

ETHNOBOTANY OF THE PAIUTE INDIANS

by

Andrea June Moyer

A thesis

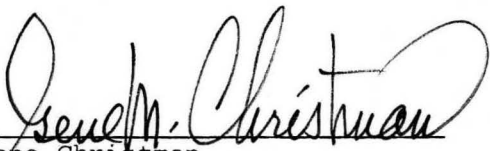
submitted in partial fulfillment

of the requirements for the degree of

Master of Fine Arts in the Department of Environmental Studies

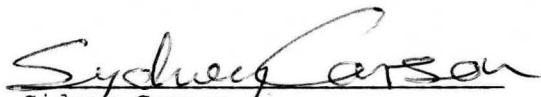
California College of Arts and Crafts

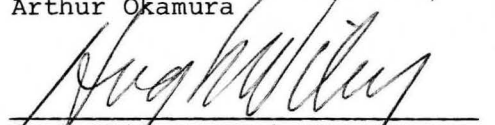
November 1982


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Ethnobotany of the Paiute Indians

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by

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EDUCATION

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California College of Arts and Crafts, Oakland. Developed and taught courses in landscape painting and botanical and scientific illustration. (1981-1982)

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California College of Arts and Crafts, Oakland. Worked as teaching assistant for Don DiViveros' nature study drawing class. (1980)

American Indian Survival School, Oakland. Taught basic drawing and painting. (1980)

Western Scenic Company, Oakland. Painted backdrop murals for local ballet and theater organizations. (1980)

California Academy of Sciences, San Francisco. Assisted Richard Cook on Hall of Man mural. (1979)

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SHOWS AND EXHIBITIONS

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Rhode Island School of Design. (1975)

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Guild of Scientific Illustrators, Women's Caucus on Art, College Art Association, The Museum Society, University Art Museum, San Francisco Museum of Modern Art, California Native Plant Society, Nevada Native Plant Society.

ACKNOWLEDGMENTS

It is often said that the first project is always the hardest (I hope this is true). For this reason, the list which follows may seem out of proportion to the size of the thesis proper, but there have been many people who have helped me and enriched my graduate studies.

I want to thank many talented and generous people. First, I want to thank Gene Christman, principal illustrator at the University of California, Berkeley, and mentor to most scientific illustrators in the Bay Area. He is a most gifted teacher, with integrity and sensitivity. Next, Lois Pryor and Dr. Sidney Carson, who helped me overcome the trauma of what to do with a blank page. And, of course, the faculty of the California College of Arts and Crafts, Environmental Studies Department--Ron Dahl, Don DiViveros, Arthur Okamura, and Hugh Whiley--for having the vision to create a department that allows the student to study independently, centering his or her work on environmental issues. And Dr. Kay Fowler, University of Nevada, Reno, who shared so much of her time and expertise.

I was indebted to Dr. Lincoln Constance, Annette Carter, Dr. Thomas Duncan, Charlotte Hannon, Alice Howard, Mary Ann Ogle, Dr. Robert Ornduff, Dr. Allen Smith, and Dr. John Strothers, at the University of California, Berkeley, for their tremendous help and human kindness.

Several faculty members of the California College of Arts and Crafts were especially helpful in fostering the development of my drawing and technical skills: Ralph Borge, Larry McClary, Jack Mendenhall, Vince Perez, and Mary Snowden. Howard Eige, Danny

Lillywhite and Jason Schoner helped develop a sound foundation for critical aesthetic and business judgments.

Arnold Teihms and Margaret Williams (of the Nevada Native Plants Society) generously identified the plants.

I also want to thank the following people:

- The staff at Washoe County Parks and Recreation, especially Jeffry Taylor, for sharing their facilities at Warrior Point Park at Pyramid Lake, and for publishing my poster, "Pyramid Lake Wildflowers."

- Avery Winnemucca and Stan Williams, who taught me so much about Paiute mythology, history, and culture.

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I

INTRODUCTION

METHOD

NATURAL HISTORY OF PYRAMID LAKE

INTRODUCTION

In 1978, while painting orchids and cacti in San Cristobal de la Casas, Chiapas, Mexico, I became acquainted with José and María, two Zinnecatecan Indians. On my frequent visits to their village, I would go with the women and paint while they washed clothes by the river. It was a wonderful experience.

At this time I heard about Dr. Dennis Breedlove, from the California Academy of Sciences, who was working in the area collecting plants and writing a book on the ethnobotany of the Tzol-tol people. (Ethnobotany is the study of how plants are used by people.)

I had originally come to Mexico to spend one luxurious year painting flowers in the style of Thornson's Temple of Flora, a book illustrating colorful, exotic flowers in tropical landscapes. Although I knew Thornson had gone bankrupt during the production of the book, I hoped (and still do) that my fate would be different. But I also realized that I needed to acquire botanical and rendering skills, both of which I lacked at that time.

I returned to California to apply to graduate school at the California College of Arts and Crafts (CCAC), which is famous for its realists. I also hoped to meet Dennis Breedlove in order to learn about illustrating plants. I can still see the faces of the modernist faculty members at CCAC as they gaped at my portfolio of flower studies. Finally, through perseverance (a prerequisite for an artist), I was accepted into both the environmental studies department and an internship program at the California Academy of Sciences to learn the craft of

botanical illustration. At this time I also began studying botany at the University of California, Berkeley.

In 1979, I discovered Pyramid Lake and the Paiutes who lived there. I realized that here in the high desert of Nevada was a place with great potential for a graduate project in which I could not only pull together my drawing and botany skills, but also hopefully do something of value for the Paiutes who had, throughout my visit and throughout history, been extremely generous. And so I have put together this project to join two botanical traditions, Western botany and Paiute plant lore, in hopes of stimulating interest among young Paiute students. To compile more extensive documentation of their plant lore, I plan to return this spring to help them complete the project.

METHOD

During 1979 I lived at Pyramid Lake from May through September, collecting, identifying, and sketching over two hundred plant specimens. I returned to the University of California, Berkeley, herbarium to begin drawing, first in pencil, then inking directly over the pencil with Pelikan Fountain Ink, Gillotte 291 pen nibs, on Strathmore Bristol Smooth. This pen-and-ink method is most often used in scientific illustration for its clarity of form and low reproduction cost.

The majority of the text was adapted from several books. James P. Smith's Vascular Plant Families and P. Munz's Flora of California supplied the species and family descriptions. A majority of the medicinal uses of the plants come from Medicinal Uses of Plants by the Nevada Indians: A Contribution Towards the Flora of Nevada by Dr. Kay Fowler, Percy Train, and Agnes Chase. California Plant Life by Robert

Ornduff of the University of Nevada, Reno, provided additional information on plant nomenclature, plant adaptation to arid climates, and plant evolution.

NATURAL HISTORY OF PYRAMID LAKE

Pyramid Lake is the natural terminus for the Truckee River, the primary source of water for the lake. The Truckee River originates at Lake Tahoe, sixty air miles to the northwest, and since the coming of the white man, the majority of the water has been diverted for agricultural, industrial, and personal use. These settlements have been responsible for the lake dropping eighty feet in the last hundred years, dramatically changing the ecology of the lake and jeopardizing the existence of many species.

Since the Pleistocene, the Pyramid Lake plants have had to adapt to the drier climate created by the rain shadow, the reduced water supply from the Truckee River, and overgrazing by cattle and sheep. There are several ways in which the plants have adapted to these severe conditions, especially the climatic problem of relatively dry, hot summers and unreliable winter rains.

One way in which many plants have adapted is to complete their life cycle in one year--hence, their designation "annual." These plants have a built-in regulation: they "know" when to start growing, wait until the optimal time, and pass from seed to flower to fruit to seed in less than twelve months.

Perennial plants (plants that live more than one year--at least two or three) represent another plant adaptation to arid climates. These plants, like greasewood (Sarcobatus vermiculatus), grow deep root

systems to tap the groundwater. Other plants, like cacti, develop fleshy stems that store water. These plants usually have roots near the surface to collect light rain or even dew; they often have no leaves. Many have developed thorns, however, to discourage grazing by rodents and other desert mammals. Sagebrush (Artemisia tridentata), a non-succulent, also stores water by covering its leaves with silvery blue-green hairs that diffuse the light. (Another way to diffuse the light is to produce a waxy leaf surface; desert plants often have leaves either covered with hair or with a waxy surface.) These plants are characteristically spaced far apart to reduce competition for water.

The Pyramid Lake area has a long and interesting history. About half a billion years ago it was covered by ocean. About twenty million years ago the Continental Plate butted up against the Pacific Plate, the latter annexing the area west of the San Andreas Fault. The Sierra Nevada and Intermountain Ranges were created by this constant pressure. The Sierra rose two miles into the sky, creating a "rain shadow" on the east side of the mountains so that the rain was blocked and deposited on the west side. This rain shadow greatly affected the plant life.

The plants living in the Great Basin* at that time had developed from ancestors over a period of twenty million years. When the terrain was a region of rolling hills, with a milder, less varied climate, the flora consisted largely of hardwood trees: beech, elm, sweet gum, chestnut, cedar, spruce, dogwood, hemlock, maple, and sequoia.** But

*The name "Great Basin" was first applied by John Fremont following his 1843-1844 expedition in search of the mythical Buenaventura River.

**Sequoia, named after the brilliant Cherokee Indian who developed the Cherokee alphabet.

as the climate changed after the Sierra rose, the forest was eliminated in the Great Basin although some of these trees are still evident in the area.

During the Pleistocene, around 10,000 years ago, the earth witnessed a gradual cooling. Glaciers covered most of northern North America and the Great Basin. With the cooler temperatures, the precipitation remained in the Basin, forming huge lakes--Lake Bonneville (20,000 square miles) and Lake Lahonton (80,000 square miles or about the size of Lake Erie). Junipers and pinyon pines flourished in thick forests down to the water's edge.

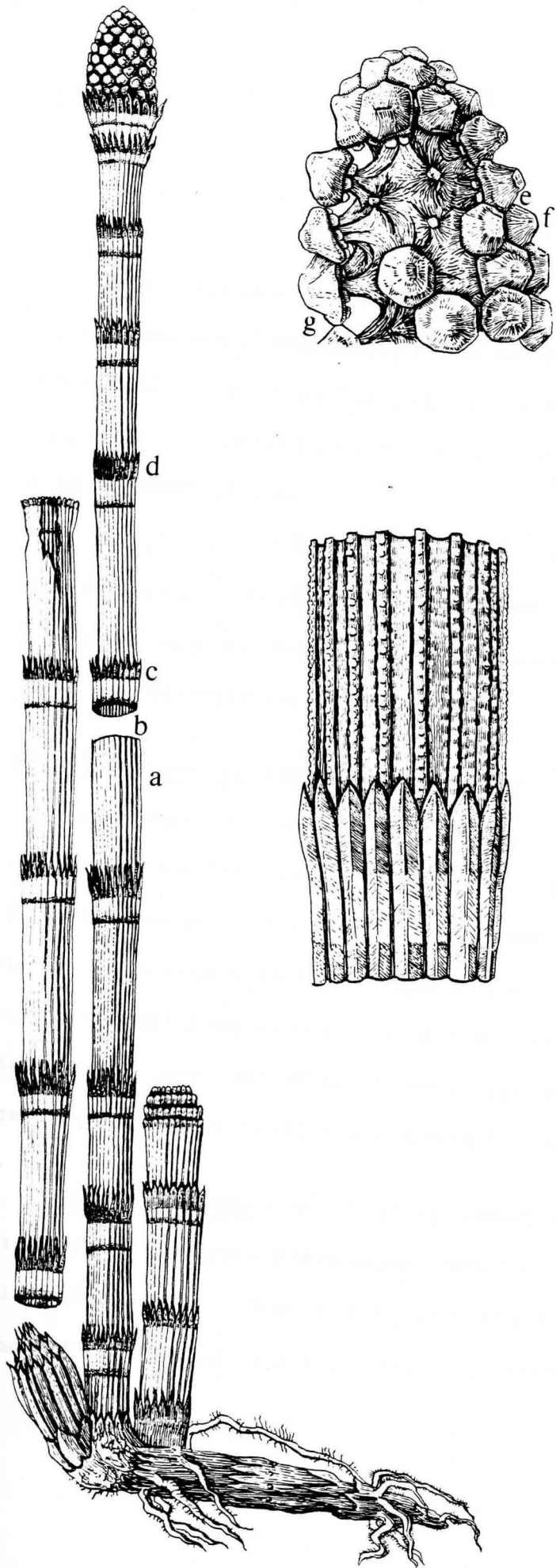
From 10,000 years until the present, there has been a warming trend. Lake Bonneville has shrunk considerably, leaving the Great Salt Lake. Pyramid Lake, the largest legacy of Lake Lahonton, now extends twenty-five miles in length and four to eleven miles in width.

II

EQUISETACEAE: HORSETAIL FAMILY

Polypodiophyta: True Ferns

Pteridaceae



EQUISETACEAE: HORSETAIL FAMILY

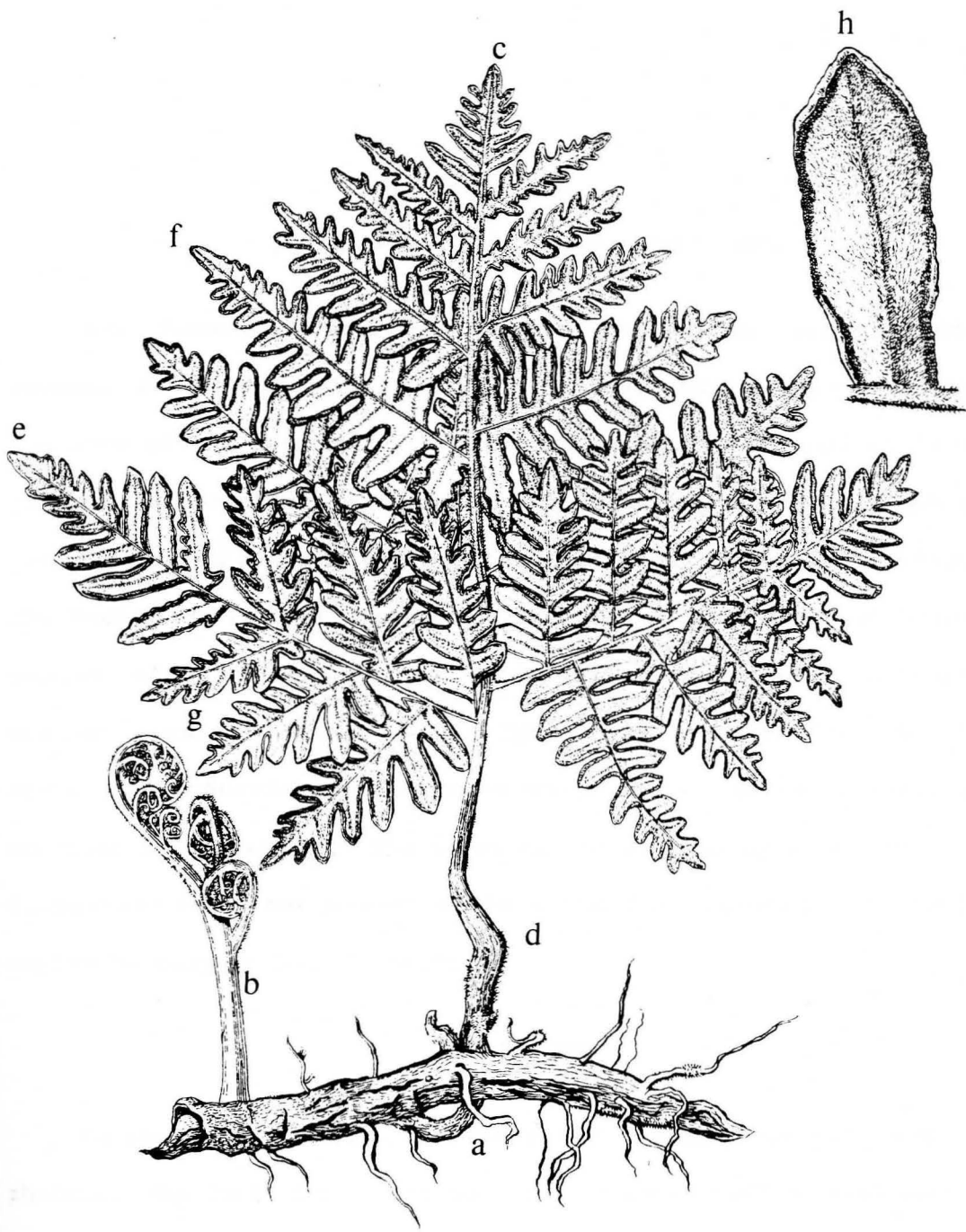
Horsetails are annual or perennial herbs arising from underground stems (rhizomes). The aerial stems [a] are overlaid with silica and are hollow [b] in between the joints (nodes) [c]. There are often tiny apertures (stomates) in the grooves. The leaves [d] are reduced to a ring of fused scales.

The cones (strobili) consist of shield-shaped structures [f] attached to a central axis. Underneath each of these structures is a circle of spore-producing organs (sporangia) [g]. Equisetaceae has one genus and twenty-three species.

Equisetum hyemale: Common Scouring Rush

Evergreen and mostly unbranched, all the stems are alike, about 2-15 dm tall and 4-14 mm thick. There are approximately 18 to 24 ridges [k], with two rows of stomates [l] in each furrow. The leaf sheaths [f] are 5-15 mm long with black bands [m] at the tip, grey in between, and another black band at the base of the sheath. The leaves are said to have teeth, which are dark, slender, dry, and thin. The cones are 1-2.5 cm long and have a small stalk (peduncle) [n].

Equisetum hyemale grows along streambanks and other moist places from low to moderate elevations. Because of its silica content, the plant was used to clean and scour surfaces. It was also boiled for about 30 seconds to make a decoction for kidney trouble.



DIVISION POLYPODIOPHYTA: TRUE FERNS

True ferns are plants without seeds or flowers; ferns reproduce by spores. Almost all ferns have roots, stems, and leaves. In many areas, the stem of the fern grows underground (rhizome) [a] bearing roots. The young leaf (crozier) [b] uncurls in a distinctive manner. The mature leaf is called a frond [c] and the leaf stalk is called a stipe [d]. The leaf blade is most often compound. The primary division consists of pinnae (singular, pinna) [e]. Each pinna can also be divided into smaller segments (pinnules) [f]. Spore-producing structures (sporangia) are on the underside of the frond which may occur in clusters (sori; singular is sorus) [g]. The sorus can be covered by a protective cover (indusium) [h]. The number of fern families remains disputed, with estimates ranging from 14 to 45.

PTERIDACEAE

In this fern family, the ferns are terrestrial with a creeping rhizome. The stalk can either be erect or curve upward, with dark hairs near the base. The fronds are compound. Sporangia develop near the leaf edges. The sori are protected by an indusium and/or a reflexed margin, which is a leaf margin that curls downwards and encloses the sori [i]. There are 63 genera.

Pteridium aquilium

This species of fern is coarse, with a long, creeping rhizome. The entire plant is covered with hairs. The straw-colored stalk is stout,

with felt-like hairs near the base. The fronds are erect or curve upwards and are very large, 3-15 ft tall! (The frond depicted here is atypical in that it is much smaller than a normal-size frond.) The fronds are usually tri-pinnately compound and triangular in shape. The frond segments are covered with short, matted hairs on the underside of the leaf and occasionally pubescence above. The segments are linear to oblong, and the leaf edges are smooth or slightly wavy. The indusium [h] is narrow and covered by the leaf edge which curls over it in early development.

The plant is found in moist places at low elevations. It was used for making baskets, and the young croziers were probably eaten.

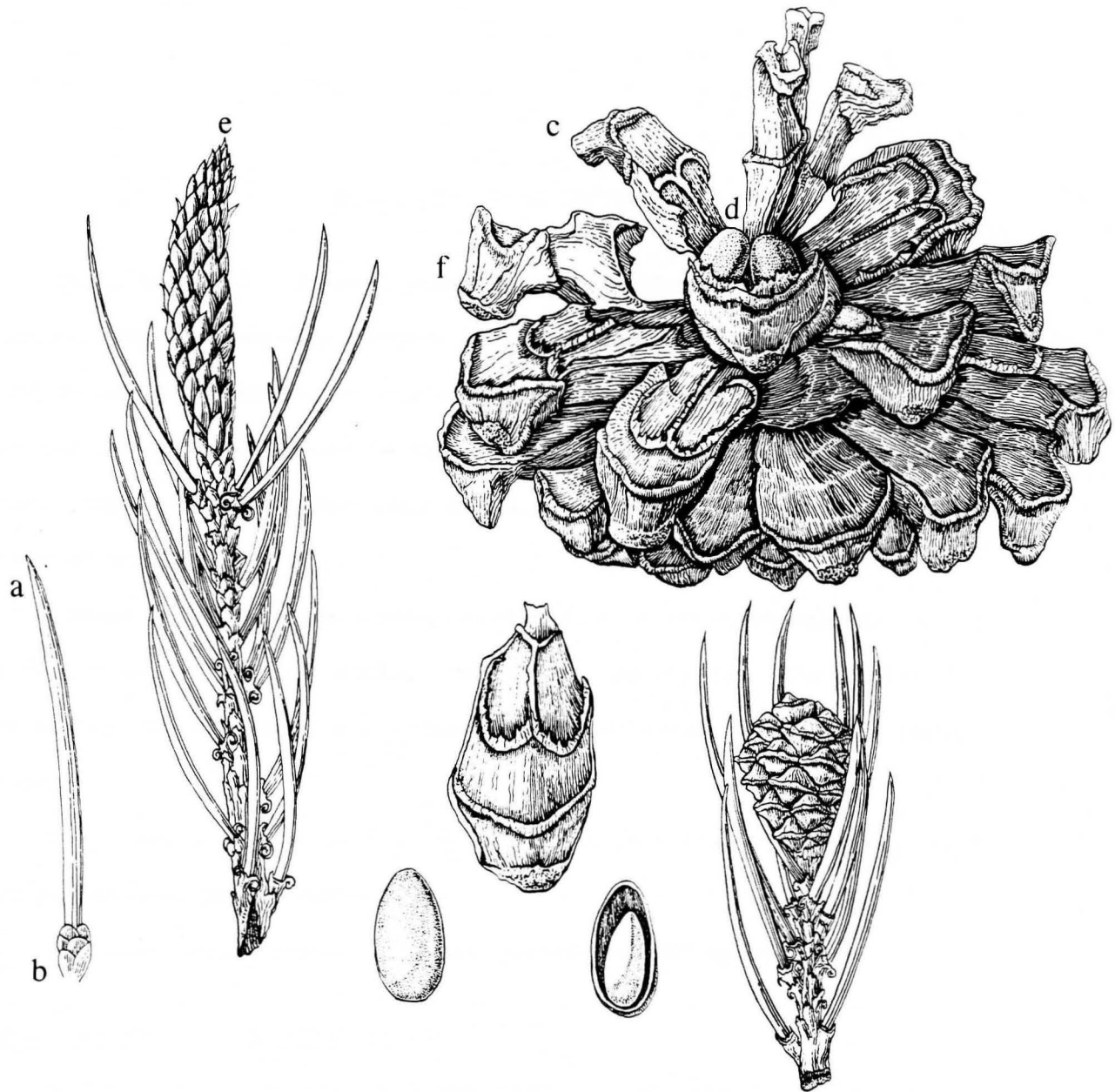
III

GYMNOSPERMS

Pinaceae: Pine Family

Ephedraceae: Ephedra Family

Cupressaceae: Cedar or Cypress Family



PINACEAE: PINE FAMILY

The pine family consists primarily of evergreen, resinous trees and shrubs. The leaves [a] remain attached and are spirally arranged. Needle-shaped, they can be either single or joined in a fascicle [b]. The individual species can be either monoecious (male cones and female cones both growing on the same tree), or dioecious (male and female cones on different trees).

Female cones [c] are woody, with spirally arranged scales. A set of bracts underlies each scale. There are usually two naked seeds [d] per scale. The female cones mature in two or three years, then become woody.

The stamens on the male cone [e] are also spirally arranged, with two pollen sacs under each scale.

The pine family consists of ten genera and 250 species.

Pinus monophylla: One-Leaf Pinyon

A small, 5-15 ft tree, the one-leaf pinyon usually has a divided trunk, often developing a flat top with age. The bark is furrowed with narrow, flat, scaly ridges. The branchlets have tiny hairs when immature. Most leaves grow singly. These needle-like, green leaves (6 mm long) curve inward, and are borne in the axils of the scale-like primary leaves.

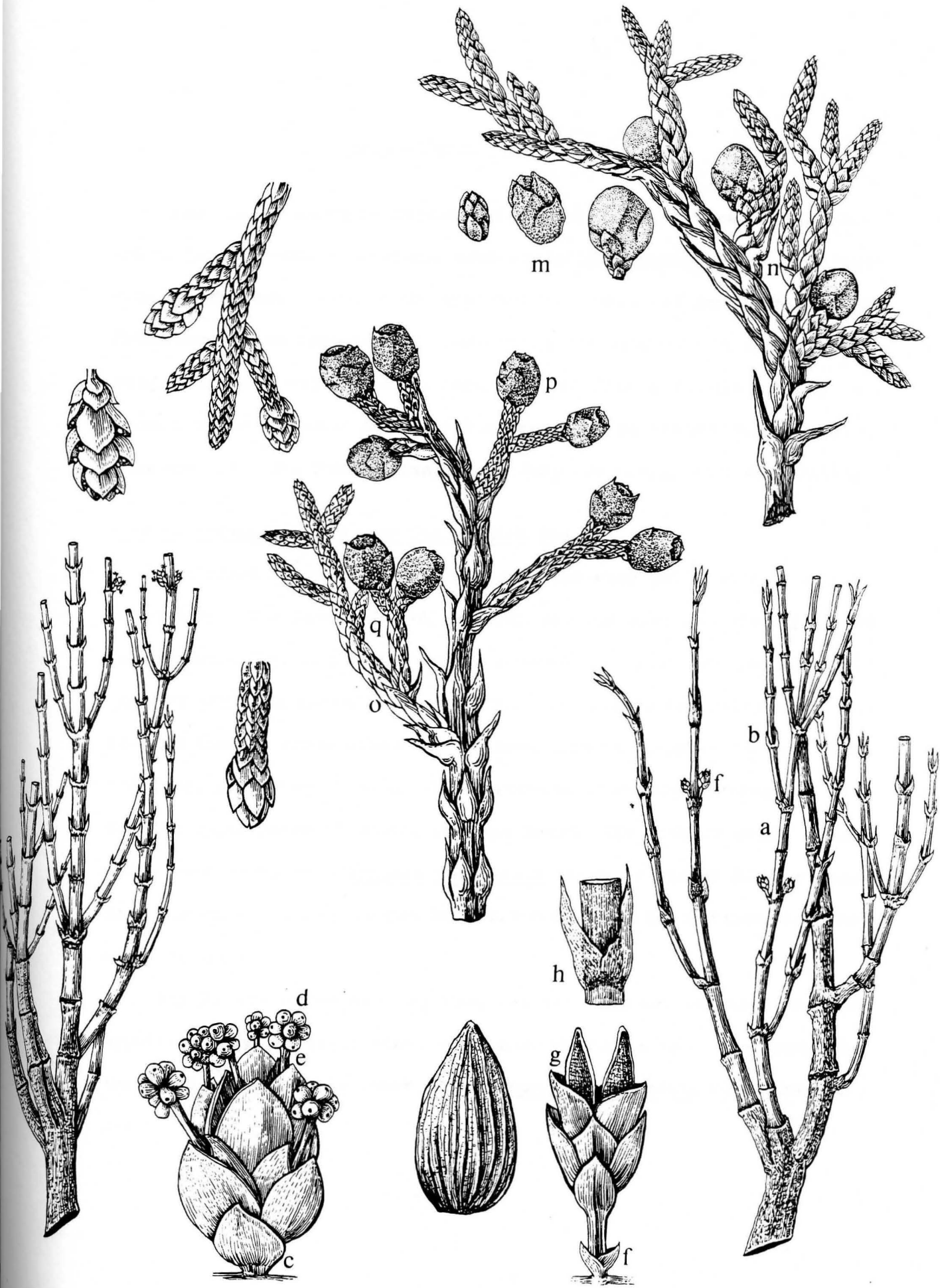
Pinus monophylla is monoecious. The male cones form catkins 6 mm long and have overlapping scales, each with two pollen sacs on the lower side. The female cones are spherical, 15 mm long, and brown with four-

sided scales, each knobbed at the tip [f]. The seeds are 15 mm long and were used for food.

The trees grow on dry, rocky slopes or at ridges from 3,500 to 9,000 feet in Juniper-Pinyon Woodland.

The Paiute names were sahn a pah wah pee; turba; tu bap ee; wah pee. A major medicine for the Paiutes, the resin of this tree was considered equal to Lomatium multifida (p. 59) in the treatment of colds. The resin was boiled to make a hot tea. It was often combined with Juniperus utahensis, using the terminal twigs of the latter.

The pure pine resin potion was used to treat venereal disease; sometimes the resin was swallowed whole as pills, while at other times the needles or bark were boiled to make a tea. Resin tea was also used as an internal medicine for influenza, tuberculosis, bowel trouble, and nausea. For diarrhea, the resin could be swallowed as pills or taken as a tea; for smallpox, the resin could be combined with Corbania mexicana. The resin was also deemed a valuable tonic after childbirth. A sore throat was soothed by chewing the resin. A dressing of heated resin was used, combining Juniperus utahensis, as a drawing agent for slivers or boils. The hot resin was used as a dressing on sores and cuts. For pneumonia and muscular soreness, the hot resin was smeared on with a hot cloth as a poultice. The seeds were used as an important food source.



EPHEDRACEAE: EPHEDRA FAMILY

The family members consist of shrubs or small trees. The green stems [a] are usually grooved, with scale-like leaves [b], either opposite or whorled. Usually the ephedras have male and female flowers on different plants (dioecious). Male cones [c] have two to eight anthers [d], each with eight pollen sacs forming into a single column [e]. Female cones [f] have ovules [g] covered by two bracts united into an envelope [i]. The Ephedra family has only one genus, with 40 species.

Ephedra veridersis: Mormon Tea; Indian Tea

The plant is erect (0.5-1.5 m high) with many yellow-green, slender branchlets. The leaves (1.5-4 mm long) are opposite and often fall off (deciduous), leaving a thickened, brown base [h]. The female cones usually occur in pairs (5-7 mm long), with six to ten pairs of bracts (2-4 mm long). These cones are yellow. The triangular seeds (5-8 mm long) are paired and brown. The staminate cones are egg-shaped, with four to eight pairs of bracts (4-7 mm long). The five to eight anthers unite into a column. Ephedra veridersis grows in Pinyon-Juniper Woodland and on dry, rocky slopes from 3,000 to 7,500 feet, flowering from April to June.

The Paiute names are soo roop ee; too roop ee; too toop ee. For syphilis, only the small stems were used to make a tea. For gonorrhea, the dried twigs and the inner bark of Purshia tridentata were mixed in a tea.

Ephedra viridis was also used for kidney and bladder disorders. No dosage was indicated, but in a few instances "several cupfuls" a day were to be imbibed. For colds, the same tea was prescribed, especially in the area around Nixon, Nevada. Favored in many communities as a blood purifier, the tea was believed to aid circulation and was therefore given to old people. The tea was also taken for delayed or difficult menstruation. For stomach disorders and ulcers, the tea was drunk instead of water. It was sometimes taken to cure rheumatism. For children's diarrhea, a warm tea was prepared by combining this plant with the scraped bark of Cercocarpus edifolius. In addition, the dried and pulverized stems were applied as a powder to cure sores.

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CUPRESSACEAE: CEDAR OR CYPRESS FAMILY

Cypress are evergreen trees or shrubs that either grow erect or lie prostrate. Persistent leaves can be opposite or whorled. Scale-like or awn-shaped (sometimes both forms are present on the same branch) [i], the leaves are often closely pressed against the branch. The species can be either monoecious or dioecious. Small male cones [j] occur at the ends of the branches or in the axils. The stamens usually have three to six pollen sacs [k] covered with shield-shaped scales [l]. The female cones are generally woody, except in the genera Juniperus, which is illustrated here. In Juniperus, the scales become fleshy because the scales and bracts fuse in the cone [m]. The cypress family has 19 genera and 30 species. The juniper berry is used to flavor gin.

Juniperus oosteosperma: Utah Juniper

This juniper is an aromatic, tree-like shrub generally forming rounded clumps or crowns. The bark is thin and shedding, and the branchlets are stiff. Sharp-pointed, green, and scale-like, the leaves [n] lack the typical resin glands [q]. In all junipers, the leaves occur in threes. The plants are mostly dioecious. The small staminate cones are either solitary or clustered, with oval to shield-shaped scales bearing three to six pollen sacs. Strongly angled, the spherical, fleshy female cones range from red to purplish-brown. The trees grow in Pinyon-Juniper Woodland from 4,800 to 8,500 feet.

The Paiute name is wah pee. Because the Indians used the different species of Juniperus interchangeably, information here can also apply to

Juniperus monosperma. It was a favorite for tea; the young, terminal twigs were boiled, and sometimes the berries were added, depending on preference. Sometimes the leaves were smoked and the fumes were inhaled. Both remedies were used for coughs and colds.

Decoctions of young twigs were also used as a blood tonic as well as to treat ailments such as kidney trouble, stomach-ache, smallpox, hemorrhage, worms, and venereal disease. For a sore throat, freshly ground twigs were heated over a fire, bound in a hot cloth, and held against the neck. For a headache, the fumes from burning twigs were inhaled. For toothaches and sore gums, the leaves were pulverized, moistened, tied in a cloth, and held against the jaw.

Juniperus in sweat baths was recommended for rheumatism or heavy colds. A fire was kept burning in a specially made excavation until the ground became heated. The fire was then raked out and replaced with young juniper twigs. The patient reclined on top and was covered with blankets to induce sweating.

The boiled berries (nine to a quart) were used as a tea for kidney ailments, especially to induce urination. The dose was a half cup, three to four times a day. The boiled berries were used, a half cup a day, for a week as a blood tonic; a cupful daily for heart trouble; less than a half cup daily for menstrual cramps. For rheumatism, the berries were boiled in a small amount of water and the tea taken several times a day. The solution was also applied in hot packs to the afflicted areas.

Juniperus monosperma: One-Seeded Juniper

This small, aromatic tree grows as high as six meters, but is usually smaller. The several curved branches rising from the base give

it a scraggy, shrub-like appearance. Its spreading branches appear bare except for the ends of the twigs, where the leaves are crowded. The bark becomes fibrous. The relatively stout (nearly 2 mm in diameter) twigs cluster at the ends of the branches. The leaves, which are mostly opposite (sometimes whorled), occur in threes. The scale-like leaves, 1-3 mm long, are yellowish-green and closely pressed to the branch. The leaves are either tapered or sharply pointed. The juvenile leaves [o] are awl-shaped and sharply pointed. There is usually a small, depressed, elliptical resin gland. The brown, male cones (8-10 mm long) grow on the two ends, with eight to ten pollen-producing structures per cone. The female cones [p] are globe-shaped and succulent when fresh.

Juniper monosperma grow on dry slopes, sometimes forming woodlands from 3,000 to 5,000 feet.

IV

MONOCOTS

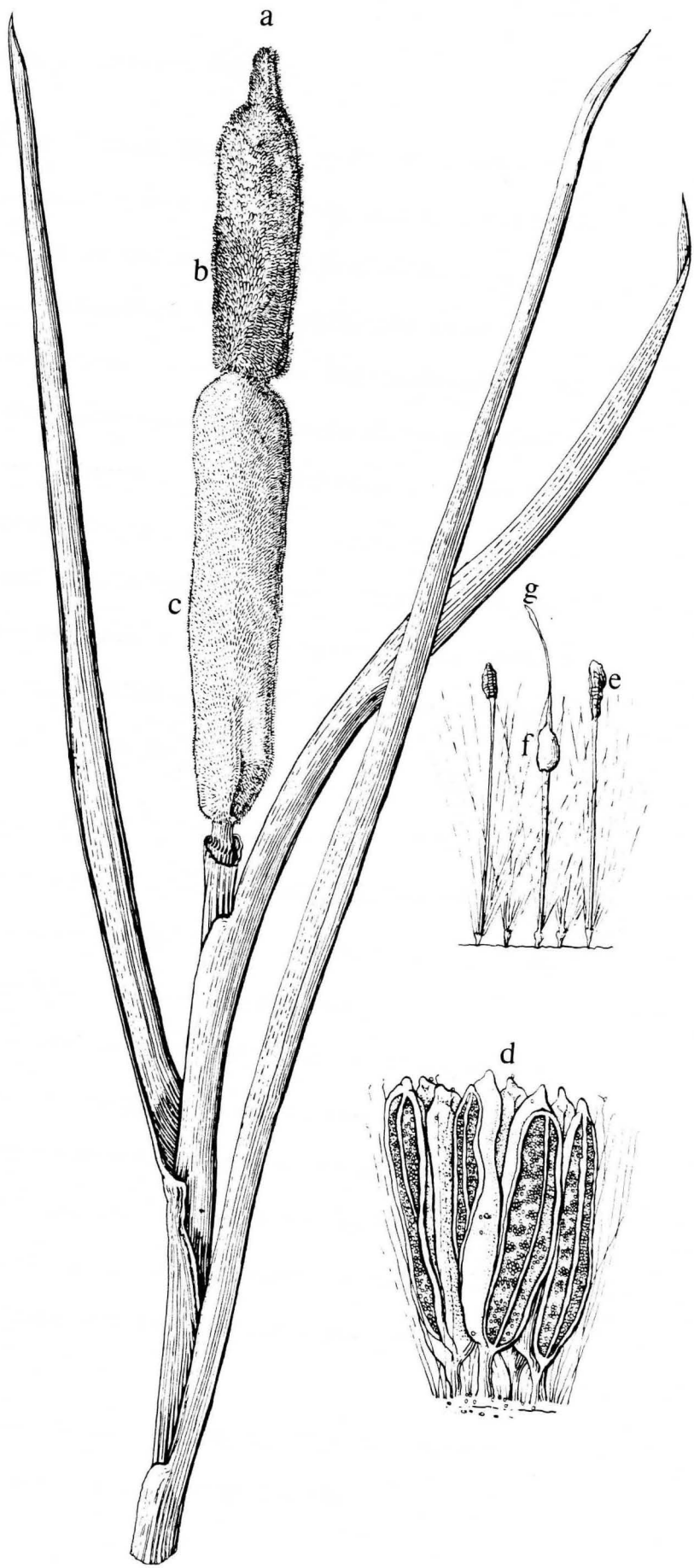
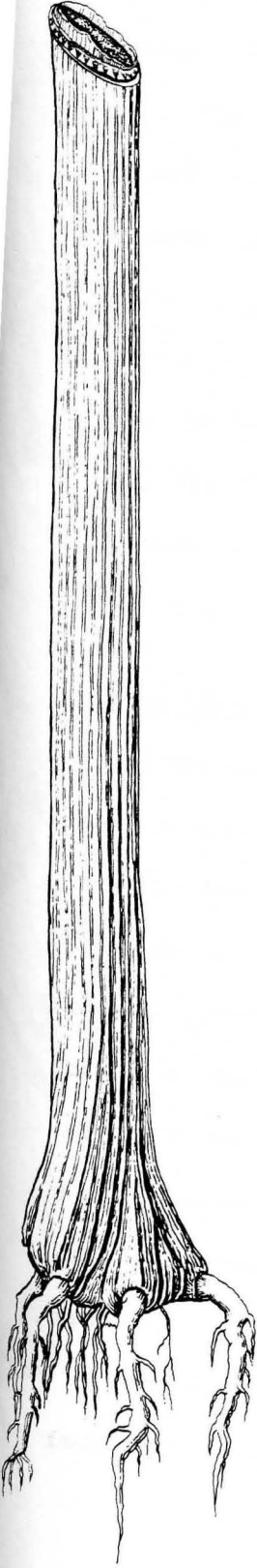
Typhaceae: Cattail Family

Graminae: Grass Family

Liliaceae: Lily Family

Amaryllidaceae: Onion Family

Iricaceae: Iris Family



TYPHACEAE: CATTAIL FAMILY

The cattail family consists of tall, perennial herbs that grow from creeping rhizomes. The unjointed stems are simple and cylindrical. Arising mostly from the root, the leaves are linear and alternate.

The plant is monoecious. Unisexual (one-sexed), the flowers are numerous, forming a tightly compressed spadix [a] inflorescence. The flowers are wind pollinated. The male flowers [b] grow above the female flowers [c] and have two to five stamens [d]. The filaments can be free or joined (connate). The anthers are linear and attached to the filament at the base. The sepals and petals (perianth) are composed of many slender-jointed threads. The fertile female flowers (many female flowers are sterile) [e] have a one-celled ovary [f] and a narrow style and stigma [g]. There is only one genus in Typha.

Typha latifolia: Soft-Flag Cattail

The plant is 1-2.5 m high and has leaves barely taller than the female spike. The light green leaves are 8-15 mm wide and nearly flat. The sheaths either taper into the blade or have blunt ends.

The mature female spike is 10-18 mm long and 1.8-3 cm thick and is usually greenish to reddish-brown, becoming whitish in age as the dark-brown stigmas wear off. There are no bracts. There is no space between the male and female flowers on the spadix. The male spikes have simple, hairlike, white bracts and a lot of bright orange-yellow pollen. The cattails occur in fresh-water marshes and other moist areas below 5,000 feet.

The Paiute name is mah ha tahl lahl. The seeds were an important food. The young, flowering heads were used to stop diarrhea.



GRAMINAE: GRASS FAMILY

The grass family is the largest family in terms of individual plants (the orchid family has the largest number of species). Extremely important economically, it supplies pastureland and grains, serving as the foundation of many alcohols, medicines, housing materials, and clothing.

Grasses are annual or perennial herbs, except for bamboo, which is tree-like. The fibrous roots hold down the topsoil. Grasses often have rhizomes and stolons. Stolons are stems that grow horizontally above the ground; rhizomes are stems that grow horizontally underneath the ground. New plantlets grow from these stems through vegetative reproduction or asexual reproduction. Because grasses can reproduce themselves without pollination, they can soon cover wide expanses of ground.

There is a complete vocabulary for grasses. The stems (culms) [a] are round and hollow except at the joints (nodes) [b], which are slightly swollen. The leaves are parallel veined and alternate. The leaf differentiates into two parts: the blade (lamina) [c] and the sheath [d], which wraps around the culm. Often there is a ligule [e], which is a thin membrane or series of hairs at the junction of the blade and sheath.

Grass flowers form inflorescences called spikes, racemes or panicles [f]. The stem of the inflorescence is called the rachilla [g]. On the bottom of the entire inflorescence are two small bracts called glumes [h]. The individual flower units are called spikelets [i] or florets, and each spikelet rests upon its own little stem (pedicel) [j].

The flower also has two bracts. The first bract, the lemma [k], is inserted into the rachilla [l]. The second bract, the palea [m], rests upon the pedicel. These two bracts enclose the floret, because the perianth is reduced to two or three microscopic lodicules [not shown]. Extremely sensitive to changes in water pressure, the lodicules swell, forcing open the lemma and palea and exposing the anthers and stigma to the wind, which is the pollinator. There are usually three relatively large anthers [n] on slender filaments. The two stigmas are feathered. The fruit is typically a grain (caryopsis) [o], berry, or achene. There are 600 genera and 1,000 species.

Oryzopsos hymenoides: Rise Grass

Rise grass is a slender, tufted perennial. The leaf blades, which are as long as the culms, are either flat or with edges curling slightly inward. They are covered with tiny hairs. The inflorescence consists of an open panicle 8-15 cm long, and each flower has a slender pedicel. The glumes, which are not quite equal to each other, are about 6-7 mm long, and three-ridged, with a pointed or twisted awn that may fall off in time. As long as the glumes are covered with tiny hairs, the hardened lemma encloses the palea. The fruit is a grain (caryopsis). Common in sandy places below 10,400 ft in dry areas, rise grass blooms from May to July. The seeds were an important food source.

Distichlis spicata var. stricta: Salt Grass

Salt grass is dioecious (male and female flowers on different plants), and perennial, with wiry culms 1-3.5 dm tall, erect or prostrate, often forming stolens. The leaf blades (2 dm long) are equal to or shorter than the male panicles, which are green to straw-brown, 2-7

cm long, and form spikelets containing 5 to 20 flowers. The lemmas are 3.5-6 mm long. The green or purplish, club-shaped female panicle (1.5-5 cm long) has 8 to 35 flowers crowded into spikelets, each with 5 to 9 flowers. The female glumes (2-3.5 mm long) are faintly nerved, while the palea is winged. The fruit is a grain (caryopsis). It grows in alkaline areas and blooms from May to July. An important food source, the seeds were eaten and made into bread.



LILIACEAE: LILY FAMILY

The lily family consists of perennial herbs arising from bulbs, corms, or rhizomes. The stems are often leafy, with mostly alternate leaves (sometimes opposite or whorled) and parallel veins. The flowers are most often arranged in spiked panicles, racemes, or (rarely) umbels. The perianth usually has six unfused parts. There are six stamens, often with two lobed anthers. The pistil has either one or three styles and a round or three-lobed stigma. The fruits are usually berries or capsules. The family contains about 2,000 species.

Calochortus nuttallii: Sego Lily,
Mariposa Lily, Butterfly Tulip

One of the most important features when distinguishing between *Calochortus* lilies is the layered onion-like bulb [a]. In this species, the bulb is membranous, with thin layers. The 2-4 dm stem is erect [b], and usually simple, with no branching. The linear leaves [c] become smaller the higher they grow on the stem.

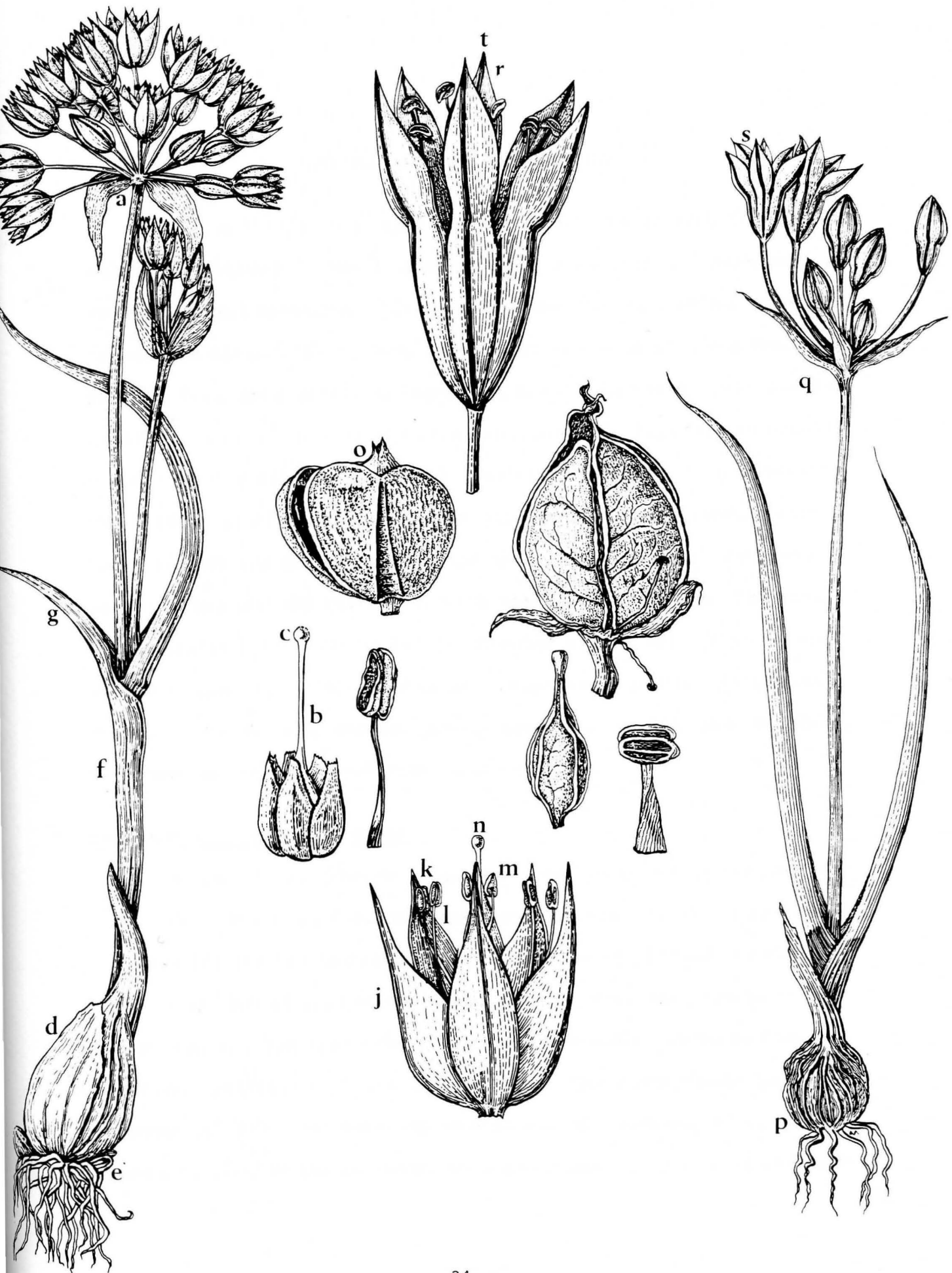
The umbel inflorescence [d] is composed of one to four flowers [e] which are erect and bell-shaped. The flowers are white tinged with lilac, and the oval petals have a green stripe [f] in the middle, with a maroon or purple [g] spot above the gland. The gland [i] is circular, slightly depressed, and covered by fringed, hair-like projections. The sepals [h] are lance-shaped, while the filaments are angled. The yellow anthers (sometimes maroon) are 5-7 mm long. The linear capsules [j] taper at the top. The plants grow on dry, grassy slopes from 5,000 to 9,000 ft in Sagebrush-Scrub and Pinyon-Pine Woodland, blooming from May to July.

The bulbs were an important food source, both raw and toasted. The Indians taught pioneers to forage for lilies, thereby saving a group of them from starvation.

Zigadennus paniculatus: Death Camus, Zygadine

This perennial herb has an oval bulb 3-4 cm long and smooth stems 2-6 dm high; the basal leaves (3-5 dm long) are slightly rough to the touch. The inflorescence generally forms panicles [k] about 5-25 cm long. The fairly long lower branches [l] curve upward, and the bracts taper to a point. The slender pedicels (1-2 cm) also curve upwards. The yellowish-white perianth [m] segments (4 mm) are slightly oval, tapering to a point. The sepals [n] are attached directly to the base, and the petals have a very pointed tip. The unpronounced, greenish gland [o] diffuses at the edges. The stamens [p] are 4-5 mm long, and the capsules 10-12 mm long. The plants grow in dry places from 4,000 to 7,000 ft, mostly in sagebrush-scrub, blooming in May to July.

The Paiute names are koggie a den up; see goh oh; and tah beese a goh. The raw bulb of this plant was often used to make wet dressings or poultices for rheumatism, sprains, lameness, neuralgia, toothache, or any sort of swelling. Although the Indians were well aware of the poisonous nature of the plant, some individuals prepared an emetic tea by boiling the bulbs. This plant is also poisonous to cattle who graze upon it.



AMARYLLIDACEAE: ONION FAMILY

The onion family is a group of perennial herbs growing from bulbs, corms, or rhizomes. The leafless stems arise from the bulb and, at times, are well developed. Rising from either the root or the stem, the leaves are alternate, entire, and linear--as in most monocots. The flowers form umbels [a], an important family characteristic distinguishing it from the lily and iris families. The flowers are usually perfect (having all parts), with a petal-like perianth of six segments. The stamens usually are inserted on the base of the perianth segments. The filaments are threadlike, and the anthers turn upward. The ovary is superior [b] (rarely inferior), with three compartments. The single style usually has a three-lobed or globular stigma [c]. Ninety genera and 1200 species occur, mostly in temperate regions. Many family members, like saffron, onions, garlic, narcissus, tulips, and daffodils, have both horticultural and economic importance.

Allium bisceptrum: Wild Onion

The bulb [d] is 1-1.5 cm long. The outer coats are darker than the inner ones. There are also supplementary bulblets [e]. The round stems (scapes) [f] are 1-3 dm high. The two to three [g] leaves are flat, 3-10 mm wide, and as long as the scape. Two pointed, oval bracts [h] (5-15 mm) subtend the open spherical umbel containing 15 to 40 flowers. The stout pedicels [i] are 1-2 cm long. The rose-purple perianth segments [j] are oval, tapering to a point. The stamens [k] are three-fourths as long as the perianth, with filaments [l] dilate at the base

and dark anthers [m]. The stigma is spherical [n] and the capsules [o] 3-4 mm long. These plants grow in meadows and aspen groves or moist areas at altitudes of 6,500 to 9,500 ft, and bloom from May to July.

Muilla transmontana

Like most members of the onion family, Muilla transmontana has a corm [p] from which rises the 1.5-5 dm stem. The few leaves are narrow.

The inflorescence is an umbel subtended by thin bracts [q]. The tube-like perianth [r] is wheel-shaped, not quite equal in length. The flower [s] is whitish or lilac in age, with two dark midribs [t]. Dilating at the base, the filaments [u] form a cuplike corona. The yellow anthers [v] are 1 mm long. The spherical, three-angled capsule [w] is 8-10 mm long. Muilla transmontana grows in Sagebrush-Scrub and blooms in June.

The name "muilla" is an anagram for "allium": It is "allium" spelled backwards. The plant's name is a botanical joke. It is similar to allium (onion genus), but lacks the onion smell and taste.

The Paiutes ate the bulbs as well as the leaves and stems of both the allium and muilla, sometimes raw and sometimes cooked.



IRICACEAE: IRIS FAMILY

Perennial herbs, most irises have rhizomes, corms, or bulbs. The leaves are mostly basal and equal in length, parallel-veined, and linear or sword-shaped. Issuing from bracts, the flowers are terminal, showy, and bisexual. The perianth has six parts. There are three stamens and one pistil, which has an inferior ovary with three compartments. The fruits are capsules. Many of the 1200 species are important for ornamental purposes, such as gladiolas, irises, fresias, crocuses, etc.

Iris missourienses: Wild Iris

These are perennial herbs with rhizomes [a] 2-3 cm in diameter and clothed with the dark remnants of old leaves [b]. The erect stems [c] can be either simple or branched, with one to several flowers [d] appearing at the top. The light-green leaves [e] are equal in length, and originate from the rhizome [f]. Like those of most grasses, the leaves are graceful. The slender flower stem is 2.5 mm high, with one to two flowers on a cluster and opposite bracts (4-7 cm) [g]. The perianth parts fuse into a funnel-like tube [h]. The first row of perianth parts forms the sepals [i], which are quite showy and hang downwards, giving them their botanical name, "the falls." Ovalish, they are 6 cm long, 2 cm wide, and pale lilac with darker purple veins. The petals [j] are erect, shorter, and 1 cm wide. The petals are also pale lilac but lack the colorful veins and are less dramatic. The three stamens [k] are inserted at the base of the falls and hidden by the petal-like styles [l]. The linear anthers are 1.5 mm long, and the style has a two-lobed

stigma [m]. The capsules are oblong. There are 250 species, in temperate regions. This plant grows at 3,000 to 11,000 ft, blooming from May to June in wet meadows.

The Paiute names are pah see toob ah; poo gooey roop; poo gooey rub. Considered so important that the Paiute name translates into "big medicine," this plant was used most extensively as a toothache remedy. The usual procedure was to insert either an entire piece or a portion of the pulped, raw root directly into the tooth cavity. Some people believed that the pulped root worked just as well when placed against the gum. This procedure would kill the tooth nerve, so that the entire tooth would finally fall out. Several sources also stated that the root decoction was a specific remedy for gonorrhoea, and at times the pulped root was applied to venereal sores as a salve. For bladder trouble, the roots were boiled to produce a whiskey-colored liquid with a bitter taste. The only other internal use was for stomach-aches, for which less than a cupful of liquid was drunk as a warm tea. To cure earaches, a small quantity of the lukewarm boiled-root solution was dripped into the ear. Considered to be poisonous, the seeds (when ripe) were made into a paste for sores and burns.

V

DICOTS

Chenopodiaceae: Goosefoot Family

Salicaceae: Willow Family

Leguminosae Fabaceae: Legume or Pea Family

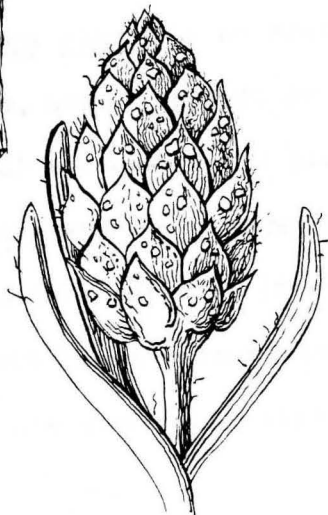
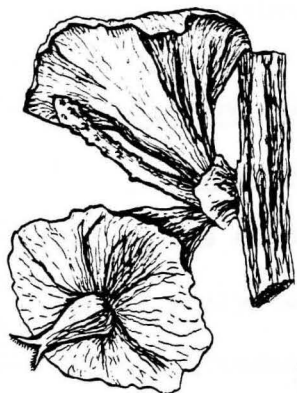
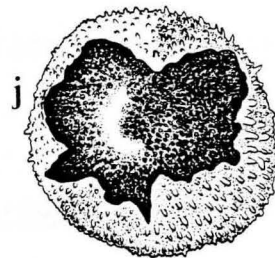
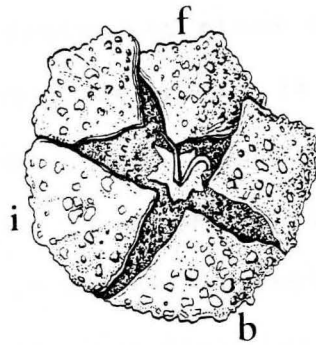
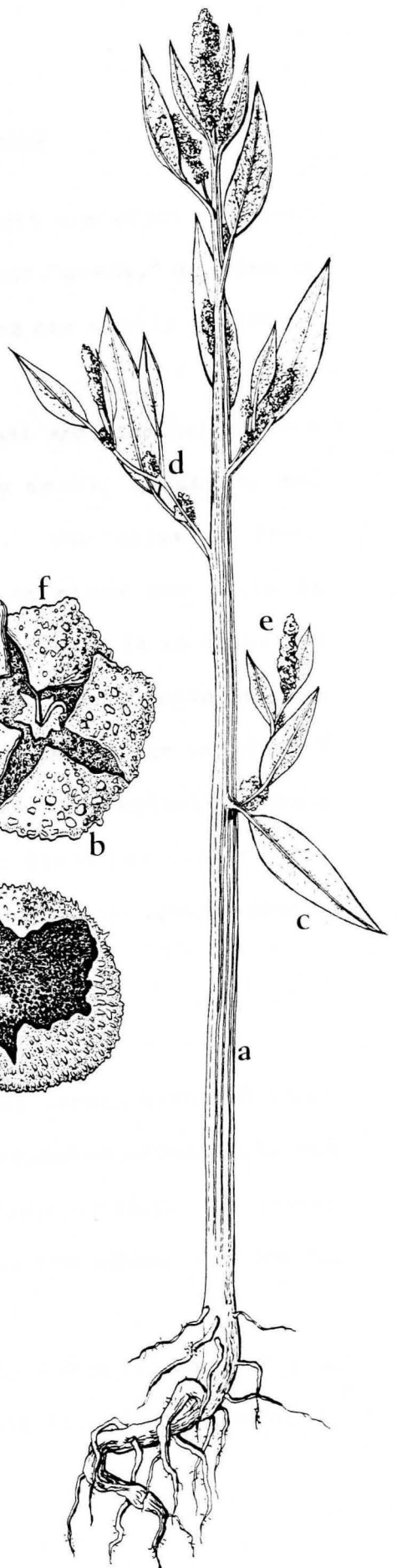
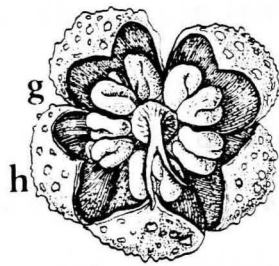
Paeoniaceae: Paeony Family

Cactaceae: Cactus Family

Rosaceae: Rose Family

Unbelliferae Apiaceae: Parsley or Carrot Family

Compositae Asteraceae: Aster or Daisy Family



CHENOPODIACEAE: GOOSEFOOT FAMILY

This family consists of herbs and shrubs that are often succulent or covered with small scales. They often appear "weedy," growing in areas with high salt content. The simple leaves are mostly alternate and often reduced to scales.

The flowers are perfect, with both unisexual and bisexual flowers often on the same plant. The flowers are very small, greenish, and variously arranged in cymes inflorescences. The calyx is free, persistent, and mostly encloses the fruit. At times the calyx is missing the female flowers, but when they are present it is green and membranous, consisting of five or fewer sepals. The corolla is also missing. The stamens are equal or fewer in number to the sepals and arranged opposite to them. The ovary is one-celled, maturing into a fruit called a utricle; rarely an achene. Goosefoot has two or three styles. There are 100 genera and 1400 species, including beets, spinach, saltbrush, and pickleweed.

Chenopodium album: Pigweed, Lambs-quarters

Chenopodium album is an erect, pale-green annual with red veins [a] in the stem, standing 2-20 dm high. The branches often fork, and appear mealy [b] because of the plant's high starch content. The leaves [c] are alternate and mealy underneath, with smooth edges, and are 1.5 cm long with slender petioles [d].

The compact cymes form panicles [e]. The calyx [f] is mostly in fives. There are generally also five stamens [g] with two--rarely

three--styles [h]. The fruit is a pericarp [i] with black shiny seeds [j]. A common weed in waste and fallow areas below 6,000 ft, Chenopodium blooms from June to October.

The leaves were used as greens. Chenopodium album is related to spinach.

Sarcobatus vermiculatus: Greasewood

Sarcobatus vermiculatus is a branching, spiny, spreading shrub, 1-5 dm high. The leaves (3-5 cm long) are both alternate and opposite, and covered with a slight pubescence. Linear and fleshy, they lack a petiole. The older branches are grey and the younger ones yellowish; both are covered with short, white hairs. The staminate spikes are 1-3 cm long and 3-4 mm thick. The round, shield-shaped scales have a slight pubescence. The pistillate flowers lack a petiole, and one or two occur in each axil of the inflorescence. The calyx is compressed, oval, and attached to the base of the stigma. The fruit is a coriaceous with thin, dry, wing-like appendages. Sarcobatus vermiculatus grows in alkaline places at altitudes from 3,000 to 7,000 ft. It is generally found in Alkali-Sink to Pinyon-Juniper Woodlands, blooming from May through August.

The Paiute names are tah ub be; toh no be; tone oh bee. The entire plant was burned to a charcoal powder and mixed with water to stop diarrhea. Another Paiute said that only pulverized, charcoaled branches were used, in particular to stop rectal bleeding.



SALICAEAE: WILLOW FAMILY

Most members of the willow family are trees and shrubs. The leaves are alternate and simple, and have stipules. The flowers are unisexual, the species are dioecious. The male and female flowers are in separate catkins, often appearing before the leaves, and can either hang downward or sit erect. The flowers are tended by fringed or hairy bracts and a cup-like disk of one or two glands; the disk or glands possibly are all that's left of the calyx. The corolla is absent. The male flowers have two or more stamens tended by bracts. The female flowers have two to four united carpels and a superior ovary. There are two to four stigmas. The fruit is a capsule. There are two to three genera in the family, with 350 to 500 species. These are of little economic value in the United States except as ornamentals. In the genus Salix are the willows, and in the genus Populus are the poplars and quaking aspen trees.

Salix exigua

Salix exigua is a deciduous shrub with slender twigs and simple, mostly narrow, leaves. The leaf edges are smooth but sometimes have little teeth. On the surface of both the front and back of the leaf grow greyish-white hairs. The leaf has a very small petiole [a].

The catkin flowers appear after the leaves, which is unusual for the family. The scales [b] are yellowish and lance-shaped, and are also hairy. The two stamens [c] have filaments that are hairy below. The flowers are unisexual (the male [d] and female [e] are on separate

catkins). Each flower is subtended by a small scale. There are no petals or sepals. Instead, there are one or two glands at the base. There are up to ten stamens--mostly two to five--and one pistil [f], which later forms into a capsule [g]. The style is usually obsolete, and the stigmas [h] entire or divided. They grow in wet places, below 8,000 ft, in Sagebrush Scrub, and flower from March to May.

The Paiute names are kah nav; coo see suh ee be; soo vee; suh ee be; suh ee wee. This willow was used as a treatment for venereal disease. A bath was made from boiled twigs. In another community, a bark and root tea was administered, while in still another, the burned stems were mixed with water and used as a potion. To dry up syphilitic or running sores (also considered to be a good blood purifier), a powder made from the decoction was applied. A solution of boiled bark and roots was used in the springtime as a tonic.

A Paiute woman from Lovelock also described the successful use of the willow as a cure for dysentery. Willow roots were reduced to charcoal and then powdered. To this, finely mashed roots of a plant called kun nid yuh were added. The resulting mixture was then rolled into pills one half inch in diameter and taken for three successive days. When the kun nid yuh roots were not available, it was possible to substitute ordinary wheat flour. This was browned in a heavy skillet and then thoroughly mixed with the powdered willow roots. The dosage for children was one teaspoon three times daily for several days and then one per day for a week. The same remedy was given for intestinal influenza and for failure to urinate.

Young twigs steeped in a quart of water with a teaspoon of salt served as a laxative. The woody portions of the stems were boiled and

made an excellent physic. The root decoction was also taken for stomach-ache. A fine powder, made by grinding the dried bark of the stems, was applied as a healing agent to the navels of infants. A poultice of mashed roots was applied to the gums as a toothache remedy. A solution of boiled leaves was also used as an effective measure against dandruff.



LEGUMINOSEAE FABACEAE: LEGUME OR PEA FAMILY

The pea family contains trees, shrubs, herbs, and vines. The roots often have bacterial nodules, which are important in nitrogen fixation of the soil. The leaves are alternate, often compound, and have stipules.

The flowers are bisexual and can be either regular or irregular in shape. The inflorescences are racemes, heads, umbels, or panicles. The calyx has five sepals that are fused together (connate). The corolla has five petals. The androecium usually has ten stamens (sometimes fewer, and sometimes many more). The anthers often differ in length. The fruit is typically a legume with a variable appearance.

The legume family is an exceedingly large family, with 600 genera and 13,000 species; it is probably the third largest family in the world. It is considered economically important, producing beans, peas, dyes, wood, and ornamental plants. *Astragalus*, locoweed, and lupin also belong to this family.

Dalea fremontia

Dalea fremontia is a branching shrub that grows to be about 5-20 dm tall. The oblong, 6-8 mm leaves [a] are compound and entire, with the small stipules and dotted glands [b] characteristic of the entire genus Dalea. Stiff hairs also cover the plant.

The racemes [c] are 7-12 cm long. The persistent calyx [d] has teeth of equal length. The dark, purplish-blue corolla [e] has a banner [f] slightly longer than the wings [g] and keel [h]. The ten stamens

[i] are also of equal length, and the fruit [j] is oval with brown glands. Dalea fremontia grows in dry places in Sagebrush-Scrub, blooming from April to May.

The Paiute name is i era midga. The plant was used to stop internal hemorrhage; the roots or tops were boiled to make a tea which was administered internally. Sometimes this tea was also taken for minor stomach ailments.



PAEONIACEAE: PAEONY FAMILY

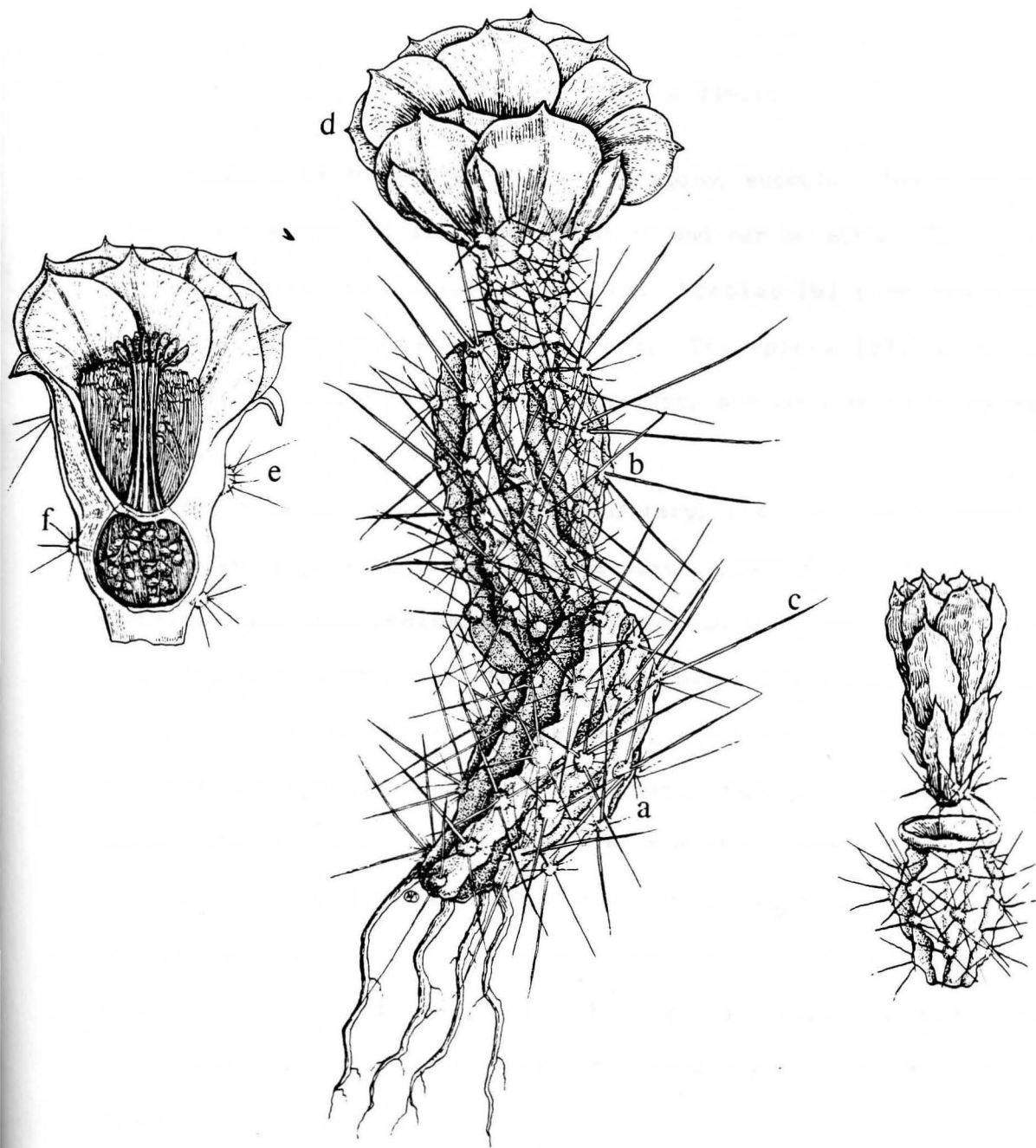
The paeony family consists of large shrubs and herbs with spirally arranged leaves. The flowers are often large, solitary, and perfect. The calyx usually has five petals, and the corolla has 5 to 13 petals. The many stamens mature first near the outside and later near the center. The two to five free, fleshy, carpels sit on a fleshy disk. The two to five fruits are called follicles, each with several seeds. There is only one genus.

Paeony brownii

Paeony brownii has fleshy roots and several simple stems 2-4 dm high. Each stem [a] has five to eight alternate, fleshy, segmented leaves [b], which have a smooth surface and a small petiole [c].

The flowers [d] are solitary, globe-shaped, and droop down, with rounded sepals [e] and petals 8-13 mm long. These are maroon with a yellowish margin [f]. The filaments are 3-5 mm long, and the anthers [g] are 2-4 mm long. The follicles [h] are 3-5 cm long with cylindrical, blackish seeds [i]. They grow on dry slopes, from 3,000 to 7,000 ft, in Sagebrush-Scrub, and bloom from April to May.

The Paiute names are bah tee pah; bah tee pee; bah tee vah; and pah too hah. The boiled roots were taken for tuberculosis, venereal disease, coughs, nausea, diarrhea, and kidney problems, including kidney stones. The root decoction was used as a lotion for headaches, and as a gargle for sore throats. For an eyewash, the root was soaked and the solution was applied as a cold infusion directly to the eye. The mashed roots served as a poultice for boils. Applied as a dry, pulverized powder, the roots were a preferred medication for burns, cuts, wounds, and sores.

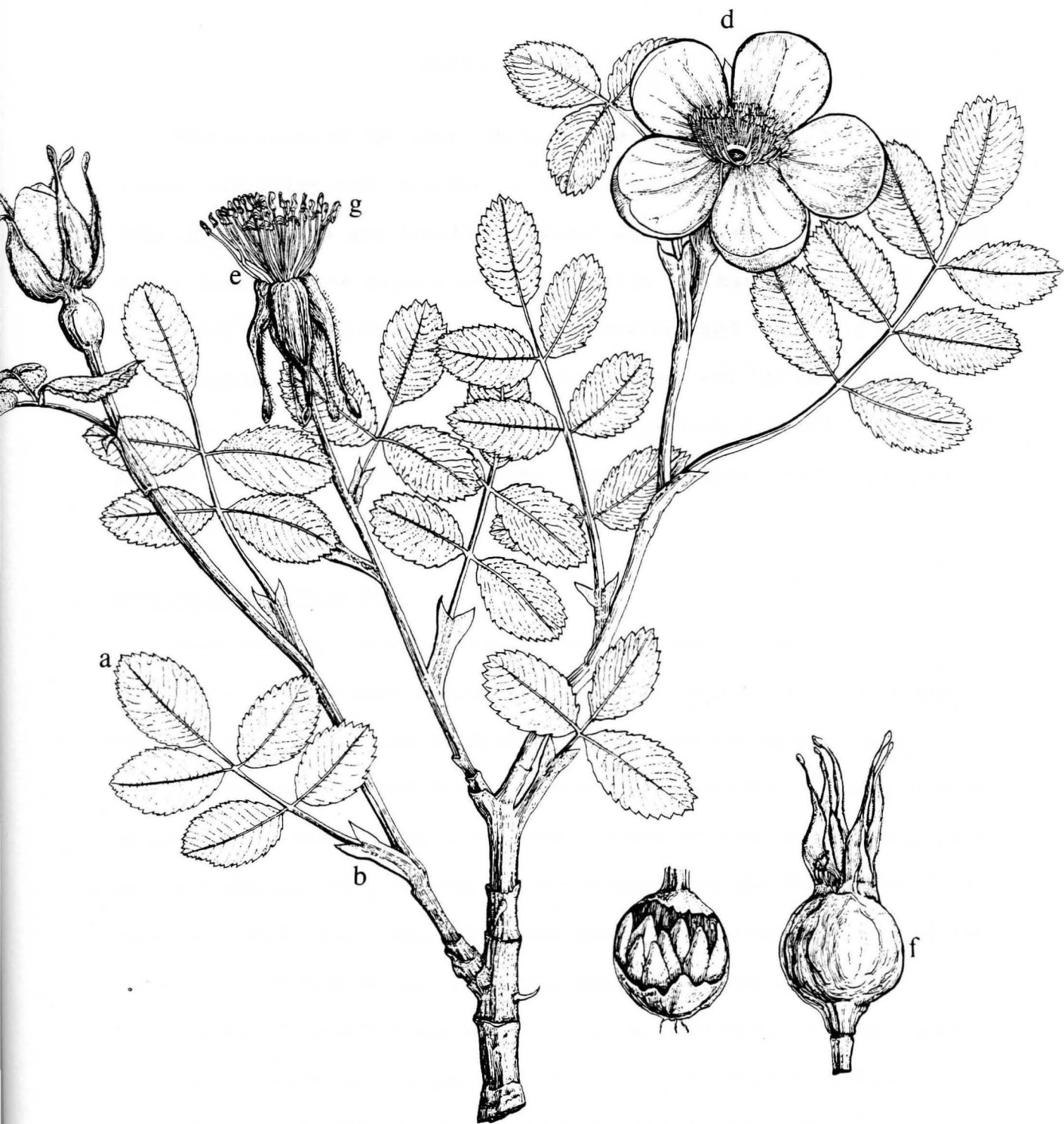


CACTACEAE: CACTUS FAMILY

Members of the cactus family are spiny, succulent herbs and shrubs. The fleshy stems [a] are photosynthetic and can be either flat or cylindrical. There are usually no leaves. Areoles [b] form cushion-like pads considered to be reduced stems. The spines [c], which can be hooked (then called glochidis) or straight, are considered to be reduced leaves.

The flowers [d] are usually solitary, regular, and bisexual. The petal-like calyx integrates into the corolla, which is composed of many petals. The androecium [e] has numerous stamens, either free or attached to the corolla. The inferior ovary [f] forms a many-seeded berry. There are 50-220 genera, with 2,000 species occurring in the western hemisphere. There are many beautiful, ornamental cacti, and edible fruits, including peyote, come from the cactus.

Beaver-tail Cholla is the common name of Optuntia. The pulp was scraped out and applied as a wet dressing to cuts and wounds; the dressing had to be changed frequently. The fine fuzz was rubbed against warts and moles to remove them. The pads were burned and eaten; the fruits were eaten raw.



ROSACEAE: ROSE FAMILY

The members of the rose family can be trees, shrubs, or herbs. The leaves are alternate, simple, or compound [a], usually with stipules [b]. The flowers are usually bisexual and regular. Most often, the calyx [c] has five sepals and the corolla [d] has five petals. The ovary [e] can be either superior or inferior, and the fruit is a follicle, achene, drupe, hip [f], or berry. There are 100 genera and 3,000 species. The rose family is extremely important because it produces edible fruits: apples, peaches, strawberries, cherries, plums, apricots, and almonds, to mention only a few.

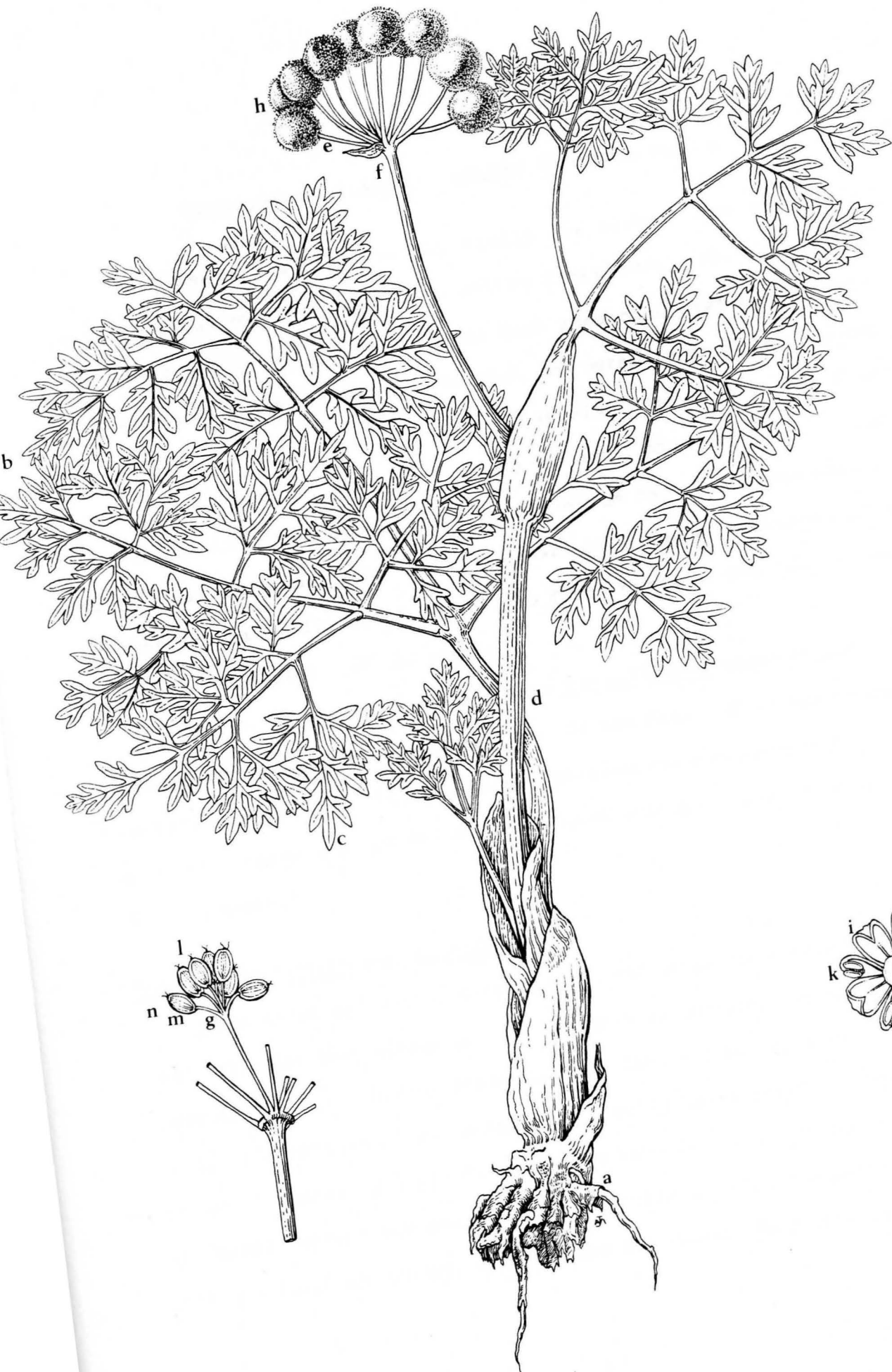
Rosa woodsii: Wild Rose

Rosa woodsii forms a prickly, erect, sprawling or climbing shrub. The leaves are alternate and can be either deciduous or persistent. They are mostly compound, with stipules adjacent to the petioles.

The large, rose-pink flowers are solitary, and the inflorescence is in panicles. The fleshy, floral tube is cup-shaped, with five sepals and five petals. Many stamens [g] are attached to the rim of the floral cup. The fruit is a hip. The plant grows at altitudes from 5,000 to 9,000 ft, in Pinyon-Juniper Woodland, and blooms from April to August.

The Paiute name is see avvie. A tea made from the steeped leaves was highly valued as a beverage. As a tonic to stop diarrhea it was administered in dosages of one-half to one cupful. For intestinal influenza, a dose of one-half cupful at a time for adults, and one tablespoon for children, was administered. One cupful was drunk for failure to urinate.

The plant was also considered important as a dressing for sores, cuts, wounds, burns, and swellings. Roots, wood or the inner bark of the stems were applied either dry or moistened; the rose stems were also scraped into fine shavings or ground into a powder and inserted directly into the wound. After treatment, the wounds healed with less swelling, pain, and scar tissue. The ripe fruits were used as food, and the stems were made into arrows and pipes.



UNBELLIFERAE APIACEAE: PARSLEY OR CARROT FAMILY

Most members of the parsley family are herbs. The stems are usually stout and furrowed, with hollow internodes. The leaves are alternate and usually compound, and have sheathing leaf bases. The flowers usually are bisexual and regular, and normally occur in compound umbels [h]. The calyx has five small sepals. The corolla has five petals [i] (sometimes absent) which are distinct, white or yellow. The androecium has five stamens [j]. The gynoecium has two united carpels with a superior ovary [k]. Above the ovary is a unique structure called the stylopodium [l], which is the two fused bases of the two styles. The fruit is called a schizocarp [m].

Much of the identification of the Umbelliferae depends upon the details of the fruits. The outer wall of the fruit often has characteristic ridges [n]. In the valleys between the ridges are often oil passages. There are 300 families and 3,000 species, many of which are cooking herbs.

Lomatium dissection var. multifida.

These herbs are mostly 8-14 dm tall, and originate from a thickened root [a]. The leaf blades [b] are roundish in outline, 1.5-3.5 dm long, ternate, with two to four segments. The leaf [c] segments are 2-22 mm long, with petioles 5-25 cm and are slightly hairy beneath, sheathing [d] at the base. The plants have many rays [e] (3-13 cm long), which are equal, with a few entire linear bractlets [f]. The pedicels [g] (4-20 mm long) are oblong, with obscure oil tubes. They grow in Pinyon-

Juniper Woodland, occasionally on rocky slopes from 2,000 to 9,500 ft, and flower from May to June.

The Paiute names for Lomatium dissection var. multifida (or Indian balsam) are toh aw sav ve; toh sa ; toh sah ah; toh sup. Used throughout Nevada, this plant was considered one of the most important medicinal plants by the Paiutes. Roots were collected and stored for the winter; the roots were first peeled, then sliced and laid out to dry. Until several years ago, it was possible to purchase a commercial preparation of this plant under the name of "Balsamea."

All ailments were probably treated in one way or another by this plant; it was a universal panacea. The dried root was made into tea for such ailments as hayfever, bronchitis, influenza, tuberculosis, pneumonia, coughs, and colds. For congestion, the pulverized roots were either smoked, sometimes with tobacco (Nicotiana attenuata), or the fumes simply inhaled after setting the roots on a bed of hot rocks (rarely combining them with Pinus monophylla). A cloth could be used to cover the head, thereby enhancing the effect of the fumes.

Raw pieces of the root were often chewed for sore throats. The root segments of the plant were also mixed with those of Osmorhiza occidentalis and boiled to make a hot tea for colds and sore throat. Sometimes the roots were combined with twigs of Juniperus utahensis as a special tea for the treatment of influenza; combined with Artemisia tridentata, it was used to treat colds.

A treatment for gonorrhoea was made by boiling the plant with Achillea lanulosa. In Nixon, an "unfailing" cure for unspecified venereal disease was made by boiling Lomatium with Rumex venosus.

The root also formed the basis for many antiseptics. The decoction

was employed as an external wash for smallpox, sometimes with leaves added to the brew. As a healing agent for skin rashes, cuts, or sores, the decoction of the boiled root was used as a wash, or the raw root was pulped and applied directly to the cut; the whole was then sometimes dusted with a fine, red earth known as pee sha pee. In Nixon, the oily sap from the sliced fresh roots was carefully gathered and used on the cuts and sores; if fresh roots were not available, the dry roots were boiled and the oil skimmed from the surface of the water. The same oil was used to treat trachoma or gonorrhoeal infections of the eye, using one drop of the oil in each eye.

Formerly, in some communities the fresh root was ground to a pulp and applied to the severed umbilical cord of the newborn infant. For swellings, sprains, or rheumatism, the crushed root was boiled and made into a poultice. The water from the boiled root could also serve as a wash.

A number of different settlements, including Nixon, cured distemper in horses with this root. The horse was first run to accelerate his breathing. After covering his head with a cloth, the animal was forced to inhale fumes from smoldering roots placed in a bucket; a nosebag might also be used. Sometimes other plants were used for this treatment, especially Angleica breweri or the resin from Pinus monophylla.

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COMPOSITAE ASTERACEAE: ASTER OR DAISY FAMILY

The composite family members are mostly herbs, but are sometimes shrubs and trees. The leaves frequently form basal rosettes, simple or compound, without stipules. The flowers typically make up a head-shaped inflorescence called capitata or head [a]. These heads are further organized into racemes, corycombs, panicles, or compound heads. The head is composed of many tiny flowers or florets inserted on a conical or flattened disk-shaped receptacle [b]. The entire head is surrounded by bracts called phyllaries [c]. The phyllaries can occur in several layers. There can even be a second type of bract, called a chaffy [d], which tends the individual flowers. If there is no chaffy, the flower is said to be naked.

The small flowers are bisexual or unisexual and have an inferior ovary. Only the corolla is well developed, with five petals [e]; often four petals are microscopic. If the calyx is present, it is very small and is called a pappus [f]. When present, it takes the form of hairs or bristles. The corolla can be either regular or tubular (called cone or disk). The flowers, if regular, are called ligulate; if irregular, they are called ray. The androecium is composed of five stamens [i], united by their anthers to form a tube around the style [j]. The stamens are absent in some types of flowers. The gynecium has an inferior ovary that develops into an achene or cypsele.

Artemisia tridentata

Artemisia tridentata is a round, evergreen, aromatic shrub, 0.5-3

meters high, with a short trunk or several branches originating from the base. The silver bluish-green leaves are caulescent, and the vegetative stem leaves lack a petiole and are cuneate. The 3-4 cm leaves have three lobes (seldom four to nine or completely entire). Those of the flowering stems are mostly entire and linear. The inflorescences are on erect branches (1.5-4 dm long). The phyllaries range in number from eight to fifteen. There are three to six perfect flowers in a head, with a long (2-3 mm), narrow-funnelform corolla with five teeth. These plants grow on dry slopes in Sagebrush-Scrub and Juniper Woodland, from 1,500 to 10,600 ft, and flower from August to October. There are several species of sagebrush; this one is most easily recognized by the three-lobed leaves in the vegetative shoots.

The Paiute names for Artemisia tridentata (big sagebrush) are paheesh sahwatty; pahhoebe; pahwavvy; sahwahbe; and sahwavvy. Among all Indian tribes, this plant, next to Lomatium multifida, is the most widely used in the State of Nevada. Most commonly a cold treatment, the leaves are boiled to make a tea, usually drunk hot in one-half cupfuls several times a day. For this tea, the tops, rather than the leaves, are preferred; sometimes it is recommended that the first water be discarded and only the second water used for the tea. In fact, some Indians claim that the tea should not be bitter, also cautioning that an overdose acts as an emetic.

For respiratory ailments, the branches with flowers and leaves are collected and dried for the winter. A cough remedy is prepared by adding just enough water to cover the material and a little salt. The proportions of the dried sagebrush may be only a pinch to a cup of water. For head colds, the branches are burned on top of the stove and

the fumes inhaled. A poultice for chest colds can also be prepared. The tea for colds is prepared by boiling the tops of the plant with the roots of Lomatium multifida or with the young twigs of Juniperus utahensis. In a reliable cure for pneumonia, the leaves are boiled in water with a pinch of salt; a tablespoon of the warm solution is given each time the patient coughs. In another treatment for the same disease, the leaves are boiled with the root of Lomatium multifida to make a hot tea.

Branches burned on the top of the stove make a fumigant for rooms after an illness. The baskets used during childbirth are held in the smoke. The tea brew is also used as a general tonic which is especially favored after childbirth.

Sagebrush is used in various headache remedies: a tea made from the boiled branches is taken internally; the solution from the boiled leaves is used to bathe the head; or fumes from burning plants are inhaled. In addition, the crushed and moistened green leaves can be applied as poultices directly on the forehead. To relieve stomach-aches, the branches are boiled to make a tea especially favored for treating children. A half cupful of the hot solution is given for stomach cramps. Sometimes the raw leaves are chewed for indigestion.

To break a fever by producing a sweat, one-half cupful of the tea from boiled leaves is used. For malarial fever, a small quantity is taken three times daily.

For cuts, wounds, or sores, the boiled leaves are made into an antiseptic wash and applied directly as a poultice, or the branches are dried, pulverized, and applied as a healing powder. The steeped leaves can be applied as a wet dressing to promote healing of stubborn bullet

wounds. The leaf decoction is used warm as an antiseptic bath for newborn babies.

The plant, in addition, has a considerable range of applications: the boiled branches serve as hot poultices for various aches and pains, especially rheumatism; as a liniment for lumbago or muscle cramps; to alleviate pain from red ant bites; or as a bath for aching and swollen feet. The strained liquor from boiled leaves is used as a sore throat gargle. Leaves steeped in hot water are laid directly on inflamed eyes, while mashed leaves are applied along the cheek next to the gums to stop toothache. For poisoning of any sort, the tea is taken internally; if there is no water available, the leaves can be chewed. A rather novel employment occurs where the dried leaves are finely pulverized to serve as a sort of talcum powder for babies.