

CHAPTER X

MISCELLANEOUS USES OF WILD PLANTS

O mickle is the powerful grace that lies
In plants, herbs, stones, and their true qualities;
For nought so vile that on the earth doth live
But to the earth some special good doth give.

Romeo and Juliet.

IN the days before game laws came into being within the limits of the United States, several wild plants were employed for catching fish. I do not mean that they were used as bait, but in a very different way, long practised by the Indians. The plants in question contain in their juices narcotic poisons, which, stirred into the water of ponds, deep pools or running streams temporarily dammed, containing fish, stupefy the latter without killing them, and cause them to float inert to the surface, where they may be easily gathered into baskets. No ill effects appear to result from eating fish so poisoned, and in old times in California there was ample chance to test the matter, as both white men and red were

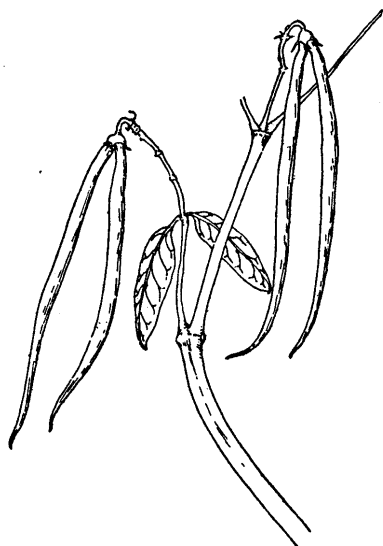
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prone to satisfy their appetite for fish in this manner. Such pot-hunting has now, however, for many years been forbidden by law. In California the bulbs of the Soap-plant (*Chlorogalum pomeridianum*, already described) were mostly used, being first crushed in quantity, thrown into the water, and mixed with it. Next to these in popularity were the macerated stems and leaves of the Turkey Mullein (*Croton setigerus*, Hook.), the Spanish-Californians' *Yerba del pescado*—that is, “fish-weed.” This plant is a rather low-spreading, bristly-hairy, grayish herb, with little greenish blossoms that are scarcely noticeable. It appears in the fields and plains of midsummer and remains through the autumn. Hunters of wild doves know it well, as these birds are very fond of the seeds and collect in numbers to feed where the “mullein” grows—to their undoing. Employed in the same way on the Atlantic seaboard were the seeds of the Southern or Red Buckeye (*Aesculus Pavia*, L.), a tree that occurs from Virginia to Florida and westward to the Mississippi Valley. According to Porcher, the fresh kernels were customarily macerated in water, mixed with wheat-flour to form a stiff paste, and thrown into pools of standing water. The dazed fish would float up to the top and had then only to be picked

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up. If placed in fresh water, they would soon re-
vive.

When they wanted to, Indians knew quite well
where to go for material for fishing lines and nets



INDIAN HEMP
(*Apocynum cannabinum*)

—their knowledge of
wild p l a n t s packed
with useful fiber being
rather extensive.
One of the most
widely distributed of
these native fiber
plants is the so-called
Indian hemp (*Apocy-
num cannabinum*, L.),
an herbaceous peren-
nial with a smooth,
milky-juiced, w o o d y
stem two to four feet
high, and inconspicu-

ous, greenish-white flowers producing very slender
seed-pods about four inches long. It is found in
thickets and dampish ground from Canada to
Mexico and from the Atlantic to the Pacific. The
usual preliminary preparation-as in the case of all
the wild fiber-plants, I believe-was to rot the stems
by soaking them in water. After that the outer



INDIAN HEMP
(*Apocynum cannabinum*)

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bark readily separates and leaves exposed a soft, long, brownish fiber which is both strong and lasting. At one time some of the aborigines wove this into articles of clothing, but the commoner use of it was in making fish and carrying-nets, string and ropes. Peter Kalm speaks of the Swedes in the Delaware River colonies a century and a half ago preferring such ropes to those of common hemp, and bought them from their Indian neighbors at the astonishing rate of "fourteen yards for a piece of bread!"

The Indians of the lower Colorado River obtained a fiber suitable for fishing lines and nets from a leguminous plant, *Sesbania macrocarpa*, Muhl., a tall annual, sometimes as much as twelve feet high, with pinnate leaves, yellowish, pea-like flowers purple-spotted, and very narrow, drooping seed-pods a foot long. It is commonly known as Wild Hemp, and grows in moist soil from South Carolina and Florida westward and along the Mexican border. On the Pacific Coast another plant of the Pea family that has entered into the weaving art of the Indians, is *Psoralea macrostachya*, DC., a cousin of the famous Prairie-potato mentioned in an earlier chapter. It is a stout, heavy-scented perennial, three to twelve feet high, with leaves consisting of three leaflets, and

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bearing in summer silky spikes of small, purplish flowers. Its favorite habitat is the borders of streams. Besides the inner bark, which is an excellent material for making coarse thread, the large root contains a valuable fiber. This the California Indians used to secure by pounding out the root. A pleasing feature of the fiber, whether of the root or the stem, is an aromatic perfume, which persists for months.¹ Various species of Nettle, too, soaked in water, yield a fiber for cord making, as the Indians long since discovered. The Nettle, indeed, has been a primitive source of thread in both hemispheres; and Prior, in his "Popular Names of British Plants," quotes an old writer as saying, "Scotch cloth is only the housewifery of the nettle."

Another fairly good fiber, utilizable for twine and rope, has been secured from several species of *Asclepias*, the familiar Milkweeds. Among these may be mentioned especially the Swamp Milkweed (*Asclepias incarnata*, L.), with smooth stem and foliage, and red or rose-purple flowers. It is a frequent denizen of swampy land throughout the eastern half of the country from Canada to the Gulf. In the same class is a well-known woolly Milkweed

¹ Chesnut, "Plants Used by the Indians of Mendocino Co., California."

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of the Pacific Coast (*A. eriocarpa*, Benth.), characterized by cream-colored flowers and foliage clothed with a hoary hairiness. The commonest Milkweed of eastern fields and waste places, *A. Syriaca*, L., yields a fiber that has been used to some extent in paper making, and for weaving into muslins. In fact, the white man's interest in all our wild fibers has been largely directed in latter times to their adaptability to adulterating and cheapening fabrics.²

The most important of all our native fiber plants are the Yuccas and Agaves. It is from Mexican species of the latter genus-and possibly of both genera-that the valuable Sisal-hemp, imported from Mexico, is made, with which our United States species have never successfully competed. Fiber from the Yucca (probably *Y. baccata*, Torr.) was in extensive use by the prehistoric people who built the cliff dwellings of the Southwest, as is proved by sandals, rope and cloth found in these remarkable ruins. According to the Zuñi tradition it was from Yucca fibers that men made the first clothing for

² For many interesting details touching the general subject of wild fibers, reference is made to Reports 5 and 6, Office of Fiber Investigation, U. S. Dept. of Agriculture, entitled respectively "Leaf Fiber of the United States," and "Uncultivated Bast Fibers of the United States," by C. H. Dodge.

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themselves when they emerged from the underworld (their first home) into this world of light. Though the spread of white education among our aborigines has caused this ancient textile art to become almost a lost one, it is not entirely so. Here and there an old Indian is still run across who holds to the traditions of the elders and works the ancient works. One such not long ago, living on the California desert, made me from the fiber of the Mescal plant (*Agave deserti*) a pair of sandals of immemorial pattern, the spongy sole an inch thick turned up at the heel, and with an elaborate arrangement of cords to keep the foot in place.

Both *Agave* and *Yucca* are treated in the same manner to separate the fiber. After soaking the leaves in water to soften them, they are pounded and repeatedly rinsed until the pulpy part is disposed of. The fibers are then combed out, twisted into strands, and woven as desired. According to Dr. Palmer, the old-time Southern California weavers were* famous for their *Yucca* fiber ropes, nets, hairbrushes and saddle blankets. In the last a padding of softer fiber obtained from the qurote (*Yucca Whipplei*) was employed to relieve the harshness of the *Yucca baccata* fiber.³ The tough

³ The American Naturalist, Sept., 1878.



A Southwestern desert hillside, which, in spite of its desolate look, bears plants yielding food, soap textile fiber and drinking water. The man in the foreground is cutting mescal.

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epidermis of *Yucca* leaves, split into narrow strips, makes a coarse basket material, serviceable moreover as a cord substitute for tying and jacketing articles to be hung up, as hams and watermelons. In the East the same may be done with the strong, fibrous bark of the Moose-wood or Leather-wood (*Dirca palustis*, L.), the *bois de plomb* of the French-Canadians. It is a deciduous shrub, two to six feet high, much branched and characterized by a tough bark, suggesting leather in its pliability, the pale greenish flowers preceding the leaves in small terminal fascicles in early spring. Damp woodlands are its favorite home, from Canada to the Gulf and eastward from the Mississippi to the Atlantic.

A good string may also be made by twisting the fiber obtained from the common Reed-grass (*Phragmites communis*, Trin.), the Carrizo of the Southwest, whose tall, straight canes crowned with silky, plume-like floral panicles, form a conspicuous feature in swamps and damp places throughout the United States and Canada. At a distance they present the general appearance of Broom-corn. A peculiarity of this reed that excited the curiosity of observant explorers half a century or so ago, was utilized by some of the Indian tribes to minister to their taste for sugar. Owing to the attacks of

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a certain insect, which punctures the leafage, a pasty exudation is often to be found in abundance upon the plants. This, upon hardening into a gum, may be collected, and has a sweet, licorice-like taste. Palmer records a former practice of the Indians to cut the canes when the gum was sufficiently hardened, lay them in bundles upon blankets, and shake off the sweet particles. The sugar thus obtained was usually consumed by stirring it in water, making thus a sweet and nutritious drink. Coville speaks of a somewhat different practice with the same plant by the Panamint Indians of the Mojave Desert, who would dry the entire reed, grind it and sift out the flour. This, which would be moist and sticky from the inherent sugar, would then be set near a fire until it would swell and brown, when it would be eaten like taffy.⁴

Another primitive sort of sugar harvest may be reaped in a small way from the common Milkweed (*Asclepias Syriaca*). Kalm, among others, has noted this. The process as observed by him was to gather the flowers in the morning while the dew was on them. The dew, expressed and boiled, yielded a palatable brown sugar. Such a dainty sort of manufacture seems fitting enough in fairy

⁴ The American Anthropologist, Oct., 1892.

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economics; but it is hard to believe it to have been of much practical value among the rough pioneers from whom the old Swedish traveler learned of it. The Sugar Pine (*Pinus Lambertiana*, Dougl.), that noblest of Pacific Coast pines, owes its common name to a sugary exudation from the heart-wood when the tree has been cut into with an ax or been damaged by fire. The bleeding sap forms irregular lumps and nuggets, white when fresh and unstained, but more often found brown from exposure and contact with fire. John Muir thought this sugar the best of sweets. As to that, each must be his own judge; but it certainly has an appeal to many. Moderation should be exercised in its consumption, as it has a decided laxative tendency. Of all "wild sugars," however, the sap of the Sugar Maple, the source of commercial maple sugar, is without a peer. It is too well known to call for more than mention here.

Our wild plants that have been experimented upon for dyes by the color-loving Indians are very numerous. The subject is too technical for me to say just what value these various vegetable dyes may have in the arts of civilization, but I may refer briefly to a few.

Imprimis, there is that familiar hedge-plant, the

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Osage Orange (*Maclura aurantiaca*, Nutt.). Its native home is in the rich bottom-lands of a comparatively narrow strip of territory extending from eastern Kansas and Missouri through Arkansas to Texas, attaining in all that region arboreal proportions. It is distinguished by its curious, yellowish-green, rough-skinned, milky, but inedible fruits, somewhat resembling half-ripe oranges. The large roots and the heartwood of the tree are bright orange in color, and from the former has been extracted a yellow dyestuff, which has been pronounced comparable in excellence to fustic, the product of an allied tree of the tropics. The elastic, satiny wood was a favorite material for bows among the Indians,⁵ and the tree came to be known accordingly by the French-Louisianians as *Bois d'arc*. A curious use of the milky juice of the "oranges" is recorded by Dr. James of the Long expedition, the members of which resorted to smearing themselves with it as a protection from the torment of wood-ticks.

From Kentucky to North Carolina, the beautiful Kentucky Yellow-wood (*Cladastris tinctoria*, Raf.) is indigenous, a smooth-barked tree with pinnate

⁵ "The price of a bow made from this wood, at the Aricaras', is a horse and blanket." John Bradbury's "Travels in the Interior of America." 1809-11. But the Aricaras lived a thousand miles from where the Osage Orange grows.

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leaves and showy panicles of fragrant, white, pea-like blossoms, pendent in June from the branch ends. It, too, has yellow wood, as the common name implies, and from it a clear saffron dye may be had. Better known is the Quercitron or Dyer's Oak (Bartram's *Quercus tinctoria*), which has played a part in international commerce. The inner bark, which is orange-colored, yields a fine yellow dye, and was once an important article of export to Europe, where it was employed in the printing of calicos. The tree is indigenous in poor soil throughout a large part of the eastern United States, and by some botanists is regarded as but a variety of the Scarlet Oak (*Quercus coccinea*, Wang.), whose foliage is a fiery contributor to the autumn coloring of our forests.

Nature's fondness for yellow is manifested in her gift of many dyes of this cheerful color, utilized by her red children. The common Wild Sunflower (*Helianthus annuus*, L.) and the flower heads of the rank-smelling Rabbit-brush (*Chrysothamnus nauseosus* [Pursh.] Britt.)-this latter one the commonest shrubs of the Far Western plains and deserts, with rayless flat-topped clusters of yellow flowers and with linear leaves-have long yielded a yellow stain to the Indians, who transmute the gold of the blossoms into liquidity by the process of boiling. An-

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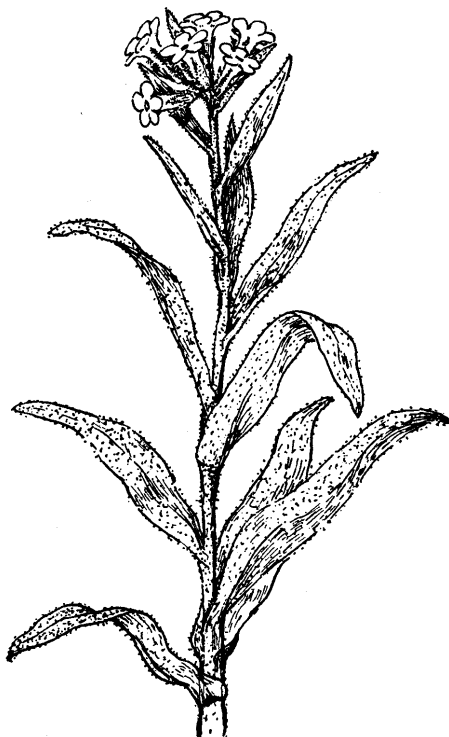
other mine of color is Shrub-yellow-root (*Xanthorrhiza apiifolia*, L.Her.), a low, shrubby plant of the Buttercup family, with pinnate leaves clustered at the top of a short stem, and small, brownish-yellow flowers in drooping, slender racemes appearing in April or May, in woods and on shady banks of mountain streams from New York to Florida. The bark and roots are richly yellow, and from the latter the dye was customarily extracted. The bark and roots, too, of some of the Barberries (notably the western *Berberis Fremontii*, Torr.) yield a yellow dye, of which the Navajos used to be fond as a color for their buckskins. Equally in aboriginal favor as a source of yellow was the nearly related Golden Seal (*Hydrastis Canadensis*, L.), the thick, orange-colored rootstock being used. It occurs in rich woods from the Canadian border to Arkansas and Georgia—a low herb, with a hairy stem two-leaved near the summit which bears a single, greenish-white flower. It is sometimes called Yellow Puccoon.⁶

Puccoon is a word of Indian origin, and has been applied to other plants as well. One of these, the Red Puccoon, is more commonly known as Blood-root (*Sanguinaria Canadensis*, L.), whose hand-

⁶ The root is also the source of the official drug Golden seal, and its collection on this account has caused the plant to become exterminated in many localities where it was once common,

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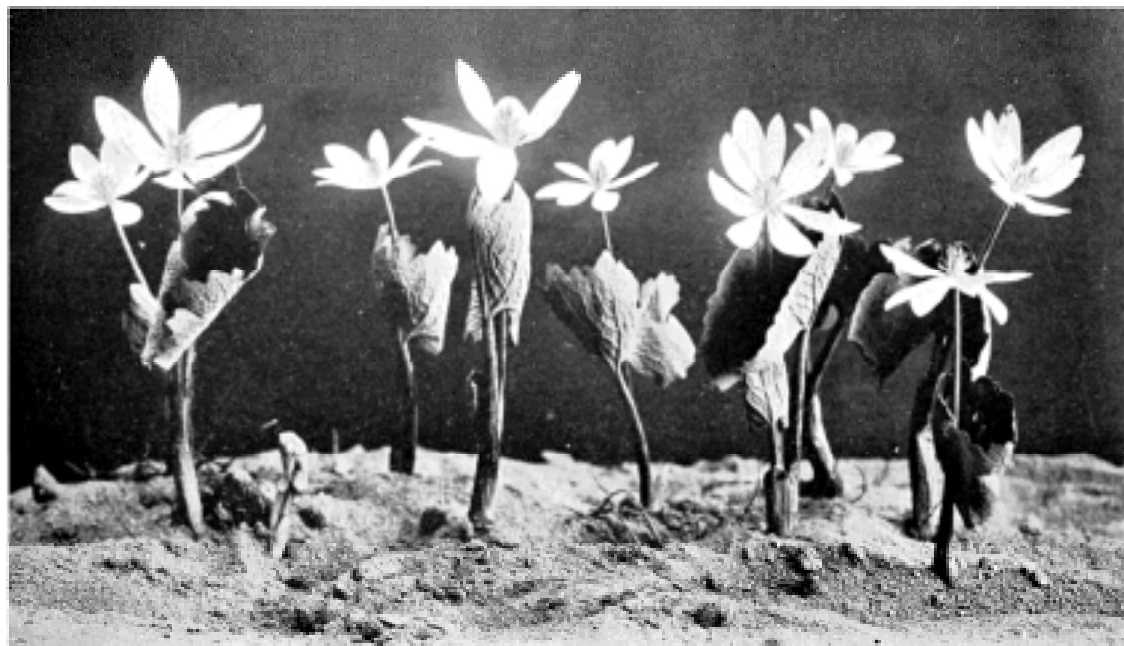
some, white flowers are among the best beloved of the woodland posies of spring, from Manitoba to Florida. The whole plant is charged with a bitter



PUCCOON
(*Lithospermum canescens*)

juice of a reddish-orange color, and that of the root-stock was used by the Indians to produce a bright red coloring matter with which they painted their bodies, and also colored articles of native manufacture, particularly baskets. Another Puccoon is *Lithospermum canescens*, Lehm., of the botanists. It is a rough-hairy herb of the Bo-

rage family common on the plains of the West, bearing rather large, salver-shaped orange-yellow flowers clustered at the summit of foot-high stems-



Blood-root (*Sanguinaria Canadensis*), valuable as the source of a bright red dye.
(Courtesy of the New York Botanical Garden.)

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several from the same root. This, I believe, was the most famous of the Puccoons as an Indian color-source, a good red dye being extractable from the large red roots. The plant sometimes went among the whites by the name of Alkanet, bestowed, doubtless, because of its cousinship with the plant yielding the famous Old World dye so entitled. The Borage family, indeed, are rather rich in color juices, and some will stain the fingers even as one gathers the flowers. A red dye was also got, according to Percher, from the fibrous roots of the Flowering Dogwood and the kindred Silky Cornel (*Cornus sericea*, L.) sometimes called Kinnikinnik. Of Kinnikinnik, more in a page or two. Another red may be extracted from the roots of the Wild Madder (*Galium tinctorium*, L.), a smooth-stemmed, perennial Bedstraw, with square stems and rather upright branches, narrow leaves in verticels usually of four, and small, 4-parted, white flowers, found in damp shade and in swampy land from Canada southward throughout much of the eastern United States. This was one of the dyes used by the northern Indians to color red the porcupine quills, which entered so largely into their decorations; and French-Canadian women, according to Kalk, employed it under the name of *tisavo jaune-rouge*, to dye cloth.

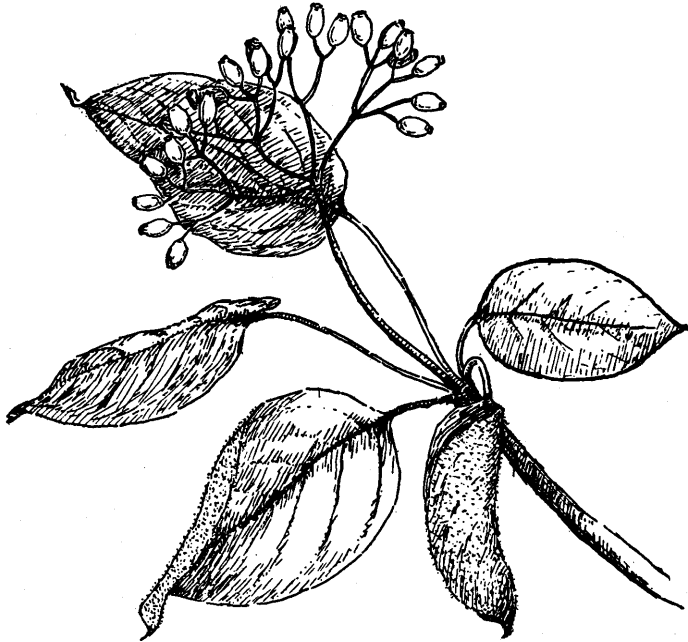


Red Maple (*Acer rubrum*), the source of a dark blue dye in vogue among the Pennsylvania colonists. (See page 226.)

(Courtesy of the New York Botanical Gardens.)

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A dark blue dye Peter Kalm found in vogue among the Pennsylvania colonists, derived from the Red or Swamp Maple (*Acer rubrum*, L.), that charming



KINNIKINNIK
(*Cornus sericea*)

tree whose vivid blossoms, appearing before the leaves, add so much of glory to the early spring landscapes of our Atlantic seaboard. The bark, says

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Kalm, is first boiled in water and before the stuff to be dyed is put into the boiler, "some copperas such as hatmakers and shoemakers use," is added. The extraction of a dark brown dye from the inner bark and the nut-rinds of the Butternut or White Walnut (*Juglans cinerea*, L.) is an old practice among country-folk, and in former times was a common method of coloring homespun woollen clothing. Civil War veterans will not yet have forgotten the butternut garments in which so many of the Confederates were clad that the term butternut became a synonym for a soldier of the South. The various species of *Alnus* or Alder, familiar shrubs (and, on the Pacific Coast, trees), contain in the bark a dye principle of value. This, in some cases, colors a brownish yellow, in others an orange. With copperas a good black may be had. Before the Indians began to use the traders' colors, alder dye was in general use among some tribes, and in the old days many an alder bush met its death through stripping by artist-squaws bent on color-getting. The bark, peeled preferably in the spring, was boiled either fresh or dried, until the water became thoroughly colored, when it was ready to receive the article to be treated.

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A good Indian black has been got from the malodorous Rocky Mountain Bee-plant or Pink Spider-flower (*Cleome serrulata*, Pursh.), familiar to every traveler on our western plains, and conspicuous for its showy racemes of pink, long-stamened flowers, mingled with long-stalked, slender, outstretched seed-pods. Certain of the Pueblo Indians of New Mexico (where the plant is known among the Spanish-speaking population as *guaco*) have habitually relied upon it for the black decoration of their pottery. The plants are collected in summer, boiled down thoroughly, and the thick, black, residual fluid then allowed to dry and harden in cakes. Pieces of this are soaked in hot water, when needed for paint? The desert Indians of Southern California used to obtain a yellowish-brown dye for coloring deerskins and other material from a shrubby plant of the Pea tribe, *Dalea Emoryi*, Gray, bearing small, terminal clusters of tiny pea-like flowers, staining the fingers when pinched and exhaling an odd but pleasant fragrance. The branchlets were steeped in water to release the color. Another desert dye, but black, may be had by soaking the stems of *Sueda suffrutescens*, Wats., a somewhat woody plant of the Salt-bush family, with small, dark green, fleshy

⁷ Harrington, "Ethnobotany of the Tewa Indians."

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leaves, found in alkaline ground from California to New Mexico.

People who have an aversion to Lady Nicotine may be interested in certain plants useful to weaken the effect of tobacco or to act as a substitute. Before the coming of the white man, the Indian smoked principally as a religious rite, as an offering of respect to superiors, or to cure disease. It was reserved for the white man to make of the practice a purely pleasurable indulgence. Moreover, the smoking material of pre-Columbian days within the territory of the present United States, was quite different from Twentieth Century commercial tobacco. There are several indigenous species of *Nicotiana*, which the aboriginal inhabitants dried and utilized, and in some instances cultivated. Their customary "smoke," however, was not pure tobacco, but a combination with other material; and this brings us again to Kinnikinnik, mentioned a little while ago. This word is an Algonkian-Indian expression signifying a mixture, and was applied by the plainsmen, trappers and settlers in the Fur Trade days to a preparation of tobacco with the dried leaves or bark of certain plants. Afterwards it came to be given to the plants themselves, the most important of which are these:

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The Silky Cornel (*Cornus sericea*, L.) a shrub of wet situations, with purplish branches-these and the underleaf surfaces silky with hairs-and flattish clusters of small white flowers in early summer, succeeded in autumn by pale blue berries ;

The Red-osier Dogwood (*Cornus stolonifera*, Michx.), somewhat similar to the above, but less hairy and fewer-flowered, the berries whitish, the branches smooth and brightly reddish, the plant spreading by running suckers ;

The Bear-berry (*Arctostaphylos Uva-ursi*, Spreng.), a trailing, evergreen vine, with little, urn-shaped, white flowers in spring, and crimson, dryish, astringent berries in autumn, affecting rocky or sandy soil ;

The Sumac, especially *Rhus glabra*, L., with smooth, pinnate leaves and smooth twigs.

In the case of the first two plants, the scraped, inner bark was the part availed of; in that of the last two, the leaves. The foliage also of Manzanita and Arrow-wood (species of *Viburnum*) sometimes

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found favor. The ingredients of the "smoke" were first thoroughly dried either in the sun or over a fire, and then rubbed and crumbled between the palm of the hand-whence the French *engagés'* name, *bois roulé*, applied to such smoking material. Though a portion of tobacco was usual in the make-up, it frequently was omitted-one or more of the non-narcotics being consumed alone.

When our attention is once turned to utilizing what is growing freely around us, an almost exhaustless subject of remarkable fascination has been started; and the folk of simple habits and gifted with some ingenuity find Flora a ministrant goddess of very varied gifts. There is almost nothing we can ask of her that she cannot make some sort of response to. Lovers of the curious may have napkin rings or candle-sticks from sections of the reticulated wooden skeleton of the savage Cholla Cactus; combination brushes for sweeping the floor or brushing the hair (according to the end used) from certain western grasses;⁸ combs of pine-cones; buttons of acorn-cups; tooth-brushes of the Flowering Dog-

⁸ One, given me by a Zuñi Indian, is a simple bunch of *Muhlenbergia pungens*, Thurb., tied about with a string, the butt-end charred to serve for the hairbrush, the other doing duty as a whisk. Harrington states that among the Tewa of New Mexico and Arizona, the plant used for this double purpose is the Mesquite-grass (*Bouteloua curtipendula*, Torr.).

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wood's peeled twigs, highly recommended in old times for their whitening effect when rubbed upon the teeth.

Certain plants may even be made to yield salt, by being burned to ashes. One such is the Sweet Colts-foot (*Petasites palmata*, Gray), a perennial herb of the Composite tribe, having large, rounded, deeply fingered leaves, all basal, white-woolly beneath and from six to ten inches broad when full grown, the whitish, fragrant flower-heads tubular or short rayed and clustered at the top of a stout, scaly stalk. The plant frequents swamps and stream borders from Massachusetts to California and far northward throughout Canada. To some Indian tribes, the ash of the Sweet Coltsfoot was their only salt. Chesnut states that the method of preparation observed by him was to roll the green leaves and stems into balls, carefully dry them, and then burn them upon a very small fire on a rock, until consumed.

Then there are adhesives. Pine pitch naturally suggests itself for this purpose; but one of the best cements for mending broken articles may be obtained from the branches of the despised Creosote bush of the Southwestern deserts (*Larrea Mexicana*, already described). This gum is not a direct vegetable exudation, but is deposited by a tiny, parasitic scale-



SWEET COLTSFOOT
(*Petasites palmata*)

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insect in small reddish masses upon the twig-bark, from which it is readily scraped. The Panamint Indians, to quote Coville, improve its effectiveness by mixing with it pulverized rock, and pounding all together. The product is warmed before applying.

A word about candles, and this rambling chapter may close. A common source of wax for candle-making in old times, and still not altogether forgotten, is a shrub or small tree indigenous from Nova Scotia to Florida and Alabama, with resinous, fragrant leaves, and bluish-white, waxen berries, strung upon the branches and persisting through the winter. Modern botanists make of the plants two species-*Myrica cerifera*, L., and *M. Caroliensis*, Mill. They are called rather indiscriminately in common speech, Waxberry, Bayberry, or Candleberry. The little round berries may be gathered in the autumn, boiled in a pot of water, and the wax, which floats to the surface, skimmed off. This hardens into a cloudy green mass, which, Peter Kalm tells us, it was customary in his day to melt over again and refine into a transparent green. Candles were moulded from this, either pure or mixed with some common tallow. Bayberry wax burns with a rather pleasant fragrance, and perhaps you have found such candles among your Christmas gifts.



CANDLEBERRY
(*Myrica Carolinensis*)