Ethnology.
Washington, D. C. 1916

Roberts, Frank H. H. Jr.,
The Ruins of Kiatuthlanna,
Bulletin 100, Bureau of American Ethnology,
Washington, D. C., 1931

Robinson, Will H.,
Under Turquoise Skies,
MacMillan Co., New York, 1928

Smith, Dama Margaret,
Hopi Girl
Stanford University Press, Stanford, California, 1931

Spier, Leslie,
Havasupai Ethnography,
Anthropological Papers, Vol. 29, Part 3.
American Museum of Natural History
New York, 1928.

Stevenson, Matilda Coxé,
Ethnobotany of the Zuni Indians,
30th Annual Report, Bureau of American Ethnology,
Washington, D. C. 1915

Stevenson, Matilda Coxé,
The Zuni Indians,
23rd, Annual Report, Bureau of American Ethnology,
Washington, D. C.

