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ETHNOBOTANY
of the
NAVAJO



FRANCIS H. ELMORE, A.A., A.B., M.S.

A MONOGRAPH
of
THE UNIVERSITY OF NEW MEXICO
and
THE SCHOOL OF AMERICAN RESEARCH

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*A Monograph of the University of New Mexico and the
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DEDICATION

**TO MY PARENTS
WITHOUT WHOSE CONSTANT
AND INSPIRING INTEREST
THIS PAPER WOULD
NEVER HAVE BEEN
WRITTEN**

61/62 - 9

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F. H. E.

Table of Contents

	<i>Page</i>
FOREWORD	9
KEY TO THE SOUNDS AND MARKS	15
ETHNOBOTANY OF THE NAVAJO	16
APPENDIXES	
A. Unidentified Plants	91
B. Plant Products and By-products	94
C. General Terms for Plants	94
D. Annotated List of Plant Parts	94
TABLES	
I. Medicinal Plants	96
II. Ceremonial Plants	99
III. Food Plants and Food Accessories	104
IV. Wood Plants	106
V. Dye Plants and Dye Accessories	108
VI. Basketry Plants	109
VII. Forage and Browse Plants	109
VIII. Gaming Plants	109
IX. Beverage Plants	110
X. Miscellaneous Plant Uses	110
XI. Summary of Plant Families	112
SELECTED BIBLIOGRAPHY	113
INDEXES	
NAVAJO	119
SCIENTIFIC	123
GENERAL	129

Foreword

This paper is the result of seven years of intermittent work on Navajo ethnobotany, which was begun in 1936. Most of the field work was done at the Research Station of the School of American Research and The University of New Mexico, Chaco Canyon National Monument, New Mexico, while the library work was done in several Southwestern libraries. Three summers were spent working first hand with Navajo informants. The informants were usually taken into the field for identification of the plants, because of the difficulty in identifying dried and pressed specimens. It was also noted that the informants found it difficult to identify even freshly picked specimens brought into camp. This was due no doubt to the fact that the plant was out of its environment, which the Navajo regard as one of the essential factors when naming a plant. When an informant was not certain of a plant name, he was instructed to check with several of the other Navajo for the correct name and use. Whenever possible, the name and uses were checked in the absence of the original informant. It was found that a question in the affirmative almost always received an affirmative answer; so, as a result, the Indians themselves were allowed to do the explaining. Over one hundred and seventy-five species of plants were gathered in the field. Many others were noted but not collected because they were in a dry condition or were not in flower.

In every case, when the author's field notes were found to coincide with published material, the published material is cited in preference to the field notes. In practically all cases reference citations were carefully checked in the field.

It is important that work of this sort should be done as soon as possible, for in a few years the Navajo will have forgotten how many of the plants were used. Moreover, in working in prehistoric sites in any part of the country, a knowledge of the plant uses of the present-day Indian living at or near the locality is helpful in conjecturing the prehistoric uses of the plant fragments found during the process of excavation. The coming of the Spaniard contributed toward the diminishing use of the native plants, and as a result, the younger generation pays little or no attention to plant names and uses. The trading post, with all of its modern goods, has made the Navajo more and more dependent upon it. At present, much of the earlier food has disappeared. The various grass seeds are no longer harvested, and venison has been replaced almost entirely by goat meat, beef, and mutton. Coffee, tea, and occasionally goat's and sheep's milk have been added to the regular fare, almost to the exclusion of their native beverages, while modern flour and cornmeal are preferred to the laborious task of grinding native corn. Flour has replaced Indian millet and other wild seeds; canned spinach has replaced the Rocky Mountain bee weed (*Cleome serrulata*), *Amaranthus*, and other native greens; and many other plants, too numerous to mention, have been replaced by other white man's products. Due to government aid, the Navajo has given up other native practices.

The earning of money has been made easier, so that now the Navajo can buy food almost as cheaply as he can gather it, and furthermore, with about half the trouble. Although some of the food preparations listed below are no longer used, many of them are still preferred to the less substantial and more expensive modern store goods.

The whole of the Navajo country lies within a plateau region which is characterized by sandstone outcroppings. On the whole, this sandstone lies in nearly a horizontal position, everywhere cut by gorges and narrow canyons which make most of the Navajo country exceedingly difficult to traverse. The valleys are floored with sand and silt that, through the ages, have accumulated from the mountains and are charged with alkali salts. In many of these valleys the summer rains convert the soil into soft clay-like mud that seems bottomless and is impassible. In general outline, this country stretches from the Rio Grande of New Mexico on the east to the Marble Canyon of the Colorado River on the west, and from the San Juan River on the north to the Zuñi Mountains and the Little Colorado River on the south. This approximates the "Old Navajo Country" which was bounded by four sacred peaks. These were Blanca Peak near Alamosa, Colorado, Mount Taylor near Grants, New Mexico, the San Francisco Peaks near Flagstaff, Arizona, and La Plata Mountains in southwestern Colorado. The present Navajo country covers in all about 26,000 square miles, of which approximately 4,000 are outside of the Reservation boundaries. About 90 percent of the country lies between three and seven thousand feet in elevation in the Upper Sonoran and Transition Zones. This permits a wide variation in the amount of rainfall and the character of the vegetation.

The rainfall of the country is characterized by extreme variability. Through the whole of the Navajo country there is a scarcity of water. In the large valleys during most of the year there is none, and it is only in the mountain districts that there is a permanent supply, but in these higher elevations, life is almost impossible during the winter months. The Colorado, Little Colorado, and the San Juan Rivers are the only streams which maintain a flow throughout the year. The average mean rainfall within the Reservation is only 8.29 inches per year, while evaporation goes on at a high rate. The influence of these factors, taken together with the sparseness of vegetation, produces a great fluctuation in the volume of water carried by the arroyos. In general, these arroyos are alternately flooded and nearly dry during the rainy season, and without water in the spring and fall. This condition has an important effect on the people and their arts and crafts.

The vegetation of most of the Navajo country, while generally scant, is more abundant than would be expected. There are really no parts, even in the driest times, that are wholly devoid of plants, except perhaps in some of the basins where the soil contains an excessive amount of alkali.

The lower elevations of the Navajo country are characterized by the

piñon (*Pinus edulis*) and the juniper (*Juniperus monosperma*) and a scattered growth of shrubs. The plants are usually woody and often very uniform in size and general habitat. The characteristic shrubs of this zone are sagebrush (*Artemisia* spp.), cacti (*Opuntia*, *Mammillaria*, and *Echinocereus*), and yucca (*Yucca elata* and *Yucca baccata*). In the poorly drained areas where there is an excessive amount of alkali, the greasewood (*Sarcobatus vermiculatus*), shadscale (*Atriplex* spp.), and rabbitbrush (*Chrysothamnus* spp.) are found. In the canyons grow the alders (*Alnus incana* and *Alnus tenuifolia*), cottonwood (*Populus wislizeni*), walnut (*Juglans major*), and the box elder (*Acer negundo*). During the rainy season there is a profusion of annuals, among which are the mariposa lilies (*Calochortus* spp.), sunflowers (*Helianthus annuus*), and many *Compositae*.

Just above this zone, the western yellow or ponderosa pine (*Pinus ponderosa*), spruce (*Picea* spp.), and oak (*Quercus* spp.) are the dominant trees. In general, these forests are open and numerous shrubs and herbs are found there. Among these, the more common are the serviceberries (*Amelanchier alnifolia* and *A. prunifolia*), the wild rose (*Rosa fendleri*), and a few scattered shrubs of sagebrush (*Artemisia* spp.) and rabbitbrush (*Chrysothamnus* spp.). Here also is found an abundance of grasses and herbs. The most common genera of herbs encountered here are *Campanula*, *Erigeron*, *Fragaria*, *Solidago*, and *Thalictrum*.

In the upper limits of this zone the western yellow pine is supplanted by Douglas fir (*Pseudotsuga taxifolia*), aspen (*Populus tremuloides*), and limber pine (*Pinus flexilis*). The dominant shrubs here are snowberry (*Symphoricarpos orbiculatus*), chokecherry (*Prunus demissa*), and several species of willow (*Salix* spp.). Again, grasses and herbs are abundant.

The direct dependence of the Indian on nature has no better illustration than in the Navajo country. The Navajo live in this semi-arid region where material for various uses is rather limited. In the four essentials—land, water, vegetation, and animal life—the country is not an ideal one. The hard conditions under which the Navajo live have acted directly on their arts and crafts, on their habits and customs, and on their mind and mythology. Because agriculture could not be satisfactorily pursued under such conditions, the Navajo were continually traveling from one place to another in search of food plants and game, upon which they largely depended. The various uses of the plants by the Navajo indicate the large extent to which, after years of experiment and study, they were able to understand and utilize their surroundings.

The early Navajo subsisted chiefly on corn, which today still furnishes their chief sustenance. It was not always possible to have corn patches because of war and constant moving, so, as a result, numerous seed-bearing plants were used as substitutes. Whenever possible, small patches of corn, beans, and squash were raised. Rabbit meat and venison, together with teas made of native herbs, helped to vary their diet.

The Navajo learned to use all kinds of roots, stems, leaves, and seeds

because they made long journeys during which enough food for the entire trip could not be carried. The skillful usage of these plants, developed by the Navajo through these years of experience, is remarkable. Not many native plants were allowed to go unused. The Navajo's knowledge of the piñon nut as a food has been used by white man in exploiting it on the markets. Other plants used by these Indians might also be introduced.

Aside from food plants, certain plants are found throughout the Navajo country which are used by most of the medicine men for ceremonial medicines and ceremonial paraphernalia, although there is some variation due to the location or time of year. The Navajo have certain classes of plants which can be used in various ceremonies. For instance, if a certain plant is not available in the immediate country or at that particular time of the year when the ceremony is given, the medicine man has a choice of several other plants which are just as potent. An example of this is the "life medicine" which contains almost forty plants. In an emergency, two or four of these plants may be used, but it is better to have six. Any others may be added if at hand. This would account, in part, for the different uses for certain plants noted by the various authorities.

Plants are so much a part of the life of the Navajo, especially the medicine man, that he never divorces himself from them. It is fair to assume that every plant used in a ceremony, whether as a medicine or for ceremonial objects, originally had some significance, but now many are lost in obscurity or are not divulged by Indian informants.

The influence of the Navajo medicine men on Navajo culture is enormous. Until the coming of the white man, there was only one system of medical care, which was embodied in a system of native medicine which was the property of the medicine men, and a few laymen. Many Navajo women are well versed in the medicinal flora of the Navajo country and are often consulted by the medicine men. A medicine man must be well versed in therapeutics as well as psychotherapy and ceremonialism, because Navajo medicines are applied in the course of ceremonials. The knowledge of the singer is not gauged so much by his familiarity with the curative powers of the herbs that he uses, as by his knowledge and dexterity in performing the rite. He, of course, must know all of the properties of the herbs used so that they can be applied properly. A glance at the list of plants used in the ceremonies and the manner of applying them lends color to the opinion that medicines are of minor importance in ceremony. Although the medicine men *do* sometimes rely more upon magic than on natural remedies, modern medicine has yet something to learn from them when it comes to psychotherapy.

The Navajo attributes some meaning to almost every plant, therefore he uses parts of them to assemble a thing of beauty to express his innermost thoughts and feelings. Prayersticks almost always contain plants or are made from them. These, with their accompanying rituals, the medi-

cine man passes on from generation to generation, just as the white man passes on written expressions of his innermost thoughts.

The outward characteristic of a plant often gives the observing Navajo a clue for the name. Thus, they have plants with many leaves, grape-like plants, plants with pine or spruce odor, plants which look like certain parts of animals, and many others which have special characteristics. Many plants are also termed "medicine." Some of these are applied as remedies, while others are for ceremonial usage only, but since all of the Navajo ceremonies are supposed to be curative, plants used in them are termed "medicine" although they may or may not possess curative or medicinal properties.

The Navajo is very particular about details but is also able to generalize. While there seems to be no trace of botanical orders, as our textbooks present them, there are evidences which show a tendency toward this end. The Navajo recognizes grasses, seed-dropping grasses, tobaccos, the different spruces, junipers, cacti, oaks, and many other genera of plants. They observe small differences in plants that the ordinary white man fails to see. For instance, all of the coniferous trees of the region have specific names in Navajo, while the ordinary white person calls them all pines or junipers. This is brought about by the fact that the Navajo is forced to acquire knowledge in this field by reason of his more or less direct dependence on plants. They also have a very clear concept of nature and most of its processes.

The Navajo usually have a name for each species and genus of plants, but in some cases they employ the same name for different genera. This is not due to their lack of appreciation of the botanical difference, but due to the fact that two or more plants may serve the same purpose or have similar characteristics.

Besides the native flora, plants which have been introduced and have become established, and commercial plants are included in this paper. Many plants have been introduced from Europe by the white man, and have escaped to become established as a part of the flora of the Navajo country. Through the medium of the trading post, the Spaniard and American have introduced to the Navajo almost all of our common commercial fruits and vegetables. In the majority of cases, the plants are known to the Navajo only by their fruits; many Navajo names, therefore, are descriptive of these fruits. When no uses are mentioned in either of these cases, the plants are used in much the same manner as we use them, being the results of European and Navajo acculturation.

The plants included here are only a portion of those used by the Navajo, and it is hoped that this will serve as a preliminary study to more extensive ethnobotanical research among the Navajo. It will be noted that there is a lack of medicinal data in this paper. This is due, largely, to the fact that there are other workers in the field making intensive studies of Navajo medicine.

The sequence of families is arranged according to the Engler and Prantl system, as modified by Robinson and Fernald¹ and Coulter and Nelson.² For convenience the genera and valid species are placed in alphabetical order under the family headings. Synonyms have been used only as far as deemed necessary. The synonymy, therefore, is by no means complete, and only such names are included as have been in use recently, or as is necessary for the explanation of the accepted name. The place of publication of each name is not given for the reason that it would be of use only to a professional botanist, who would usually have access to the "Kew Index" or the "Card Catalogue." The names of the genera and valid species appear in **boldface type**. The synonyms of each species appear in *italics*, and are arranged alphabetically under the valid name. For simplification, when valid names occur in the text they appear in *italics*. The generic and specific names are followed by the names of their authors, usually abbreviated. After the specific name, an author's name in parenthesis signifies that he originally proposed it, either in another genus or only as a subspecies, variety, or form. The author following the parenthesis was the first one to make the accepted combination. The common name or names, if there are any, are given after the Latin generic and specific names. In the Navajo country, the common names usually apply to all species of the genus, rather than to a particular one. An effort, therefore, has been made to record all of the common names of a plant, whether they apply exclusively to that species or not, as the nomenclature in various parts of the Navajo country varies. Different plants may bear the same name, or the same plant may bear different names in different localities. The more commonly accepted names appear first. In quotation marks appear wrongly applied names. The Navajo names follow these. In parenthesis, after the Navajo names, appear, first, the approximate translations of the Navajo words, and then the literal translation. The numbers appearing in parentheses in the text refer to the bibliography, as (24:42), meaning page 42 in reference number 24 of the bibliography. There are here represented 522 species, belonging to 269 genera, distributed among 82 families. Not included in the above totals are 24 plants whose family only is known, and 41 unidentified plants.

1. Robinson, Benjamine Lincoln, and Fernald, Merritt Lyndon: *Gray's New Manual of Botany. A Handbook of the Flowering Plants and Ferns of the Central and Northeastern United States and Adjacent Canada*. Rearranged and extensively revised. Seventh Edition. American Book Company, New York, Cincinnati, and Chicago, 1908.

2. Coulter, John M., and Nelson, Aven. *New Manual of Botany of the Central Rocky Mountains*. American Book Company, New York, Cincinnati, and Chicago, 1909.

Key to the Sounds

There are only four vowels, and their modifications, but many consonants in the Navajo language. The vowels are a, o, e, and i, pronounced as in Spanish, except that o is pronounced especially like u when i or y follows. The principal modification in quality of these vowels is a nasoral umlaut, originating just as the "voyelles nasalisées" do in French as the result of a vanished or still existing nasal consonant. The nasoral quality is indicated in writing by placing an iota subscript under the vowel letter. Short and long vowels have to be distinguished in writing, but only one length of consonants. The vowels also carry tone. An accent placed over the short vowel indicates that it is high; lack of accent, that it is low. Only long vowels and vowels plus voiced continuant can carry a combination of high and low, the circumflex over a vowel indicating high to low, or its intention, and the inverted circumflex low to high, or its intention. In the rare instances in which a consonant diphthong is not formed, a spaceless period is used as a sign of separation. Since there is nothing so practical as alphabetical order and the giving of rough equivalents in European languages for the setting forth of the sounds of a language, the following list is presented:

a	short as in akin		the o of the second syllable of this
aa	long as in father		Spanish word
ᵃ	short nasoral	oo	long as in French clore
ᵃᵃ	long nasoral	o	short nasoral
c	sh as in ship	ᵃo	long nasoral
e	short as in met	p	as in Spanish pan, bread
ee	long as in French fève	s	as in some
ᵃ	short nasoral	t	as in Spanish tomar, to take
ᵃᵃ	long nasoral	t'	t clicked by co-closure of larynx
g	open g	tx	consonant diphthong originating
h	as in English; rare except after		in over-aspiration of t
	vowels	tc	as in Spanish muchacho, boy
i	short as in pin	tc'	tc clicked by co-closure of larynx
ii	long as in machine	tch	tc aspirated as in watch-house
ᵃ	short nasoral	tl	as Spanish mamut lanudo, woolly
ᵃᵃ	long nasoral		mammoth
j	as the medial consonant of English	tl'	tl clicked by co-closure of larynx
	azure	tlh	tl aspirated
k	as Spanish hard c	ts	as in at zero (the s has more of a "z"
k'	k clicked by co-closure of larynx		sound)
kh	aspirated k	ts'	ts clicked by co-closure of larynx
l	as in lie	tsh	as in rat's hole
ł	voiceless l, Welch ll	w	as in water, in reality gw
m	as in mud	x	as in Russian xolm, hill
n	as in now	y	as in you
o	as in Spanish oro, gold, more like	z	as in zero

Marks

- ' closure or co-closure of larynx
- a period without spacing separates sounds
- ᵃ under a vowel, or under the first letter of a double vowel or vowel diphthong, indicates nasoral quality
- ˆ over a vowel, or over the first letter of a double vowel or vowel diphthong, indicates high level
- ˘ over the first letter of a long vowel, or a vowel diphthong, indicates high-low, or an attempt at it [occasionally ˆ over first vowel and ˘ over second vowel]
- × over the first letter of a long vowel or a vowel diphthong, indicates low-high, or an attempt at it

DIVISION I

THALLOPHYTA

CLASS I. ALGAE

SUB-CLASS I. CHLOROPHYCEAE

Order I. CONJUGALES

Family 1. ZYGNEMACEAE (Pond Scum)

Spirogyra sp. Pond Scum, Brook Silk, Water Moss. 1. Txátláat (water covering). 2. Txótláat (water covering). Pictures of the serviceberry (*Amelanchier prunifolia*) and water moss are made of colored sand and are used to drive the evil spirit of the bear from the body (27:141).

CLASS II. FUNGI

SUB-CLASS II. BASIDIOMYCETES

Order II. USTILAGINALES

Family 2. USTILAGINACEAE (Smut)

Ustilago zeae (Beckm.) Ung. Corn Smut. Tǎa'átchaan (Corn killer).

Order III. HYMENOMYCETALES

Family 3. AGARICACEAE (Gill Fungi)

Agaricus sp. Mushroom, Toadstool, Hongo. 1. Na'iiltjih (eye blinding). 2. Peectc'ah (iron, flint, or metal hat).

Family 4. POLYPORACEAE (Bracket Fungi)

Polyporus sp. Bracket Fungus. Tshin pizeş (tree wart). The punk or fungus found on pines. In the early days these were hollowed out and employed as drinking vessels (7:186).

CLASS III. LICHENES

Order IV. ASCOLICHENALES

Family 5. USNEACEAE (Beard Lichen)

Usnea barbata (L.) Fr. Beard Moss, Beard Lichen, Old Man's Beard. Tc'óh pitagaa' (spruce beard).

Family 6. PARMELIACEAE (Ground Lichen)

Parmelia molliuscula Ach. Ground Lichen. 1. Ni'xatláat (earth covering). 2. Tshétláat (rock covering). This stone lichen may be scraped from the rocks after a rain and made into a yellow-orange dye (26:182). It is also used as a remedy for impetigo.¹

Unidentified lichens:

1. Ni'xazęş (ground wart). A tiny excrescence on the surface of the ground.

1. From legend on exhibit of Charles H. Burke Vocational School, Fort Wingate, New Mexico, at the Inter-Tribal Indian Ceremonial held at Gallup, New Mexico, August, 1936.

2. Tláat (a covering). Any kind of lichen.
3. Tshétláat (rock covering). Any kind of lichen that grows on rocks.
4. Tshin p̄ahtláat (tree covering). A lichen that grows on trees.

The use of lichens as dye plants has been known from the earliest times, and before the discovery of aniline dyes, they were highly valued. The coloring principle of the dyes is contained in the peculiar acids contained in the lichens. Treatment with alkali is generally necessary to extract the color, and mordants are generally used. With some lichens, boiling the plants with the material to be dyed is sufficient to secure the desired color. (*Encyc. Britt.*, 14th Ed., vol. 14, p. 34.) See *Alnus tenuifolia* and *Chrysothamnus viscidiflorus* for further uses.

DIVISION II

PTERIDOPHYTA

CLASS IV. FILICINEAE

Order V. FILICALES

Family 7. POLYPODIACEAE (Fern)

Cheilanthes feei Moore.

Cheilanthes gracilis Riehl.

Cheilanthes lanuginosa Nutt. Feé Lip Fern. Tjaa'n̄its'íliitáa' (ear, transparent, food; i. e. bat food).

DIVISION III

SPERMATOPHYTA

SUB-DIVISION I. GYMNOSPERMAE

CLASS V. CONIFERAE

Order VI. CONIFERALES

Family 8. PINACEAE (Pine)

Juniperus spp. Juniper, Cedar. Kat (no meaning: the juniper). Although junipers are widely known as cedars, this is a misnomer. The true cedars (*Cedrus* spp.) are not native to the Western Hemisphere. The two parts of the fire drill used in the Night Chant must come from a juniper tree which has been struck by lightning. Some light bark from the same tree is used as tinder (36:586) to catch the spark from the fire drill. The bark must be shredded from the tip to the butt. The fagot is a span long and of such a diameter that it may be completely encircled by the thumb and forefinger of one hand. It is tied with four strings of yucca (*Yucca* sp.) fiber at equal distances from one another and the ends. These are used by the personator of the Black God, who is owner of all fire. He was also inventor of the fire drill and the first to produce fire (61:26-7).

In the Fire Dance which takes place on the last night of the Mountain Chant, a bunch of shredded juniper bark is carried by the dancers (39:522). They dance around the fire four times, waving the bark wand at it and finally setting fire to it (43:93). The corral, which is built for the public exhibitions at the close of a ceremony, is built of juniper and piñon (*Pinus edulis*) boughs, with an opening to the east (6:44). A juniper twig is dipped into the bowl buried in the center of the picture of Whirling Logs, made for the sixth day ceremony of the Night Chant, and touched to the various parts of the picture (61:125). The powders for the sand paintings are prepared before the picture is begun and kept on improvised trays of concave juniper bark (4:6) & (32:403).

The bark, berries, and twigs of a variety of junipers are suitable for dye purposes (82:7). The berries are also a supposed cure for influenza. They are boiled and the resulting juice drunk by the patients (22:302).

Juniper wood is burned to produce charcoal, which is used as a fuel (18:2), and which is ground and used for black in sandpaintings (65:263). A large pile of trunks and branches is set on fire in the evening and allowed to burn until it is a mass of coals. These coals are smothered with earth and left to cool overnight. The charcoal is taken out in the morning (18:2). The wand used in certain ceremonies is made of juniper which is about two and one-half feet long (71:117). Around this stick are bunches of white sage (*Eurotia lanata*) and green sage tied with deerskin (28:304). Juniper boughs are used to make the summer shelter where the women weave (5:200). Necklaces, bracelets, anklets, and wristlets are made of dried juniper seeds (41:154). In drought, sheep eat juniper (7:31). Dice are made from juniper (15:95). Prayersticks are also made of juniper (24:396).

The ancestors of the Navajo were supposed to have worn garments of woven juniper bark (23:183), the women wearing one hanging in the front and one behind. All wore sandals of yucca (*Yucca* spp.) fiber or juniper bark. Their blankets were made of juniper bark, yucca fiber, or skins sewn together. Each house had in front of the door, a long passageway in which hung two curtains—one at the outer end and one at the inner—made usually of woven juniper bark (58:141).

Juniper, especially when dry, is called *tilk'yis* (it crackles); dry juniper bark is called *tilk'yis pijíih* (it crackles, its fuzz) and was mixed with mud in hard times and worn as clothing (27:69); juniper gum is called *kat pitjeeh* (juniper, its gum) or *tjee'iilt'íh'íh'íh* (gum, tenacious). The bark is also used in the construction of hogans. See *Alnus tenuifolia*, *Artemisia tridentata*, *Cowania stansburiana*, *Helenium hoopesii*, *Leptotaenia dissecta multifida*, *Oenothera* spp., *Petalostemon candidus*, *Pinus edulis*, *Populus* spp., *Yucca* spp., and *Zea mays*.

Juniperus californica Carr. *utahensis* Engelm.

Juniperus utahensis (Engelm.) Lemmon.

Sabina utahensis (Engelm.) Rydb. Utah Juniper, Desert Juniper. Kat (no meaning: the juniper). See *Alnus tenuifolia*.

Juniperus communis L. Common Juniper. 1. Katteeníniih (juniper, sharp). 2. Katteeníníh (juniper, sharp; i. e. juniper [whose needles are] sharp).

Juniperus monosperma (Engelm.) Sarg.

Juniperus occidentalis Hook. var. *monosperma* Engelm.

Sabina monosperma (Engelm.) Rydb. One-seeded Juniper, Cherry-stone Juniper, Cedar, Sabina. Kat (no meaning: the juniper). The wood of this tree is used for firewood, fence posts, and hogan roofs, both ordinary and ceremonial, because it does not readily decay (83:37). The berries are eaten in the winter or fall when they are ripe. One of my informants stated, when asked if they were good to eat, that they were "a little bit sweet when ripe." The Navajo, in times of food shortage, chew the inner bark (13:32). It is sometimes chewed for the flavor that it gives.² When the snow is deep, the Navajo also cut the branches off for the sheep to eat (24:257). The bark and berries are sometimes used for coloring wool green (19:2). A canopy to protect a newly-born child from the sparks of the fire is made of juniper (24:467).

The Navajo claim that the finishing touches on their baskets are their own. They account for this in a legend which is, perhaps, not wholly mythical. In the ancient days a woman was seated under a juniper tree finishing a basket as she always had, when she thought how much better it would be if she could make a more beautiful margin. As she sat there, a juniper branch from an overhanging tree was thrown into her basket by one of the gods. It immediately occurred to her to imitate the peculiar fold of the juniper leaves, and that is why Navajo baskets have this characteristic rim (40:110).

The stick carried in the War Dance³ is made of a piece of juniper from which all of the twigs, except a small bunch at the tip, have been trimmed. At the tip where the leaves are left, a bunch of rabbitweed (*Chrysothamnus* sp.) or snakeweed (*Gutierrezia sarothrae*), grama grass (*Bouteloua gracilis* or *B. hirsuta*), and several other articles, including a buckskin bag full of chipmunk corn, are tied (14:173) & (71:119).

Prayersticks (24:393), bows for the canopy of the baby's cradle (24:470), charcoal for smelting silver (24:275), and the bow, formerly carried in war are also made of juniper (24:318).

At times, the leaves of the juniper are chewed and spit out for better luck, as, for instance, into the face of a balky burro (24:495). See *Alnus tenuifolia* and *Juniperus scopulorum*.

Juniperus occidentalis Hook.

Sabina occidentalis (Hook.) Heller. Sierra Juniper, Western Juniper. Kat (no meaning: the juniper). The wand used in the War Dance is

2. *Ibid.*

3. Now usually called the Squaw Dance.

sometimes made of this species of juniper. The stick is about three feet long and trimmed smooth except for a bunch of leaves at the top (71:117). In dyeing buckskin reddish, *Juniperus occidentalis* ash, the pounded root of the mountain mahogany (*Cercocarpus montanus*), and the powdered bark of the black alder (*Alnus tenuifolia*) are used. The root bark of the mountain mahogany is allowed to boil and the alder bark added. The juniper ashes are rubbed well into the buckskin before applying the liquid. Finally, some of the powdered bark of the alder is rubbed over this and the skin put away to dry (44:70).

The sierra juniper is used in making the prayersticks of the west, perhaps because its outer branchlets and needles have a tone of yellow, which is the color of the west (44:63). See *Alnus tenuifolia*, *Phragmites communis*, and *Pinus ponderosa*.

Juniperus pachyphloea Torr. Alligator Juniper, Alligator-bark Juniper. Katte'iih (juniper, cracked; i. e. juniper [whose bark is] cracked).

Juniperus scopulorum Sarg.

Sabina scopulorum (Hook.) Heller. Rocky Mountain Juniper, Rocky Mountain Cedar, Red Mountain Juniper, Red Mountain Cedar, Red Juniper, Red Cedar, Cedro. 1. Kat'nijiih (juniper, plucked). 2. Ka'nijiih (juniper, plucked). 3. Ka'neeziih (juniper, long; i. e. juniper [which has] long [leaves]). Dandruff is said to be removed by an application of red juniper and a grass, t'ooléh (grass, dangling; i. e. grass [whose leaves are] dangling), which are rubbed well into the head after bathing it (24:112). This is also one of the plants used in the War Dance medicine which is taken internally (24:409).

The blackening ceremony of the War Dance is begun inside the hogan by the administration of a mixture of herbs to the patient. The mixture consists of the following plants: one piece of red mountain juniper, one piece of common juniper limb (*Juniperus monosperma*), one piece of pine (*Pinus* sp.) limb, and one piece of chipmunk-tail grass. These are pounded finely and mixed with water. After both the man and his wife drink some of the medicine, more water is added and their bodies are washed from their feet, up over their heads, to their mouths (14:179). See *Hedeoma nana* and *Muhlenbergia cuspidata*.

Juniperus virginiana L. Virginia Juniper, Virginia Savin. 1. Kat-tiltxa'ih (juniper, crackling; i. e. juniper [which makes a] crackling [sound]). 2. Tilk'yistchii' (juniper-wood, red). 3. Kat'ni'ee'iih (juniper, soft; [in the sense of being swayed in the wind]). This species of juniper is often used to make the wand carried in the War Dance Ceremony (71:117). See *Pinus ponderosa*.

Picea engelmanni Parry. Engelmann Spruce. 1. Tc'oteeníniih (spruce, sharp; i. e. spruce [that has] sharp [needles]). 2. Tc'oteenínih (spruce, sharp).

Picea pungens Engelm. Colorado Blue Spruce, Silver Spruce. Tc'ó (no meaning: the spruce). For the Chant of the Sun's House, the branches

of the Douglas fir (*Pseudotsuga taxifolia*) and of the Colorado blue spruce are used (72:186). See *Opuntia polyacantha*.

Picea spp. Spruce. There are several species of spruce, of which an unidentified species is distinguished as *tc'óntxyeelih* (spruce, flat; i. e. spruce [whose needles are] flat). Spruce is a favorite tree for ceremonial use: the unraveling of ceremonial objects is done with a hoop made of spruce (24:416); a ceremonial dress of spruce twigs in the form of a cone is unraveled over the patient at the Witch Chant (26:73); most of the personators in the Night Chant wear collars of spruce (61); a small bow is made of spruce and used in the Shooting (26:21), Witch, and Lightning Chants (24:418) in dispatching similar small arrows over the hogan (26:73); and in the sweathouse the patient usually sits on spruce twigs, but *Artemisia* is sometimes used when the spruce gatherers fail to arrive on time (61:77).

On the last night of the Mountain Chant, a sun is made to ascend a board which is standing upright in a basket filled with spruce twigs (23:228). Later on in the same ceremony, a basket is filled with spruce and piñon (*Pinus edulis*) twigs out of which a stuffed weasel is made to stick his head (23:230). In the Fire Dance there is a spruce tree dance at dawn (16:30).

To revive a person who has fainted, in cases of weakness and indisposition attributed to the sight of blood, or in cases of the violent death of man or animal, a medicine is made from those plants which have been struck by lightning, and then a spruce and a pine (*Pinus* sp.) arrow are shot over the body. This all takes place at the War Dance (24:366).

A high, stiff, lasting lather is made of a solution of yucca (*Yucca* sp.) roots and water by whirling between the hands a beater of spruce twigs (61:100). See *Alnus tenuifolia*, *Artemisia* sp., and *Prunus demissa*.

Pinus edulis Engelm. Piñon, Pinyon, Nut Pine, Two-leaf Piñon.
 1. *Tchá'ol* (unetymologizable, but referring to the foliage of a live tree).
 2. *Teestshiin* (dry [piñon] log; referring to the trunk of a dead tree).
 Piñon gum is called *pitjeeh* (its gum or pitch); the nut is called *nicté'íi pináa'* (piñon or pine nuts); the wood is called *teestshiin* (dry piñon log), which if green would be called *tchá'ol*; the needles are called *pi'iil* (its needles). A black dye is made from piñon gum, the leaves and twigs of sumac (*Rhus trilobata*) and a native yellow ocher, *teetshoh* (earth, yellow). The sumac leaves are put in water and allowed to boil until the mixture becomes strong. While this is boiling, the ocher is powdered and roasted. Piñon gum is then added to the ocher and the whole roasted again. As roasting proceeds, the gum melts and finally the mixture is reduced to a black powder. This is cooled and thrown into the sumac mixture, forming a rich blue-black fluid which is essentially an ink (16:376). When this process is finished the wool is put in and allowed to boil until it is dyed the right shade. This same dye is also used to color leather (24:303) and buckskin (24:230).

Water bottles made by the Navajo are covered with piñon gum to make them water-tight. The gum is heated and poured into the jar, and by turning the jar, the melted gum is brought in contact with the entire inner surface, after which the surplus is poured off. The outside is also covered with the gum to which a red clay has been added so that the bottle when finished has a reddish hue (24:297). The gum, together with tallow and red clay, make a salve⁴ which is smeared on open cuts and sores. The Navajo smears his body with piñon pitch before burying a person, and while mourning, the forehead and under the eyes is smeared (86:123).

Piñon nuts are gathered in large quantities by the Navajo. They are either swept into piles and threshed to remove the débris, or they are picked by hand from the ground. But the most profitable method of all is robbing rats' nests (13:40-1). Most of the excess piñon nuts are sold or traded to the Zuñi (79:70). The piñon nuts are also roasted in pots or skillets, and sometimes mashed and made into a butter similar to peanut butter, which is called 'athic. The nuts are crushed between two stones to remove the shells, and then made into a paste which is used to spread on hot corn cakes (6:46). The dried seeds of the piñon are made into necklaces, bracelets, anklets, and wristlets (41:154).

Hogans for ordinary, as well as for ceremonial, usage (63:510) are usually built of piñon logs which are about eight to ten inches in diameter, and from ten to twelve feet long (24:489). Loom poles, beams, and uprights used in the construction of looms (24:243), ceremonial pokers (24:415), ceremonial wands (24:391), and various parts of the Navajo cradle, are made of piñon wood because it is so easily carved (24:464). It is also used extensively for firewood. The best black for sandpaintings is obtained from the charcoal of the piñon tree (11:7).

On the fourth day of the Night Chant the Talking God carries a small sapling of piñon almost entirely stripped of its branches if the patient is male, and of juniper (*Juniperus* sp.) if the patient is female (61:103). On the ninth day of the Night Chant, The Slayer of Alien Gods and The Child of the Water deposit their cigarettes in the shade of a tree, preferably a piñon, while The Shooting Divinity lays hers on the ground in a cluster of *Gutierrezia sarothrae* (61:139). In the War Dance, the patient is painted all over with piñon and willow (*Salix* sp.) pitch. Dry piñon gum, together with the parts of several different birds, is burned as an incense in which the initiates into the mystery of the Night Chant receive fumigation (61:43). The corral which is built for public exhibitions at the close of a ceremony, especially the Night Chant, is built of juniper (*Juniperus* sp.) and piñon boughs, with an opening facing east. Piñon needles form one of the ingredients used in the medicine for the War Dance. This remedy is usually taken internally (24:464). Piñon and juniper are used to make the circle of branches for the Mountain Chant (54:935). In one of the

4. See note 1, p. 16.

dances on the last night of the Mountain Chant, the dancers carry bunches of piñon needles in each hand, out of which extend wands arching from one hand to the other (23:227).

The sap of the tree is used as a chewing gum, and is called teestshiin pitjeeh (piñon gum). See *Chrysothamnus viscidiflorus*, *Juniperus* spp., *Leptotaenia dissecta multifida*, *Petalostemon candidus*, *Picea* sp., *Pinus ponderosa*, *Pinus* spp., *Populus* spp., and *Quercus* spp.

Pinus flexilis James. Limber Pine, White Pine. Naatshis'áan pi-ntistchii' (alien, hiding, burrow, its pine; i. e. Navajo Mountain pine). The small bow and arrow employed at the Witch and Shooting Chants are sometimes made of this species of pine (26:137).

Pinus ponderosa Dougl. Western Yellow Pine, Ponderosa Pine. 1. Ntistchii' (no meaning: the western yellow pine). 2. Ntischii' (the western yellow pine). One part of the Night Chant medicine consists of pollen from this tree, piñon (*Pinus edulis*) pollen, *Juniperus virginiana* pollen, and pollen from *Juniperus occidentalis* (61:45).

Pinus spp. Pine. 1. Ntischii' (no meaning: the pine). 2. Ntistchii' (no meaning: the pine). In the first ceremony of the fourth day of the Mountain Chant, the medicine man carries a bowl of pine needles in water, in which the patient washes both hands. He then drinks some of it, and finally bathes his feet and legs to the thighs, his arms and shoulders, his body, and then his face and head, before he empties the remainder over his back (78:249ff.). In the Fire Dance, the "spirits of the fire" are entirely covered with a white paste, which is probably gypsum mixed with pine gum (16:11).

The bull-roarer used in some of the ceremonies (24:414), as well as various parts of the Navajo cradle (24:469), is made of pine wood. Dry pine bark is sometimes used as a covering for shelters in the summer (25:31). The tinderbox for fire-by-friction is sometimes made of pine (24:65). The pine tree is also used extensively for firewood. The ball used in shinny is sometimes made of pine (15:623). The colored powders used in the sandpaintings are kept on pine bark trays (54:933). The gum from this tree is used in the same manner as piñon (*Pinus edulis*) gum for coating water bottles (24:297). See *Hedeoma nana*, *Gutierrezia sarothrae*, *Juniperus scopulorum*, *Leptotaenia dissecta multifida*, *Petalostemon candidus*, *Picea* spp., and *Salix* spp.

Pseudotsuga taxifolia (Poir.) Britt.

Abies douglasii Lindl.

Abies mucronata Raf.

Pseudotsuga douglasii (Lindl.) Carr.

Pseudotsuga mucronata (Raf.) Sudw. Douglas Fir, Douglas Spruce, Red Fir, Yellow Fir, Oregon Pine, False Spruce, Pino Real (Royal pine). Tc'oh (no meaning: the spruce). In the Shooting Chant, many branches of the Douglas fir are used (72:149). See *Picea pungens*, *Populus tremuloides*, and *Yucca* spp.

Family 9. GNETACEAE (Jointfir)

Ephedra torreyana S. Wats. Torrey Mormon Tea. A tea is made from its branches.

Ephedra trifurca Torr. Mormon Tea, Desert Tea, Mexican Tea, Brigham Tea, Brigham Young Tea, Teamster's Tea, Squaw Tea, Joint Fir, Joint Pine, Cañatillo, Cañutillo, Popotillo. T'oh'azihiih (grass, waving [back and forth]). By crushing the dried plant between the fingers and stirring the powder in a bowl of water, a tea is made which is used as a remedy for venereal diseases, kidney affections, and stomach troubles in general (20:114) & (83:38). This species is also burned with charcoal, buffalo hair, wood rat hair, and bat hair in a hole in the middle of the hogan. The person with venereal disease sits over the hole and the smudge covers his exposed parts and cures him. This plant is sometimes substituted for alder (*Alnus tenuifolia*) bark when making a reddish basketry dye (24:293).

Ephedra viridis Coville. Green Mormon Tea. Tokhwos'azee' (cough medicine). This species of Mormon tea is used as a cough medicine. A decoction is made from the tops and drunk (38:239).

SUB-DIVISION II. ANGIOSPERMAE

CLASS VI. MONOCOTYLEDONAE

Order VII. PANDANALES

Family 10. TYPHACEAE (Cattail)

Typha latifolia L. Cattail, Cattail Flag. 1. Txatit'ii' (pollen). 2. Txyeel (broad). In the old days, the pollen from this plant was most used by the Navajo in their ceremonies, but of later years, corn (*Zea mays*) pollen is commonly employed (61:41). Ceremonial necklaces and wristbands are made of the leaves for the Male Shooting Chant. The pollen is also scattered on the dancers in certain other ceremonies (49).

Order VIII. NAJADALES

Family 11. ALISMACEAE (Water Plantain)

Sagittaria arifolia Nutt.

Sagittaria cuneata Sheld. Arrowhead. Txakháa'peej (water, on-top-of, knife; i. e. [plant whose leaves look like a] knife on top of [the] water). This species is used for headaches in an unknown manner.

Order IX. GRAMINALES

Family 12. GRAMINEAE (Grass)

Aristida adscensionis L. Six-weeks Three-awned Grass, Dogtown Grass. Tl'ó' pé'ejoo' (prairie-dog brush or broom [grass]).

Aristida oligantha Michx. Prairie Three-awned Grass, Rush Grass. Tl'ó' pé'ejoo' (prairie-dog brush or broom [grass]).

Arundo donax L. Giant Reed, Cane Reed. Lók'aa'tshoh (reed, large). This reed has been introduced from the warmer regions of the Old World. At the public exhibitions of the Night Chant a collar of otter skin, to which

a cane reed whistle is attached, is used (24:413). Every chant requires a special pouch which contains the necessary paraphernalia for conducting the chant. For the Lightning Chant, two cane reeds with tassels, one taken from Taos, and the other from the west (usually Oraibi), are required besides the regular contents of the pouch (24:382-3). This reed is also used for prayersticks (24:396). See *Bambusa* sp.

Avena sativa L. Cultivated Oat, but occasionally escaped and established. 1. Łíí' pit'oh naatáa' (horse, his grass, corn). 2. Łíí' pit'áa' (horse, his food). Oat hay is called t'ohnanool'óhíkíih (grass, hanging down or drooping).

Bambusa sp. Cultivated Bamboo. Newcomb mentions bamboo as sometimes being used for whistles in certain ceremonies (64:22), but she probably meant the giant reed (*Arundo donax*).

Bouteloua gracilis (H.B.K.) Lag.

Chondrosium gracile H.B.K. Grama Grass, Blue Grama, Mesquite Grass. T'ohnástxasíh (grass, hooked, curved, or bent-over). This species of grass is one of the plants that is tied to the end of the wand carried by the girl in the Squaw Dance. See *Juniperus monosperma*.

Bouteloua hirsuta Lag.

Bouteloua hirta Lag. Hairy Grama, Grama Grass, Black Grama. T'ohnástxasíh (grass, hooked, curved, or bent-over). There are many times in ceremonies, when certain surfaces, especially the bodies of patients, have to be blackened. Sacred charcoal is always used and is made of several plants, among which is this one (61:46). See *Artemisia* sp., *Artemisia trifida*, *Gutierrezia sarothrae*, and *Juniperus monosperma*.

Bouteloua spp. Grama Grasses. There are two unidentified species of grama grass: 1. Tipé pit'onástxasíh (sheep grama). This species is supposed to be good only for sheep, while (2), Łíí' pit'onástxasíh (horse grama) is supposed to be good only for horses (50:285).

Bromus ciliatus L. Fringed Brome Grass. Cíinaltshitíh (summer fearing). This is a springtime plant that disappears before the summer comes, or so the Navajo say.

Cenchrus tribuloides L. Dune Sandbur. T'oxwocíh (grass, stickery; i. e. grass [whose burs are] stickery).

Hilaria jamesii (Torr.) Benth.

Pleuraphis jamesii Torr. Galleta Grass. 1. T'ohntsháhíh (grass, awl; i. e. grass [whose leaves are like] awl[s]). 2. T'ó il t'jóo líkíih (grass, soft).

Hordeum jubatum L. Wild Rye, Foxtail Grass, Squirrel-tail Grass, Foxtail Barley. 1. Zee'iilgwó'ih (mouth, working into). 2. Xazéi il táa'ih (squirrel, like, food).

Muhlenbergia spp. Muhly. There are several species of this grass which are employed in making brushes and brooms (24:190).

Muhlenbergia cuspidata (Torr.) Rydb.

Sporobolus cuspidatus Wood.

Vilfa cuspidata Torr. Plains Muhly, Dropseed Grass, Rush Grass,

Mountain Grass. 1. Pé'ejoo' (broom, brush, or comb). 2. Tl'ó' pé'ejoo' (prairie-dog brush). From this grass the Navajo make hairbrushes and brooms for sweeping out the hogan (24:341). The stems grow from six to fifteen inches high, and when dry are tied firmly so that the butt ends are flat. A twig of Rocky Mountain juniper (*Juniperus scopulorum*) is inserted into the hairbrush as a talisman, supposedly for protection against evil influence (24:112 & 190). See *Yucca* spp.

Muhlenbergia pungens Thurb. Spiny Muhly. Pé'ejoo' (brush, comb, or broom). The stems are pulled out of their sheaths when dry, tied with a string, and used as brooms and brushes.

Oryza sativa L. Cultivated Rice. 'Alóos (corrupted from the Spanish arroz, rice).

Oryzopsis hymenoides (Roem. & Schult.) Ricker.

Eriocoma cuspidata Nutt.

Eriocoma hymenoides Rydb.

Oryzopsis cuspidata Benth.

Stipa hymenoides Roem. & Schult. Indian Millet, Sand Bunch Grass, Indian Ricegrass, Mountain Grass, Mountain Rice. Ntit'ítih (seed, toasted). The Navajo use the seeds of this plant for food. In collecting the seeds, a bunch of the grass is held near the fire, allowing the seeds to fall out to the base of a flat stone placed obliquely near by (13:28). The seeds are then ground and made into cakes.

Panicum capillare L. Witch Grass, Panic Grass. T'oh taxakhaa'iih (grass, rustling). The Navajo eat the seeds of this plant.

Phragmites communis Trin.

Arundo phragmites L.

Phragmites phragmites Karst. Common Reed, Reed Grass, Cane Grass, Carrizo. Lók'aa' (no meaning: the common reed). For the Mountain Chant Ceremony, reeds are gathered and made into prayersticks. They are first rubbed with a polishing stone (usually sandstone) to remove the silicious surface in order that the paint might adhere well. The reeds are then rubbed with finely powdered tobacco (*Nicotiana* sp.), or sometimes with *Gutierrezia sarothrae* (61:37). Afterwards the reed is cut into four pieces (or ten pieces for the second ceremony). When this is finished, the sticks are colored and yucca (*Yucca* sp.) inserted to serve as handles (78:242ff.). The sections are then filled with some kind of tobacco (*Nicotiana* sp.) (61:38). These must be kept in order. The section growing nearest the ground is segment number one, the next number two, and so on. It is also important that the side of the reed growing toward the east be indicated, so the painting may be done on the side having that exposure. This makes it more potent (47:29).

Fifty-two prayer sticks are made for the evening of the third day of the Night Chant. Of these, four are made of sections of reed, twelve of mountain mahogany (*Cercocarpus montanus*), twelve of *Forestiera neo-*

mexicana, twelve of *Juniperus occidentalis*, and twelve of cherry (*Prunus demissa*) (61:92).

On the last night of the Mountain Chant, the dancers carry large reed frames like the frame of a kite, put together with string and decorated with eagle down (23:226) & (56:437). The first people, according to the Navajo, were supposed to have come up to this earth on a reed (6:48). The most important use of all, however, was the use of the stems as arrow shafts (55:777). See *Helianthus annuus* and *Rhus trilobata*.

Poa arida Vasey.

Phragmites andina Auth.

Poa andina Nutt. Plains Bluegrass, Meadow Grass. Tshjyaat'oh (tree, under, grass; i. e. grass [that grows] under tree[s]).

Saccharum officinarum L. Sugar Cane. 1. 'Akhazhikháníh (stalk or stem, sweet). 2. Taa'akhazhikháníh (stems [pl.], sweet). Sugar is called 'acjilikháníh (salt, sweet).

Sitanion hystrix (Nutt.) J. G. Smith.

Aegilops hystrix Nutt. Wild Rye, Foxtail, Squirreltail. Xazée'iilwó'iih (mouth enterer). Refers to going or working down the throat.

Sporobolus cryptandrus (Torr.) A. Gray.

Agrostis cryptandra Torr. Rush Grass, Poverty Grass, Wire Grass, Sacatón Grass, Sand Dropseed. T'ohots'óozíh (grass, slender). The chaff is removed from the seeds which are then ground to make dumplings, rolls, griddle-cakes (13:28), and tortillas.

Triticum aestivum L.

Triticum sativum Lam.

Triticum vulgare Vill. Cultivated Wheat, Trigo. T'ohnatáa' (grass, corn). The different parts of the wheat plant are called: T'ohnatáa' pitc'il (grass, corn, its stalk; i. e. wheat stalk); t'ohnatáa' pijool (grass, corn, its chaff; i. e. wheat chaff); t'ohnatáa' pits'óoz (grass, corn, its sheaf; i. e. wheat sheaf); t'ohnatáa' 'ak'áan (wheat flour).

Zea mays L. Indian Corn, Maize, Maíz. Naatáa' (alien food; i. e. corn). The corn plant, the corn ear, or the shelled corn. Also called merely táa' alone as a shortcut. The name Naaláníh (aliens, many), the Comanche Indians, has important bearing on naatáa', these two words containing the same prepound, it being likely that the Navajo got corn from quite northern aliens such as the Naaláníh. Corn figures prominently in practically all of the Navajo ceremonies, either as corn itself or as corn pollen. (See *Typha latifolia*). The ceremonial uses of corn pollen are innumerable: it is scattered on the dancing grounds, along the trails of ceremonial processions, on prayer sticks when deposited, on the masks and sacred properties in the various rites, and on sandpaintings (61:41). It is the task of the shaman, when the sandpainting is completed, to put corn pollen, the emblem of fertility, on the breast of each divine form and set up prayersticks around the picture. When the patient has departed, many

of the spectators pick up the pollen, which is now doubly sacred, and put it in their medicine bags (54:933).

Cornmeal, although considered less sacred than corn pollen, is used in much the same manner, but in larger quantities (61:43). Cornmeal, when taken on journeys, was called ts'aalpáih (——, grey), a general term for provisions. To prepare this provision green corn is first roasted, shelled, ground, and then dried. It is taken on the journey wrapped in corn husks, tamale-fashion. It is also called tshé'st'eih (no meaning, except perhaps rock, cooked; i. e. cooked [on a] rock). The nuptial dish is usually a cornmeal porridge, txaahnąak'ąh (water, corn, ground up). This is a thick corn porridge such as is served in wedding baskets. It is made with juniper ashes. The syllable -nąa- apparently stands for naatáa', corn, which is usually shortcut to -táa', not to -nąa-. Cornmeal mush made without juniper (*Juniperus* sp.) ashes is called txaa'niilkatitin (water, mixed, juniper, without; i. e. porridge without juniper [ashes]). Hominy, xaníkaiih (boils, white; i. e. [gets] white [when one] boils [it]), is made of corn and meat which is allowed to boil all night (25:108). One part of the Night Chant medicine consists of a mixture of "blue pollen" (*Delphinium scaposum*), wild plants, and tobacco (*Nicotiana* sp.) to which is added the leaves from corn plants gathered in the east, south, west, and north corners of the field, squash (*Cucurbita* sp.) from the southeast side, bean (*Phaseolus vulgaris*) leaves from the southwest, watermelon (*Citrullus vulgaris*) leaves from the northwest, and muskmelon (*Cucumis melo*) leaves from the northeast (28:44). In the dance of the Yé'ii's one of the dancers represents corn, one pollen, one soft grain, and the fourth vegetation (5:191). Farming songs are sung about the turkey who shakes corn seeds, beans, muskmelons seeds, and then tobacco out of his wings (61:187). In a Navajo ceremony for the cure of a sore throat, the medicine man uses certain herbs, liquids, and corn mush. The corn mush is passed in a bowl, taken to the mouth, and pressed to the throat with the fingers (70:7). Cornhusks are used for cigarette papers (22:283). Corn cobs are used to beat leather when dyeing it (5:35). Corn cob pith is used as punk (24:395). Corn stalks are sometimes used as thatching (45:38). Corn pollen is used for the motion-in-hand ceremony, but if a Gila monster can be obtained, it is placed on a buckskin and the pollen sprinkled over it, and then gathered. This then constitutes a "live pollen" and is considered more effective (84:239). Blood sausage is made by the Navajo from the blood of goats or sheep, and is sometimes poured into corn husks and tied, instead of into the four stomachs. If the corn husks are dry they are first soaked. The sausages are then baked in ashes (85:2). A corn beverage is prepared from juniper (*Juniperus* sp.) ashes which have been boiled previously. To this boiling juniper water is added cornmeal until the mixture becomes thickened. This is then served as a beverage with mutton. It was used, in olden times, in place of coffee. It is sometimes allowed to get even thicker and is then used as mush (85:10). Navajo

bread is made of Indian corn to which is added a little juniper ash. Dumplings also are made in the same manner, but instead of being moulded into loaves, they are moulded into little flat balls (85:11). When corn is not fully matured, it is pounded and mixed with pumpkin (*Cucurbita* sp.), wrapped in a corn husk, and baked in ashes (50:290). Corn is differentiated according to color:

Naatáa'atxas'áih (corn, varicolored).

Naatáa'ast'íníkiih (corn, freckled), a second term for varicolored corn.

Naatáa'cjiin (corn, black).

Naatáa'lkaih (corn, white).

Naatáa'lpáih (corn, grey).

Naatáa'ltshoh (corn, yellow).

Naatáa'toot'ijíkiih (corn, blue).

Other kinds are called:

Naatáa'lkij (corn, spotted).

Naatáa'nootóoziih (corn, striped).

Tziłgáa'í pitáa (White River Apache, his corn).

The ear of corn and its parts are called:

Naatáa' pitjool (corn, round). A very chubby deformed ear.

Naatáa' pitshiin (corn, its bone; i. e. corn cob).

Naatáa'tshoh (corn, big). A big ear of corn or big corn plant.

Táa't'áa' (corn, leaf or husk). Both meanings are used indiscriminately.

The corn plant is called naatáa'tc'il and its parts are called:

Naatáa'astshiiGa' (corn, head, hair; i. e. corn silk).

Naatáa'khaz (corn stalk).

Naatáa' pik'a' (corn, its arrow). An arrow-like corn stalk about three feet high. Many corn kernels are planted in a hill, and after the plants come up, several of the plants are pulled out, leaving two or three. The remaining half-grown stalks or the ones taken are called indifferently naatáa' pik'a'.

Naatáa' pikhétxal (corn, its foot). The base of the plant.

Naatáa' pilatxah (corn, its tip or top).

Naatáa' pizool (corn, its inflorescence).

Naatáa'tshoh (corn, big). A big plant or ear of corn.

Táa't'áa' (corn, leaf). A corn plant leaf or a corn ear husk. Both meanings are used indiscriminately.

Raw, uncooked corn is called naatáa'st'éh and after it is cooked is called in various ways:

Naatáa'sit'éh, corn that has been roasted on the open fire, not in an oven.

Leecipéeji (earth, roasted). Roast corn on the ear. Formerly used to speak of corn roasted in the ground, but now also used of oven-roasted corn.

The sacred name for corn is *la'at'ée'nt'ih* (whole, night, matured; i. e. [corn plant which is made to] mature [in one] whole night [by the medicine man]); a plant of corn (or yucca, *Yucca* sp.) which is magically grown in a single night (or in five nights). A small corn plant about three inches high is called *tahict'il* (aloft, curled, plant), and its leaves are eaten as we eat lettuce (25:61). An ear of corn, in which the kernels are lined in straight rows, is used ceremonially, and such ears are wrapped in buckskin or calico (originally cotton—*Gossypium* sp.) and the edge of this decorated with feathers, while the butt is wrapped with grass tassels studded with beads and stones. Wrapped and decorated in this manner it is called *tooxonoot'inih* (invisible). This is said of anything, and especially of an ear of corn in which the rows of grain are invisible. Such a malformed ear was also called a female ear, evidently because the female genitals are inside: *naatáa'astzáan* (corn, female) and was wrapped ceremonially. See *Cucurbita* spp., *Nicotiana tabacum*, *Oenothera* sp., *Typha latifolia*, and *Yucca* sp.

Zea mays L. var. *verta* Bailey.

Zea verta Sturtev. Pop Corn. *Naatáa'teeltchócih* (corn, pop).

Zea mays L. var. *rugosa* Bonaf. Sugar Corn, Sweet Corn. *Naatáa'-neectjahiitshoh* (corn, carried, big; i. e. big corn [which was] carried [about with one]). It was highly prized. In the Bead Chant, an image of a wildcat is made of sweet corn; in the Mountain Chant, an image of the bear is made of sweet corn; and in the Coyote Chant, effigies of a coyote and a kit fox are made in sweet corn; other images such as the dog, chicken, cat, and pig are also reproduced in sweet corn. To make these animals, a stiff mush is made of corn, which is kneaded to the desired shape, omitting the extremities such as tail, ears, and feet. White shell, turquoise, and sometimes red-white stones are inserted into the bodies of the images, and cannel coal used for the eyes (25:111). On the fourth evening of the Night Chant, a pit is lined with green corn leaves and in it is baked a sweet corn cake made of meal to which is sometimes added the roots of herbs (61:47).

Unidentified *Gramineae*:

'Atshá pé'ejoo' (eagle, broom [grass]).

Ntictchiyyaa pé'ejoo' (pine tree, under, brush or broom; i. e. brush or broom [grass that grows] under pine tree[s]).

Ntictchiyyaat'oh (pine tree, under, grass; i. e. grass [that grows] under pine tree[s]).

Pé'ejóocaajih (broom, knotted or noded; i. e. broom [grass that is] noded). Perhaps a species of *Sporobolus*.

T'iic pé'ejoo' (snake broom [grass]).

T'ohacijih (grass, salty). It is so called because it has a salty taste (24:191).

T'ohk'i'iltc'ojikih (grass, horse, graze). Under this heading all forage grasses and shrubs are classified (24:190).

T'ohlitshoh (grass, yellow).

T'oh pits'os xolonikih (grass, feathers, having).

T'ohata'asts'inih (grass, hard).

T'ohitc'izikih (grass, rough).

T'ohitshoh (grass, big).

T'ooléh (no meaning). A grass having long leaves.

Tshétáa' pé'ejoo' (rock, among, broom; i. e. mountain sheep broom [grass]). The same species of grass as 'atshá pe'ejoo'.

Family 13. CYPERACEAE (Sedge)

Scirpus acutus Muhl.

Scirpus lacustris L. var. *occidentalis* S. Wats.

Scirpus occidentalis (S. Wats.) Chase. Western Tule, Common Tule, Western Flag, Western Bulrush, Western Club Rush. Txyéel pit'áa' íánikih (wide, its leaf, many; i. e. [plant whose] leaves [are both] wide [and] many). See *Achillea millefolium lanulosa*.

Order X. PALMALES

Family 14. PALMACEAE (Palm)

Phoenix dactylifera L. Date Palm. Xack'áan (syrup, molasses).

Order XI. ARALES

Family 15. LEMNACEAE (Duckweed)

Lemna minor L. Duckweed, Duck's Meat. 1. Txát'ít (water scum). 2. Txakt'aahtc'oh (water, bottom, spruce).

Order XII. LILIALES

Family 16. JUNCACEAE (Rush)

Juncus sp. Bog Rush. 'Ahtxí'tjik'aacih (bow grinder, smoother, sharpener, or whetter). This unidentified species of rush was probably used as a sandpaper for smoothing bows.

Family 17. LILIACEAE (Lily)

Allium cepa L. Cultivated Onion. T'ohitshoh (grass, smelly, big).

Allium cernuum Roth.

Allium recurvatum Rydb. Nodding Onion, Cebolla. 1. Káakii pit'oh-tchin (crow's onion). 2. T'ohitshinnltchiin (onion, red).

Allium deserticola (Jones) W. & S.

Allium geyeri S. Wats.

Allium reticulatum Don. var. *deserticola* M. E. Jones. Desert Onion, Wild Onion. 1. Xatshints'ósh (smelling, slender). 2. T'ohitshin (grass, smelly). This species of desert onion is eaten by the Navajo, who think that the mountain species is poisonous. They rub the bulbs in hot ashes to singe them, as well as to remove some of the strong taste from them.

After this, they are either eaten immediately or dried and stored for winter use. When they are taken out for winter use, they are soaked with or without wild celery (*Phellopterus montanus*) before eating (13:15). See *Cleome serrulata*.

Allium palmeri S. Wats.

Allium bisceptrum S. Wats. Palmer Onion. T'ohhtchin (the onion).

Allium sativum L. Garlic. T'ohhtchintshoh (grass, smelly, big; i. e. big onion).

Allium sp. Wild Onion. T'ohhtchin (the onion). An unidentified species of wild onion is used for a green dye (17:2). Another species resembling the wild onion, and which may or may not be the wild onion is called tahkhaal.

Calochortus aureus S. Wats. Golden Mariposa, Golden Mariposa Lily, Golden Mariposa Tulip, Golden Segó Lily, Golden Butterfly Tulip, Golden Butterfly Lily. The Navajo gather the bulbs of this plant in early spring, peel and eat them raw (13:19).

Calochortus luteus Dougl. Yellow Mariposa, Yellow Mariposa Lily, Yellow Mariposa Tulip, Yellow Segó Lily, Yellow Butterfly Tulip, Yellow Butterfly Lily. 1. 'fíltshéníh (no meaning: the mariposa lily). 2. 'Ááltshéníh (no meaning: a variation of no. 1). The bulbs are eaten similarly to those of *Calochortus aureus* (13:19).

Calochortus nuttallii T. & G. Nuttall Mariposa, Nuttall Mariposa Lily, Nuttall Mariposa Tulip, Nuttall Segó Lily, Nuttall Butterfly Tulip, Nuttall Butterfly Lily. 1. Aáłtshíníht'áa' (children's food). 2. 'fíltshéníh (no meaning: the mariposa lily). It is called children's food because the children eat the bulbs while playing.

Calochortus sp. Mariposa Lily, Mariposa Tulip, Segó Lily, Butterfly Tulip, Butterfly Lily. K'íłtshíníih yil t'áa'íh (K'íłtshíníih, resembling, leaf; i. e. [plant] resembling [in] leaf [the] k'íłtshíníih [plant]).

Yucca baccata Torr. Soapweed, Spanish Dagger, Spanish Bayonet, Broad-leafed Yucca, Wide-leafed Yucca, Thick-leafed Yucca, Mountain Yucca, Wild Date, Amole, Datil, Palmilla Ancha. 1. Tshá'aszi'ntxyeelíh (yucca, wide). 2. Xack'áan (syrup, molasses). A stunted form is called tshá'aszi' pitee'íh (yucca, its horn). The Navajo use the fruit of *Yucca baccata* very extensively. The ripe fruits are either eaten when picked, cooked, or cut in half and dried and stored for winter use. The fruits are sometimes baked on hot coals or stones or dried on a flat stone by the fire if they are ripe enough for the seeds to fall out. After this they are ground and made into small cakes and roasted again. Small pieces are then broken off and allowed to dry in the sun, after which they are sprinkled with water and shaped into cakes and perforated so that they will not sour. They are then stored for winter use. When the Indian wishes to eat the cakes, they are broken into small bits and mixed with water, making a thick syrup which is eaten with meat, bread, and other dishes (24:210) & (75:452). Sometimes the pieces are boiled with cornmeal to make a gruel (13:54).

The yucca fruit, when cleaned of its seeds, is called *pixa'ootc'it*. The fruit is also made into a jelly (59:228). In former times, when the Navajo were at war, they carried only a limited amount of food which usually consisted of dried yucca fruit, grass seeds, and jerked venison (30:8-9).

In one of the Navajo legends it is told how the yuccas were created. The Slayer of Alien Gods, a culture hero of the Navajo, upon slaying the Tracking Bear Monster, told him that, as he had been bad all of his life, upon death must furnish sweet food to eat, foam for cleansing, and thread for clothing. The Slayer then threw a piece of the Bear's head to the west where it became *Yucca baccata*, whose fruit is edible. Another piece he threw to the south, and it grew into maguey (*Agave utahensis*), which is used for fiber (7:118). All species of yucca (*Yucca* spp.) are used for cleansing purposes (59:228).

On the sixth day of the Mountain Chant Ceremony, before the couriers are sent on their way, a basin of water containing soap root is brought in, and after the medicine man has daubed the couriers with a little of the suds, they wash themselves from head to foot, and clean their hair as well (56:424). The Lashing God in the Night Chant carries a ring of yucca leaves on his back, and suspended from this by its roots is a complete plant of *Yucca baccata*. He holds in his hand yucca scourges which are made from the leaves taken from the east and west sides of the plant. For the yucca that hangs at his back, a specimen is selected whose roots stick well out of the ground and is kicked out with the foot (15:459) & (61:15). Masks made of the leaves of this plant are also used in the Night Chant (59:214). In one of the dances of the last night of the Mountain Chant, this species of yucca is made to grow from the root through buds and flowers to the ripe fruit (56:439).

A remedy for vomiting is made of the pulverized leaves added to water. The lather of this species is also said to relieve heartburn (24:115). See *Rhus trilobata*.

Yucca elata Engelm.

Yucca angustifolia Pursh. var. *elata* Engelm.

Yucca angustifolia Pursh. var. *radiosa* Engelm.

Yucca radiosa Trel. Palmilla. Yé'ii pitshá'aszi' (God, his yucca).

Scourges used in the Night Chant are made of the leaves of this plant. A leaf is taken from the east side of the plant and one from the west. The leaves are then split in two and the interchanged halves bound together to form the scourge. These scourges are carried by the different personators in the Night Chant (61:26). The 102 counting sticks used in the moccasin game are made of this species of yucca or of *Yucca glauca* (15:346) & (59:228). Its root also is used as soap (44:109).

Yucca glauca Nutt.

Yucca angustifolia Pursh. Narrow-leaved Yucca, Narrow-leaved Soapweed, Narrow-leaved Soaproot, Mesa Yucca, "Bear Grass," Indian Cabbage, Pamilla. Tshá'aszi'ts'óoz (yucca, narrow). The yucca stalk when

it first comes out of the ground is a very dark green color and is called ntees-tjiin (stalk, black); the stalk when it grows a little taller and begins to look whitish is called nteeskaih (stalk, white); the roots are called txálagwoc (water suds); and the green yucca fruit is called ntootlóhíh (no meaning). The fruits of this plant are either eaten as they are found, baked in ashes, or they are sliced and dried for winter use. They are not as palatable as the fruits of *Yucca baccata* (13:56). They taste similar to a banana. The counters used in the moccasin game are sometimes made of this species of yucca (59:228). The roots are used as soap by the Navajo. They like, especially, to wash their hair in the suds.

In addition to the above practical uses, it has an important ceremonial usage. The water in which the ceremonial baths are taken is first stirred with this plant (24:417). See *Yucca elata*.

Yucca whipplei Torr. Our Lord's Candle. Yé'ii pitshá'aszi' (God, his yucca).

Yucca spp. Soaproot, Soapweed, Bare Grass, Amole, Spanish Bayonet. The uses for yucca in ceremonies is varied. Following are some of the uses: in the third ceremony on the fourth day of the Mountain Chant, an Apache basket containing yucca roots and water is placed in a circle before the patient. While the song-priest and the chorus chants, the attendant makes suds of the yucca and water. When the basket is a mass of froth, the song-priest comes forward and draws crosses over the suds with corn (*Zea mays*) pollen. A circle of pollen is then made around the edge of the suds. The attendant who prepared the suds then touches the four points of the pollen and the center, before touching the patient's head. The basket is then placed near the patient who bathes his head thoroughly. The assistant then helps the patient wash his entire body (78:251). The first ceremony of the fifth day also begins by placing a handful of the suds on the patient's head (78:257). On the eighth morning of the Shooting Chant, the patients go through a type of purification which consists of a shampoo and a bath made of soaproot (72:199). In the War Dance Ceremony, the patient's whole body is kneaded with yucca strips (71:125). For the Blackening Ceremony of the War Dance, fifteen points of yucca are softened and four knots tied in each, and then five loops, which can be pulled out, are tied to them (71:124). Four bracelets, made by the medicine man to apply to the ailing gods, are made of plaited yucca leaves. Juniper (*Juniperus* sp.) needles and an unidentified plant are made into a cold infusion which is drunk by all, and the patient washes part of his body with it. Charcoal is then rubbed on the ailing gods and the yucca bracelets tied on (60:22-23). The personator of the Humpback in the Night Chant wears, on the crown of his mask, a pair of dressed bighorn skin horns sewed with yucca fiber (61:14). A face mask of braided yucca is worn by the female patient at the Night Chant (61:82). Ceremonial stars are made of four intertwined yucca leaves (24:415). Sometimes ceremonial paints may be put on little trays or palettes of concave yucca leaves (61:39).

A splinter of fresh yucca leaf is inserted so as to protrude at both ends while painting ceremonial prayersticks (78:242). The Lashing or Whipping God is represented with a whip or lash made of yucca strips (61:15). In early times, dance shoes for the Snake or Wind Chant were made of an entire bunch of yucca for each foot, the stems bound together at the sharp tips and braided in the center with cross-strands (76:134). In one of the Navajo legends it is told how the ancestors of the Navajo, when they came into this country, were supposed to have worn blankets made of juniper (*Juniperus* sp.) bark and yucca fiber (24:457). In initiating boys and girls in the Night Chant, pollen is first sprinkled on them and then they are struck with two long yucca leaves (61:117). In one part of the Night Chant, a chain of (cactus)⁵ leaves is hung over the left shoulder of the patient. A small forked stick also is wound with the leaf of the (cactus) plant, and then covered with a piece of deerskin, colored with red grease. Braids of three (cactus) leaves are then made, and the ends of the braids tied together and placed side by side, making a double braided bracelet. A chain was next made by tying the long slender leaves end to end, and finally, the ends of the chain were tied together. Fifteen bowknots were made in as many other leaves, and these placed in a line before the shaman. Finally, a bowl of juniper (*Juniperus* sp.) twigs and water was made, and the rite began. As the shaman chants, he takes up a knotted (cactus) leaf and presses it along the right leg and over the foot of the patient and unties it over the big toe. The knots are then untied over several parts of the body. A portion of the contents of a gourd (*Lagenaria vulgaris*) is then given the patient to drink in three potions. After the patient chews up the herbs in the drink, he presses them to the same parts of the body as before and bathes his entire body in the remaining liquid (24:417) & (80:340). In a minor ceremony for the cure of a sore throat, both the patient and the shaman wear yucca bands about their heads (70:8).

In washing wool, the roots of the yucca plant are preferred to soap, because there is no greasy or fatty substance in it. It is also said to have a greater cleansing power (24:225). The dried and crushed roots are placed in a sack and stirred in lukewarm water until rich suds are obtained. The bag is then removed and the wool washed in several baths of the suds (82:1). Hides are also washed in a solution of yucca roots to cleanse them before tanning (87:13).

"Shooting the yucca," was a Navajo game played with a ball made of bark and wound with yucca leaves which had been previously placed in hot ashes to make them flexible (15:385). A stick of scrub oak (*Quercus pungens*) was attached to this by means of a yucca cord, to give momentum to the light ball. The ball was thrown into the air and the archers dis-

5. A. M. Tozzer, in all probability, mistook the leaves of the yucca for those of a cactus because of the sharp points. The cactus has no conspicuous leaves, and yucca is used in other ceremonies in much the same manner as described by him.

charged their arrows at it as soon as it was drawn downward by the weight of the stick (24:488).

Ordinary hunting arrows and spears were treated with a preparation believed to make them poisonous. One of these preparations consisted of a yucca leaf and charcoal from a tree struck by lightning. The arrows were then painted to about six inches back up the shaft with this preparation (30:10).

Other uses are as follows: yucca leaves are heated over a fire and the juice wrung out of them into an earthen vessel. The juice is then mixed with powders and applied to the shield with a pointed stick to make it live in the power of the sun, the serpent, the bear, the lightning, and the rainbow (6:116); knitted leggings were made from human hair or of yucca fiber (34:48); a rabbit-skin blanket was made by rolling all of the skins with the fur side out, and tying them with yucca strands (6:8); the earliest Navajo costume was made of yucca and grass fiber; the yucca pith was twisted with mountain grass (*Muhlenbergia cuspidata*), and roofing, the mat for bedding, leggings, shoes, and blankets made of it (24:457); sleeping mats were made of yucca and grass (42:49); a yucca ring is used in a game played by the Navajo that is similar to our "ring-toss" (15:722); scouts wear bracelets of yucca leaves (28:304); the buds of the yucca are eaten by sheep (7:31); in starting a Navajo basket, the butts of the first twigs are wound around a small stick known as the bottom of the basket and secured there with yucca (24:293); newly born babies are washed with yucca suds in a pile of ashes (72:134); the pitch of yucca leaves was used in early times for waterproofing baskets; baskets were formerly woven of braid made of the pith of the yucca leaf and dyed in the same manner as sumac (*Rhus trilobata*) twigs (24:295); moccasin uppers were made of yucca (24:295); dresses were made of yucca (9:176); basket drums are beaten with drumsticks made of the folded leaves of the yucca (24:402) and the folds wound with the same material (61:61); bull-roarers used in some of the ceremonies are covered with yucca pitch (24:414); the hearth of the Navajo fireset is made from a piece of yucca stalk with shallow holes into which is inserted a drill made of a piece of broken arrow shaft, to which a smaller piece of yucca wood is tied (37:19); formerly, when the Navajo made pottery, it was decorated with colored clays applied with a yucca brush (24:289); corn (*Zea mays*) husks, filled with dough and tied at the butt and tip with yucca, are lined up in a heated trench and covered with dirt and hot coals and thoroughly baked (24:207); the cakes which are baked for the Fire God are strung on yucca and attached to his right arm on the ninth day of the Night Chant (24:208); and necklaces and wristbands are also made of strips of yucca leaves intertwined at intervals with sprigs of Douglas fir (*Pseudotsuga taxifolia*), for certain ceremonies (72:202). See *Juniperus* sp., *Opuntia polyacantha*, *Phragmites communis*, *Picea* sp., *Populus* sp., *Rhus trilobata*, and *Yucca baccata*.

Zygadenus venenosus S. Wats. Poison Camas, Meadow Death Camass, Hogs' Potato. 'fíltshéni'tshoh (the mariposa lily, big).

Family 18. AMARYLLIDACEAE (Amaryllis)

Agave utahensis Engelm. Century Plant, Maguey, American Aloe, Mescal, Mezcal. Nootah (no meaning: the century plant). The tough fibers of this plant were formerly used in making blankets (41:160). See *Yucca baccata*.

Family 19. IRIDACEAE (Iris)

Iris spp. Broad Flag, Wild Iris. Ntxyeelníyiziíh (wide, circular). The wild iris was used in making a green dye (17:2).

Iris missouriensis Nutt. Western Wild Iris, Western Blue Flag, Fleur de Lis, Flower de Luce. Ntxyeel pit'aa' láníkíih (wide, its leaves, many; i. e. [plant that has] many wide leaves).

Sisyrinchium mucronatum Michx. Blue-eyed Grass. 'Azee't'p'öih (medicine grass). For nose and throat troubles, dried and pulverized herbs are used, such as blue-eyed grass, zinnia (*Zinnia grandiflora*), aster (*Aster canescens*), silkweed (*Asclepias verticillata*), *Aplopappus lanuginosus*, and *Solanum elaeagnifolium* (24:112).

CLASS VII. DICOTYLEDONAE

Order XIII. PIPERALES

Family 20. PIPERACEAE (Pepper)

Piper nigrum L. Commercial Pepper. 1. 'Azee'titc'íi'hjíníkíih (medicine, peppery, black). 2. 'Azee'titc'íi' lipáhíkíih (medicine, peppery, grey).

Order XIV. SALICALES

Family 21. SALICACEAE (Willow)

Populus spp. Cottonwood. T'iis (no meaning: the cottonwood). Cottonwood has many uses: prayersticks are made of cottonwood; the frame of the loom is made of four cottonwood (6:3) or juniper (*Juniperus* sp.) poles; cottonwood tinder boxes (24:65) and sticks are used in making fire-by-friction, while the fiber was used as a tinder (36:586); dice of cottonwood are used by the Navajo (15:94); the Navajo summer shelter consists of a circular or oval line of boughs of the cottonwood tree with abundant leaves, set upright on the butts and inclined slightly toward the center; and the image of a duck is carved of cottonwood for the Water Chant (25:111).

Implements of the moccasin game consist of a ball of sandstone, a hundred counting sticks of yucca (*Yucca* sp.), and a club of cottonwood (15:346) or piñon (*Pinus edulis*) (15:349). The catkins are called 'atcho', 'atchok, or pitcho'; a forked cottonwood is called t'iisnítickij (cottonwood, forked). See *Artemisia tridentata*.

Populus angulata Ait. Common Cottonwood. T'iis (no meaning: the cottonwood tree).

Populus angustifolia James. Black Cottonwood, Mountain Cottonwood, Narrow-leaved Cottonwood. T'iists'óoz (cottonwood, slender; i. e. cotton-

wood [whose leaves are] slender). This tree is used for parts of the Navajo cradle because the wood is so soft (24:469).

Populus fremontii S. Wats. Frémont Poplar. T'iis (no meaning: the cottonwood tree).

Populus nigra L. var. *italica* DuRoi. Lombardy Poplar. 1. T'iists'óoz (cottonwood, slender). 2. T'iistanéézíkiih (cottonwood, tall).

Populus tremuloides Michx.

Populus aurea Tidestrom. Quaking Aspen, American Aspen, Rocky Mountain Aspen. 1. T'iispäh (cottonwood, grey). 2. T'iispèih (cottonwood, grey). This tree, according to legend, has the distinction of being the first tree against which the bear rubs his back in the Sun's House Chant. The others are red willow (*Salix laevigata*), fir (*Pseudotsuga taxifolia*), and chokecherry (*Prunus demissa*) (72:194).

Populus wislizeni (S. Wats.) Sarg. Valley Cottonwood, Wislizenus Poplar, Palo Blanco. T'iis (no meaning: the cottonwood tree). This tree is used for firewood, fenceposts, vigas (83:156), cradles (24:464), and tinder boxes (24:65). Wooden tubes for the bellows used in silversmithing are made of cottonwood (24:272). Dolls and images of some animals are, at times, carved from the cottonwood, but are used for ceremonial purposes only (24:495). One of my informants stated that chewing gum is made from the sap that oozes from the trunk. The catkins, alone or mixed with animal fat, are also chewed as gum.

Salix babylonica L. Weeping Willow. K'ai'ipáhíkiih (willow, grey).

Salix exigua Nutt. Sandbar Willow. K'ai' (no meaning: the willow tree).

Salix laevigata Bebb. Red Willow. K'ai'ítchíí' (willow, red). See *Mentha* sp. and *Populus tremuloides*.

Salix spp. Willow, Grey Willow, Osier. 1. K'ai' (no meaning: the willow tree). 2. K'ai'ipáh (willow, grey). For the first days' ceremony of the Mountain Chant, willow sticks are gathered to make the emblem of the concentration of the four winds. A square was made with these sticks, leaving the ends projecting at the corners. The square is then placed over the invalid's head (78:238). For the rite of charcoal painting in the Night Chant, a quantity of willow sticks, together with several pieces of pine (*Pinus* sp.) bark,⁶ are burned to charcoal. The ashes of two different kinds of weeds, together with the ashes of two small feathers, are then added to the fat of a goat, mountain sheep, or other animal, made into balls and daubed on the usual parts of the body (80:339).

Willow is employed in many other ways. To make bellows, a sack from ten to eighteen inches in diameter and a foot across is made from tanned buckskin. In this sack are placed three or four hoops of willow to keep it distended (59:2). Heald sticks used in weaving (24:243), prayersticks (24:298), prayerstick foundations (31:71), permanent carrying baskets

6. The Navajo word given in the reference translates as chokecherry bark.

(24:298), cradle canopies (74:88), and plumed wands (61:57) are all made of willow, while water bottles were made or sewed with it (24:297). A braided willow strap was worn across the forehead and used to support a water bottle (6:14). Lances were formerly made of willow hardened by pounding with a stone (30:10). Arrowshafts were made of willow (51: pl. XLX). The talisman used in the Night Chant consists of four sticks of peeled willow (61:58). The catkins are called 'atcho', 'atchok, or pitcho'. See *Gutierrezia sarothrae* and *Pinus edulis*.

Order XV. JUGLANDALES
Family 22. JUGLANDACEAE (Walnut)

Juglans major (Torr.) Heller.

Juglans rupestris Engelm. var. *major* Torr. Native Walnut, Nogal. Xa'altshétiih (that which is cracked: the walnut). The Navajo gather and eat these fruits on a fairly large scale, although the nuts are rather small (13:31). The hulls produce a golden-brown dye, while a lighter brown dye is made from the young twigs (73:40).

Juglans regia L. English Walnut, Persian Walnut. Walnut hulls produce a golden-brown dye (82:7).

Order XVI. FAGALES
Family 23. BETULACEAE (Birch)

Alnus incana Willd. Speckled Alder, Hoary Alder. K'ic (no meaning: the alder). The bark of this species of alder is used in the same manner as that of *Alnus tenuifolia* for making a dull reddish dye (52:66).

Alnus tenuifolia Nutt.

Alnus incana Willd. var. *virescens* S. Wats. River Alder, Black Alder, Mountain Alder. 1. K'ic (no meaning: the alder). 2. K'icts'óoz (alder, slender). A dull reddish dye is made from the alder, and several other plants. The Navajo woman first burns some of the twigs of the juniper (*Juniperus monosperma*) (83:164), *Juniperus occidentalis* (24:232), *Juniperus californica utahensis* (66:462), or spruce (*Picea* sp.) (73:41), then crushes and boils the root bark of the mountain mahogany (*Cercocarpus montanus*) (24:232). The bark only is used because the roots themselves contain no color-bearing material (69:5). To this is added the powdered bark of the alder together with a ground lichen (*Parmelia molliuscula*). This is all put together and boiled until it is thought to be right, then it is strained and the wool or yarn is soaked in it overnight. This produces a dull reddish color on wool and a fine tan color on buckskin (24:232). For a brownish dye the bark and twigs are used (82:7). Twigs for basketry are also immersed in this fluid. The resulting color is a pale red which is made more lustrous by the addition of juniper (*Juniperus* sp.) ashes (24:293). See *Ephedra trifurca* and *Juniperus occidentalis*.

Betula fontinalis Sarg.

Betula occidentalis Hook.

Betula utahensis Britt. Rocky Mountain Birch, Streamside Birch,

Black Birch, Sweet Birch, Cherry Birch, Water Birch, Canyon Birch. 1. K'ictchíí' (alder, red). 2. K'ictchíí' (alder, red). 3. Na'ajȱoc (bridged). This species of birch is used for the pole in the "hoop and pole" game (41:148).

Carpinus caroliniana Walt.

Carpinus americana Michx. Blue Beech, American Hornbeam, Water Beech, Ironwood. K'ijicjíníih (no meaning, except that the last two syllables mean black).

Family 24. FAGACEAE (Beech)

Quercus spp. Oak. Tchétc'il (rock plant; i. e. the oak). The different species of oaks are used as follows: the acorns, tchétc'il pináa' (oak, its seed), of the various oaks are used by the Navajo as food (83:165). They are boiled like beans, roasted over coals (13:47), or they are sometimes dried and ground into flour. A medicine, whose use is unknown, is made and placed in thirty-two acorn shells and a humming bird made to sip from each (71:110). A temporary carrying basket is made of two staves or bows of oak twigs crossed in the center and brought upwards to the hoop. This framework is then covered with sheep or goatskin. These carrying baskets are usually made in the field for carrying yucca (*Yucca* sp.) fruits (24:299). The bow, which was always carried in war, was made of oak (24:318). In warfare, clubs were used by some of the warriors. The older type consisted of a grooved stone, which was hafted by twisting a small branch from an oak twice around the grooved section of the stone, and tying the free ends together (30:10). The Navajo throwing stick, which is of oak, was made by whittling the piece down to the shape of a batten and then heating it and bending it over the knee to give it a slight curve (24:324). The batten stick used in weaving is made of oak (24:243). Lances also were made of oak (30:10). Metallic hemispheres for beads and sunflower blossoms are made in a concave hole by means of a round-pointed bolt. Iron is usually used for the die, but sometimes a piece of hard oak is used (2:459). Hoes (10:9app.) and digging sticks are also made of oak (85:637). Oak digging sticks are used in the Female Shooting Life Chant for digging medicinal roots (85:637). Little sticks of oak are tucked in at various places in blessing a new hogan, and are called tchétc'il xont'aas'áhkíih (oak, crack, which is stuck in). These are inserted in a crevice above the hogan door, one in the east, one in the south, another in the west, and a fourth in the north during the dedication and purification of the hogan (26:96) & (24:339).

A game was formerly played by the Navajo called "football." They used a stick made either of green oak or of piñon (*Pinus edulis*), about four inches long, which they kicked out of the ground (15:668). A "J"-shaped stick or bat used in games was made of oak curved in hot ashes. This same stick is also used in playing shinny (15:789).

In the War Dance Ceremony, a piece of oak twig is curled up at the end and used as a drum stick (14:169). Because oak is so hard and has

such a great resisting power it is used in nearly all of the Navajo ceremonies (15:789). See *Gutierrezia sarothrae* and *Oenothera* spp.

***Quercus gambelii* Nutt.**

Quercus douglasii H. & A. var. *gambelii* A. DC.

Quercus undulata Torr. var. *gambelii* Engelm. Gambel Oak, Blue Oak. Tchétc'il (rock plant: the oak). This species is very hard and is common in rocky lands (55:776). See *Oenothera* sp.

***Quercus pungens* Liebm.**

Quercus undulata Torr. var. *pungens* Engelm. Scrub Oak, Holly Oak. Tchétc'ilínt'ízih (oak, hard). The batten used in weaving is usually made of a piece of scrub oak, three feet long, three inches wide, and one-half inch thick (68:40). The black for sandpaintings is sometimes made from the charcoal obtained from burning scrub oak (24:68). The gum that exudes from the tree is called tchétc'il pitchíih (oak, its gum) and is used for painting arrows between the feathers and also for chewing gum. There is another exudation from the bark that is called tchétc'il pizit (oak, its liver) and is used like oak bark for tan-colored dyeing. See *Prunus demissa* and *Yucca* spp.

Quercus undulata Torr. Scrub Oak, Wavyleaf Oak, Live Oak, Evergreen Oak. Tchétc'il (rock plant: the oak). Batten sticks and bows for the baby's cradle are made of scrub oak (24:478). See *Mentha* sp.

Quercus undulata Torr. var. *brevifolia* Engelm. Scrub Oak. Tchétc'il pikhá'ih (oak, male). This species of oak is spoken of as the male of *Quercus gambelii* because it is more robust and spiny (55:776).

Order XVII. URTICALES
Family 25. ULMACEAE (Elm)

***Celtis reticulata* Torr.**

Celtis mississippiensis Bosc. var. *reticulata* Sarg. Western Hackberry, Sugarberry, Beaverwood, Bastard Elm, Oneberry, False Elm, Nettle Tree, Palo Duro, Palo Blanco. Tjihxájih (chewing [it]). Name refers to chewing the berries. The berries are also ground and eaten. The leaves are boiled with the branches to dye wool dark brown, or red (3:34). The wood is also used for bellows tubes (24:272).

Family 26. MORACEAE (Mulberry)

***Ficus carica* L.** Common Fig, Higo. Xack'áan (syrup, molasses).

Family 27. URTICACEAE (Nettle)

***Humulus lupulus* L. var. *neomexicanus* A. Nels. & Cockerell.**

Humulus neomexicanus (A. Nels. & Ckll.) Rydb. Wild Hop. The wild hop is suitable for cooking (50:285).

***Urtica gracilis* Ait.** Slender Nettle. K'ic'tjjic (no meaning: the nettle).

Order XVIII. SANTALALES
Family 28. LORANTHACEAE (Mistletoe)

***Phoradendron* sp.** Mistletoe. An unidentified species of mistletoe is hung over the doorway of a hogan, together with twigs gathered from the

south, west, and north, to protect the hogan from lightning. This is also one of the plants used in the War Dance liniment (24:405). See *Helianthus annuus*.

Phoradendron juniperinum Engelm.

Phoradendron juniperum Auth.

Phoradendron ligatum Trel. Juniper Mistletoe. Taa'tshaa' (above or up, basket). The berries are eaten by the Navajo who say that they are not very palatable (13:39). The stems were used in ancient times as a tea.⁷

Family 29. SANTALACEAE (Sandalwood)

Comandra pallida A. DC. Bastard Toadflax. Te'il'apé' (plant, milk). See *Asclepias speciosa*.

Order XIX. POLYGONALES

Family 30. POLYGONACEAE (Buckwheat)

Eriogonum sp. Wild Buckwheat. Pisntootchii' (adobe, standing, red). An unidentified species has red roots and is used for diarrhea. The roots have a somewhat sweetish taste when put into cold water and drunk. See *Eriogonum fasciculatum*.

Eriogonum alatum Torr. Wild Buckwheat. 1. 'Azee'ni'pikháa'tée' (medicine, ground, on top of; i. e. medicine [plant that grows] on top of [the] ground). 2. Lee'azee' (earth or ground, medicine). 3. Wolitchii'táa' (bug, red, food; i. e. red ant food). The root is eaten and also used to stop pain when a person gets hurt.⁸ This plant is also used in the Life or Knife Chant (24:403). It is also used in many other kinds of sings. See *Achillea millefolium lanulosa*, *Leptotaenia multifida dissecta*, and *Petalostemon candidus*.

Eriogonum fasciculatum Benth. California Buckwheat, Flat Top. Pisntootchii' (adobe, standing erect, red; the buckwheat). Medicine for ant witchcraft requires this plant, *Eriogonum microthecum*, and an unidentified species of *Eriogonum*, all of which are previously boiled (24:409).

Eriogonum jamesii Benth. James Eriogonum, James Buckwheat. Piłna'at'ohiih (with it, tobacco; i. e. [which is smoked] with tobacco). See *Amaranthus graecizans*.

Eriogonum microthecum Nutt. Wild Buckwheat. 1. 'Azee''alk'es-kiiziih (medicine, twisted). 2. 'Azee'xa'ookiiziih (medicine, twisted). 3. Pisntootchii'pi'áatiih (adobe, standing, red, female). See *Eriogonum fasciculatum*.

Eriogonum racemosum Nutt.

Eriogonum orthocladon Torr. Wild Buckwheat. 1. Ni'pikháa'ntshaakiih (ground, on top of, big). 2. Ni'pikháa'tée'ntshaakiih (ground, on top of, big). See *Achillea millefolium lanulosa*.

Eriogonum rotundifolium Benth. Wild Buckwheat. Wolitchii'táa' (bug, red, food; i. e. red ant food). This plant is taken when ants are swallowed to make one vomit.

7. See note 1, p. 16.

8. *Ibid.*

Rumex hymenosepalus Torr. Wild Rhubarb, Dock, Sorrel, Cañaigra, Cañaigre (from the Spanish caña, stem, and aigria, sour). The stem is called tjilt'oo'ih (which is sucked), and the roots are called tchąat'iniih (hidden one). The stems of this plant are baked and eaten in much the same manner as we eat rhubarb (*Rheum rhaponticum*).

The fresh roots of this plant are crushed to a soft paste and native alum added. The paste is then rubbed into the wool. If the wool does not take the dye readily, a little water is added and the whole slightly warmed. The color obtained is "old gold" (57:613) & (62:194).

The roots are sometimes dried and stored indefinitely. When ready for use, the dried roots are ground (73:38). By this aging process, various shades are obtained, from a greyed yellow to a dull red (7:113). Several handfuls of the fresh roots boiled in water yield a lemon-yellow, and when more of the root is used, and boiled longer, a soft orange or orange-brown is obtained. If the mixture is boiled in an iron vessel, the reaction forms a red-brown or mahogany dye (73:38). When mixed with indigo, a green dye is produced (24:233). Although the dock contains a great amount of tannin, the Navajo do not seem to recognize its properties.

Rumex occidentalis S. Wats. Western Dock. 1. Tjilt'oo'ih (which is sucked). 2. Tchąat'iniih (hidden one).

Order XX. CHENOPODIALES
Family 31. CHENOPODIACEAE (Pigweed)

Atriplex sp. Saltbush. Tiwójiih (bushy; i. e. bushy [plant]: the greasewood). The stings of ants, bees, and wasps are treated by chewing *Atriplex* and placing it on the swelling caused by the sting (24:117).

Atriplex argentea Nutt. Silver Orache. 1. Tik'óoj (bitter [plant]). 2. Tik'óojyitáh (bitter, edible [plant]).

Atriplex canescens (Pursh.) Nutt.

Calligonum canescens Pursh. Fourwing Saltbush, Shad Scale, Orache. Tiwójiilpáih (greasewood, grey). This plant is used by the Navajo as forage for his cattle, sheep, and goats (13:17). It is used especially in the winter and early spring when other forage is scarce (83:204). The leaves and twigs are also used in coloring wool yellow (19:3).

Atriplex confertifolia (Torr. & Frém.) S. Wats.

Obione confertifolia Torr. & Frém. Spiny Saltbush, Sheep Fat. Tá'ak'óojteenínih (saltweed, sharp). This plant is used in the winter to provide salt for the sheep.

Atriplex expansa S. Wats. Saltbush, Fogweed. 1. Ta'ak'óoj pitjaa'-ntxyeelih (saltweed, ear, wide; referring to the wide bracts). 2. Ta'ak'óoj sizínih (saltweed, standing-up). The Navajo pasture their sheep on this plant in the summer for the salt that it affords. They also store it for the sheep to eat in the winter when most plants are dead.

Beta vulgaris L. Common Beet, Garden Beet. 1. Tc'illitchíi' (plant, red; i. e. plant [whose root is] red). 2. Tc'illitchíi'íkíih (plant, red).

Chenopodium album L. Quelite, Lamb's Quarters, White Goosefoot,

White Pigweed. T'p'ohteei'tshoh (grass, seeded, big). The young tender plants are collected by the Navajo and boiled as herbs alone or with other foods. Large quantities are eaten in the raw state (66:419). The seeds are also used. They are spread out to dry and are treated after the manner of corn.

Chenopodium cornutum (Torr.) Benth. & Hook.

Teloxys cornuta Torr. Pigweed, Goosefoot. Tshiyaat'p'ohteeih (tree, under, grass, seed; i. e. pigweed [that grows] under tree[s]). Liniment for the Mountain Chant contains, among other herbs, this plant (24:405).

Chenopodium fremontii S. Wats. Frémont Goosefoot, Frémont Pigweed. T'p'ohteeih (grass seed; i. e. the pigweed). The seeds are black and small like mustard seeds and are used in much the same manner as corn (*Zea mays*). They are ground to make tortillas, bread, and almost everything for which corn is used. They were used long before flour came into use. Glucose is obtained by parching handfuls of the seed meal (24:209).

Chenopodium leptophyllum (Moq.) Nutt.

Chenopodium album L. var. *leptophyllum* Moq. Fine-leaf Goosefoot, Narrow-leaved Lamb's Quarters. Txo'ic'f'ih' (water, which makes black).

Chenopodium spp. Goosefoot, Pigweed. 1. Tc'ilpeejtleeceih (plant which is spread on). 2. T'p'ohteei'p'ah'ih (grass, seed, grey; grey-seeded grass). 3. T'p'ohteeint'f'iz'ih (grass, seed, hard; hard-seeded grass). 4. T'p'ohteeixwoc'ih (grass, seed, prickly; prickly-seeded grass). The first unidentified species is chopped up finely and spread on the face and arms to keep the flies and mosquitoes from biting one. "It is just like soap when crushed up," or so one of my informants states. The seeds of several species of pigweed are ground and used like corn. Another species is usually prepared in the form of a stiff porridge (24:209). Bread is sometimes made from the seeds (61:174). Pigweed is also used with other plants as a liniment in the Mountain Chant (7:180).

Eurotia lanata (Pursh.) Moq.

Diotis lanata Pursh. White Sage, Winter Sage, Winter Fat, Lamb's Tail, Sweet Sage. Kahtshoht'aa' (rabbit, big, food; i. e. jack rabbit food). This plant is used to relieve blood spitting by slightly boiling the leaves and eating them (24:114). It is also used as winter forage for the sheep.

After the sweathouse is built for the Mountain Chant, stones are heated and placed inside, and an armful of white sage and *Chrysothamnus viscidiflorus* is thrown on them (78:240). See *Artemisia trifida* and *Juniperus* sp.

Salsola kali L. var. *tenuifolia* G. F. W. Mey.

Salsola kali L. var. *tragus* Am. Auth.

Salsola pestifer A. Nels. Russian Thistle, Tumbleweed, Saltwort.

1. Tc'il'axwoc'ih (plant, thorny). 2. Tc'ilteenin'ih (plant, sharp).

Sarcobatus vermiculatus (Hook.) Torr.

Batis vermiculata Hook. Black Greasewood, Chico. 1. Leetchaa'iyi-

k'yéetji' (dogs defecate on it). 2. Mą'jit'éé'iih (coyote's resting place). 3. Tiwójiicjiin (bushy, black; i. e. black greasewood). 4. Tiwójiih (bushy: the greasewood). This plant is used as firewood by the Navajo, and in winter it is used as forage for the sheep, who eat it for the salt. Planting sticks (24:265), Navajo dice (24:240), knitting needles (24:255), heald sticks (24:243), the handle of the distaff used in weaving (24:243), and war bows (24:318) are all made of greasewood because it is so hard (24:243). The plant is sometimes chewed and applied to ant, bee, and wasp stings (24:117). An image of a snake is carved in the root of greasewood for the Lightning Chant, and for the Beauty Chant, a branch of the Mountain Chant (25:111). See *Cymopterus alpinus* and *Helianthus annuus*.

Suaeda torreyana S. Wats. Sea Blite, Seepweed. 1. Xootch'a' (no meaning, but referring to female organs: the sea blite). 2. Łitchii' (red, referring to its berries). The seeds are boiled and served as a gruel.

Family 32. AMARANTHACEAE (Amaranth)

Amaranthus blitoides S. Wats. Prostrate Amaranth, Spreading Pigweed, Quelite. Naaskhaatiih (scattered all over, spread out). The Navajo ground the seeds of this species of amaranth and used the resulting meal as food. By chewing handfuls of the meal from the parched seeds, they obtained a sugar. A stiff porridge is frequently made from the seed meal which is sometimes mixed with goat's milk to form a gruel (24:209). The plant itself is used as sheep forage. See *Amaranthus retroflexus*.

Amaranthus graecizans L.

Amaranthus albus L. White Tumbleweed, White Rollingweed, White Amaranth. 1. Tc'ilnaamaasih (plant, rollable; i. e. tumbling plant). 2. T'p'ohtenaayizih (grass, seeded, turning around; i. e. tumbling weed). The smoke for lewdness, which is performed at the Coyote Chant, consists of the following plants: white tumbleweed, Indian paint brush (*Castilleja minor*), a pigweed (*Chenopodium* sp.), rabbitbrush (*Chrysothamnus nauseosus albicaulis*), James buckwheat (*Eriogonum jamesii*), gilia (*Gilia longiflora*), wild parsnip (*Leptotaenia dissecta multifida*), wild asparagus (*Lygodesmia rostrata*), wild four-o'clocks (*Mirabilis oxybaphoides* and *Mirabilis* sp.), loco weeds (*Oxytropis lambertii* and *Oxytropis* sp.), groundsel (*Senecio douglasii*), and several unidentified ones: 'atjaa'k'foxaltchin (ear, seed, smelly; i. e. [plant which has] seed[s] [that are both] ear [-shaped and] smelly), pji'nát'ooh (deer tobacco), tc'ikhyéexaltchin (adolescent girls, smelly; i. e. [plant which] smells [like] adolescent girls), tinastshoh (tinas, large), tipék'foxaltchin (sheep, seed, smelly; i. e. seed [which] smells [like a] sheep), and tshelkhyéexaltchin (young men, smelly; i. e. [plant which] smells [like] young men), which are crushed between the fingers and thoroughly mixed. To insure effect, the secretions of the eyes of the elk and bighorn must be added. A pipe filled with this mixture is then smoked (24:395). See *Aster* sp.

Amaranthus palmeri S. Wats. Palmer Amaranth. The seeds of this species of amaranth were probably ground and the resulting meal used as food. The parched seeds, after being ground, were chewed to obtain sugar (13:23).

Amaranthus retroflexus L. Green Amaranth, Rough Pigweed, Quelite (Greens), Alegría. 1. T'óhtéesk'ítih (grass, seeded, humped; i. e. amaranth [whose] seeds [are] humped [ridged]). 2. T'óhtéexócih (grass, seeded, prickly; i. e. amaranth [whose] seeds [are] prickly). The seeds of this species, as well as of *Amaranthus blitoides*, are commonly used as food by the Navajo. The plants are eaten after being boiled, much as we boil and eat spinach (*Spinacia oleracea*). Sometimes they are boiled and fried in lard, or just boiled and canned (13:15). The leaves and seeds are mixed with grease and eaten (24:181).

Family 33. NYCTAGINACEAE (Four-o'clock)

Abronia sp. Sand Verbena, Sand Puff. K'íneetlíciitáa'lipáih (stinkbug, food, grey).

Abronia cycloptera A. Gray. Sand Verbena. K'íneetlíciitáa'lipáih (stinkbug, food, grey).

Abronia fragrans Nutt. Fragrant Sand Verbena, Fragrant Sand Puff. 1. K'íneetlíciitáa' (spurts, urine, food; i. e. stinkbug food). 2. Na'actjé'i'azee' (spider medicine). The effects of swallowing a spider are supposed to be removed by taking a medicine prepared from this plant (24:116).

Allionia comata Small.

Oxybaphus nyctagineus Sweet var. *pilosus* A. Gray. Hairy Umbrella Wort. 1. Tshétetéeh (rock, works into; i. e. [plant which] works [itself] into [the] rock). 2. Xazêitsho'azee' (chipmunk, big, medicine; i. e. squirrel medicine).

Mirabilis sp. Four-o'clock. Tshétitéeh (rock, works into; i. e. [plant which] works [itself] into [the] rock). A dye is made from the petals of the four-o'clock which are boiled for about fifteen minutes. At first the dye is a light red, but after it boils longer, it loses this shade and takes on a muddy yellowish color. Wool becomes a peculiar shade of light brown or sometimes purple when immersed in it (72:267). Tshétitéeh is also said to mean purple, or the color of the four-o'clock. See *Amaranthus graecizans*.

Mirabilis multiflora A. Gray.

Quamoclidon multiflorum Torr. Many-flowered Four-o'clock. 1. K'íneetlíciitáa' (stinkbug food). 2. T'ée'iikahintshahíkíih (night-time, bloomer, big).

Mirabilis oxybaphoides A. Gray.

Quamoclidon oxybaphoides A. Gray. Four-o'clock. T'íicnát'oooh (snake tobacco). See *Amaranthus graecizans* and *Aster* sp.

Order XXI. CARYOPHYLLALES

Family 34. PORTULACACEAE (Purslane)

Portulaca oleracea L. Common Purslane, Pussley, Verdolaga. Tshii-gánłt'íih (head-hair, red). The seeds of this species are eaten by the Navajo (75:458). To cure a sick person, a small hole is dug in the middle of the hogan and wood is burned to charcoal, and the live coals placed in the small hole. Dried sagebrush (*Artemisia tridentata*) is then burned and the seeds of this plant are put on the hot charcoal and mixed with buffalo hair and buffalo penis. The sick person sits on the hole and is covered with a blanket or coat. This is supposed to clean out the whole body. The plant itself is eaten for stomach-ache.

Portulaca retusa Engelm. Common Purslane, Pussley, Verdolaga. Tshii-gánłt'íih (head-hair, red). The seeds of this species are eaten by the Navajo (75:458). The plant itself is a good sheep forage.

Family 35. CARYOPHYLLACEAE (Pink)

Arenaria aculeata S. Wats. Sandwort. 'Azee't'ohíh (medicine, grassy).

Cerastium arvense L. Field Mouse Ear, Mouse Ear Chickweed, Field Chickweed, Powder Horn, Starry Glasswort. Txalkháa'sikhaat (water, on top of, standing erect; i. e. [plant] standing erect on top of [the] water). See *Phlox caespitosa*.

Silene douglasii Hook. Douglas Catchfly, Douglas Wild Pink, Douglas Champion. Tzihnát'oohts'óoz (mountain, tobacco, slender). See *Aster* sp.

Silene laciniata Cav. Mexican Catchfly, Mexican Champion. Taxitxí-híhtáa' (hummingbird food).

Order XXII. RANUNCULALES

Family 36. RANUNCULACEAE (Crowfoot)

Clematis ligusticifolia Nutt. Western Virgin's Bower, Traveler's Joy, Yerba de Chivato. 1. Pila'astla'ih (fingers, five; referring to the five-parted leaves). 2. Tc'ilna'at'ó'its'óoz (plant, twining, slender). The root is used for medicine when someone gets hurt or as a tonic after deliverance.

Delphinium bicolor Nutt. Two-color Larkspur. 1. K'ixwootxyeelih (covers it, wide; i. e. covers [the ground] wide[ly]). 2. Txatitíi'toot'ij (pollen, blue). See *Delphinium scaposum*.

Delphinium menziesii DC.

Delphinium nelsonii Greene. Nelson Larkspur. Txatitíi'toot'ij (pollen, blue). The powdered petals of this species are sometimes used by the medicine man instead of the petals of *Delphinium scaposum* (85:643).

Delphinium scaposum Greene. Larkspur. 1. K'ixwootxyeelih (covers it, wide; i. e. covers [the ground] wide[ly]). 2. Txatitíi'toot'ij (pollen blue). Since blue is the color sacred to the south, the powdered petals of this plant, and of *Delphinium bicolor* are used by the medicine men as a sacrifice to the south in Navajo rites (55:770). The pollen is used exten-

sively in many ceremonies (24:197). It is said that a blue dye is obtained from the petals of this larkspur (73:44). See *Zea mays*.

Ranunculus cymbalaria Pursh. var. **saximontanus** Fern. Rocky Mountain Buttercup, Desert Crowfoot, Trailing Buttercup. Łe'etshoh il tjaa'ih (nest, big, like, ear; i. e. [plant with leaves] like [the] ear[s] [of a] rat). See *Cordylanthus ramosus*.

Thalictrum fendleri Engelm. Fendler Meadow Rue, Maid-of-the-Mist. Txaajiintchiin (turkey, smelly; i. e. [plant which has the] smell [of a] turkey). On the fifth night after the blackening ceremony of the War Dance the men and their wives bathe in, and drink a tea of meadow rue (71:130). See *Achillea millefolium lanulosa* and *Hedeoma nana*.

Family 37. BERBERIDACEAE (Barberry)

Berberis fremontii Torr.

Odostemon fremontii (Torr.) Rydb. Desert Barberry, Frémont Holly-grape. 1. K'ji'hitshoitshoh (twig, yellow, big; i. e. [plant whose] twig[s] [are both] big [and] yellow). 2. Tchétc'ilínt'ízi' yilt'áa'ih (rock, plant, hard, like, leaf; i. e. [plant which has] leaves like [the] scrub oak). The roots and bark of this plant are used in dyeing buckskin yellow (55:770).

Berberis repens Lindl.

Berberis aquifolium of Fl. Colorado and Western reports.

Odostemon repens (Lindl.) Cockerell. Creeping Barberry, Oregon Grape. 1. K'ji'hitshoih (twig, yellow; i. e. [plant which has] yellow twig[s]). 2. Tshinyaatchet'íl (tree, under, rock, plant; i. e. [plant which grows] under [the] oak tree). Rheumatic stiffness is said to be cured by a tonic boiled from the leaves and twigs of this plant (83:259) or of the leaves and branchlets of *Corydalis montana* (24:114).

Order XXIII. PAPAVERALES

Family 38. FUMARIACEAE (Fumitory)

Corydalis montana Engelm.

Capnoides montanum (Engelm.) Britt.

Corydalis aurea Willd. var. *occidentalis* Engelm. Mountain Corydalis. Xaspítítáa' (turtledove food). See *Berberis repens*.

Family 39. CRUCIFERAE (Mustard)

Arabis communis Auth. Common Rockcress, Wild Candytuft. 'Azee'-łpah (medicine, grey). See *Achillea millefolium lanulosa*.

Arabis holboellii Hornem.

Arabis holboellii Hornem. var. *retrofracta* (Grah.) Rydb.

Arabis retrofracta Graham. Holboell Rockcress, Holboell Candytuft. 'Azee'łaatilt'íhíh (medicine, lone or scattered; i. e. medicine [plant which grows] [a]lone or scattered). This is one of the plants used in the Night Chant Ceremony (24:408). It is so named because it does not grow in clusters, but singly (24:187).

Brassica campestris L. Common Yellow Mustard, Rutabaga, Rape,

Swedish Turnips, Mostaza. Tshéyaaxatxaał (rock, under, sings; i. e. [plant which] sings under [the] rock). So called because of the noise produced when it is shaken (24:188).

Brassica oleracea L. var. **botrytis** L. Cauliflower, Broccoli. Tc'illikääkíih (plant, white).

Brassica oleracea L. var. **capitata** L. Cabbage, Col. Tc'illikääkíih (plant, white).

Brassica rapa L. Turnip, Nabo. Tc'illikääkíih (plant, white).

Dithyrea wislizeni Engelm. Spectacle Pod. 1. Naxast'éi'itáa' (field rat food). 2. Tc'ilxwootc'íhíh (plant, smarting). Navajo sheep use this plant as a forage.

Draba montana S. Wats. Whitlow Grass. Lizpeeyiitsoł (urine, it spurts; i. e. [plant which makes the] urine spurt). Diuretic troubles are supposed to be removed by a beverage prepared from plants such as this (24:113).

Erysimum asperum (Nutt.) DC.

Cheiranthus asper Nutt. Western Wallflower, False Wallflower, Wild Wallflower, Prairie Rocket, "Yellow Phlox." 'Azee'tshoh (medicine, big). See *Achillea millefolium lanulosa*.

Lepidium montanum Nutt. Pepper Grass. Tsháaxalts'aa' (interior stomach, shaped, basket or receptacle; i. e. [plant which has pods] shaped [like the] interior stomach).

Lesquerella alpina (Nutt.) S. Wats.

Vesicaria alpina Nutt. Alpine Bladder Pod. 'Azee'ts'óoz (medicine, slender). See *Achillea millefolium lanulosa*.

Lesquerella fendleri (A. Gray) S. Wats.

Lesquerella stenophylla (A. Gray) S. Wats.

Vesicaria fendleri A. Gray.

Vesicaria stenophylla A. Gray. Fendler Bladder Pod. 1. Na'actjéi'itáa'hipahíkíih (spider, food, grey). 2. Xaactc'ée yiltshíih (God, like, head-hair; i. e. [plant which is] like [the] head-hair [of the] god[s]). A tea is made of this plant which is supposed to counteract the effects of a spider bite (24:116).

Physaria sp. Double Bladderpod, Twinpod. Ts'áahpíih (preventative of sneezing). See *Helianthus annuus*.

Physaria newberryi A. Gray. Newberry Double Bladderpod, Newberry Twinpod. Tc'iic'azee' (sneeze medicine). This plant is used as a snuff for catarrh (55:770).

Radicula sp. Water Cress. Txalt'aa'péc (water, under, knife).

Radicula alpina (S. Wats.) Greene.

Nasturtium alpinum Auth.

Nasturtium obtusum Nutt. var. **alpinum** S. Wats. Alpine Water Cress, Alpine Nasturtium, Berro. Txakháa'taxikhał (water, on top of, spread out; i. e. [plant which] spread[s] out on top of [the] water). This species of water cress is used as a tonic after deliverance (24:116).

Radicula obtusa (Nutt.) Greene.

Nasturtium obtusum Nutt.

Rorippa obtusa (Nutt.) Britt. Water Cress, Berro. 'Azee'toot'ij (medicine, blue). See *Achillea millefolium lanulosa* and *Artemisia* sp.

Raphanus sativus L. Cultivated Radish, Wild Radish, Rábano. 1. Te'illitchii' (plant, red). 2. Te'ilkitchii'íkíih (plant, red).

Sisymbrium altissimum L.

Norta altissima (L.) Britt. Tumble Mustard. 'Ostshe' (no meaning: the tumble mustard). The *Old Folks* ate the seeds like corn mush, with goat's milk, or so one informant stated.

Sisymbrium incisum Engelm.

Sophia incisum (Engelm.) Greene. Hedge Mustard. 'Ostshe' (no meaning: the hedge mustard).

Sisymbrium officinale (L.) Scop.

Erysimum officinale L. Hedge Mustard, Tansy Mustard. 'Ostshe' (no meaning: the hedge mustard). The seeds, before they can be used, have to be parched in a pan or skillet over live coals. Formerly they were placed in a basket with live coals and shaken until they were parched. After this they were ground and a soup or stew was made of them (24:209). Horses also forage on it.

Stanleya pinnata (Pursh.) Britt.

Stanleya pinnatifida Nutt.

Cleome pinnata Pursh. Prince's Plume. 1. 'Azee'xaakaih (medicine, white). 2. Tshétc'oc'azee' (rock, worm, medicine). 3. Tshéyaaxatxaalki-páhíkiih (rock, under, sings, grey). This plant is used as a medicine for glandular swellings (55:770). See *Achillea millefolium lanulosa*.

Thelypodium wrightii A. Gray. Wright Pennycress. Nantchaat-'azee' (swelling medicine). Swellings were supposed to be removed by applying this plant (24:113).

Thlaspi sp. Pennycress. Náa'nootóziih (seeds, striped).

Thlaspi alpestre L. Alpine Pennycress, Wild Candytuft, Alpine Candytuft. 'Azee'ts'óoz'ałts'iisikíih (medicine, slender, small). See *Achillea millefolium lanulosa*.

Unidentified *Cruciferae*: 'Azee'tlô'iih (medicine, prairie-dog). The leaves of this unidentified species of *Cruciferae* are pounded into a paste and applied to the cavity of an aching tooth. It is said to stop ordinary toothache very quickly (33:20).

Family 40. CAPPARIDACEAE (Caper)

Cleome serrulata Pursh.

Cleome integrifolia T. & G.

Peritoma serrulatum DC. Rocky Mountain Bee Weed, Blue Colorado Bee Plant, Spider Plant, Clammy Weed, Stink Flower, Stinkweed, Cleome, Guaco. Waa' (no meaning: the bee weed). When the plants get about four inches high they are picked and boiled as we do spinach. The plants are also made into a stew with wild onion (*Allium deserticola*), wild celery

(*Cymopterus glomeratus*), and a little tallow or bits of meat. Morsels of bread are then dipped into the stew and eaten. When any of the plants are left over they are sometimes allowed to dry and are cooked in the form of dumplings with meat or tallow. The young plants are boiled and pressed out three times, after which they are rolled into balls and eaten, or dried and stored for the winter. When these balls are to be used, they are soaked and boiled with or without tallow. The Navajo say that guaco has saved them from starvation on several occasions (13:24) & (24:209). The pods also are eaten.

Standley states that it is almost incredible to anyone familiar with the bee weed that it could ever be eaten. Its stems and leaves give off a most offensive odor, but this is said to disappear when cooked (75:458).

Cleome sonorae A. Gray.

Peritoma sonorae (A. Gray) Rydb. Sonora Bee Weed, Sonora Stink Flower, Skunk Weed, Stinking Clover. Waa' (no meaning: the bee weed). It is a very simple matter for the Navajo to make fire-by-friction with the common bee weed. The brittle stalks, about an inch in diameter are used for the drills which are whirled between the palms of the hands, and are made to revolve on the edge of a larger stalk into which a notch has been cut. A pinch of sand is sometimes placed under the point of the drill which causes the wood to become a fine powder. This powder then runs down the notch and forms a little pile on the ground. Smoke is produced in less than a minute, and in about two minutes tiny sparks drop onto the pile of dry powder which takes fire from them. By carefully feeding the fire with bits of dried bark and grass, and with much blowing, a blaze is produced (63:501). The plant itself is used for greens as well as for making a watery stew or gravy (61:47).

When the masks for the Night Chant are finished, a general feast is given in which tea made from the bee weed is drunk (24:389).

Cleome spinosa L.

Cleome gigantea Hort.

Cleome pungens Willd. Giant Spider Plant. Waa' (no meaning: the bee weed).

Order XXIV. ROSALES

Family 41. SAXIFRAGACEAE (Saxifrage)

Fendlera rupicola A. Gray. Tshiint'izih (wood, hard). The wood is not very hard when green, but is said to become so when seasoned (55:772). It is used for arrow shafts (24:318), weaving forks (55:772), planting sticks (58:187), knitting needles (24:255), and other articles requiring hard wood (55:772). It is capable of taking a high polish (24:255).

A louse killer was formerly made of five pieces of this shrub, which were laced together and passed under the hair. The string was then drawn, killing the lice that got between (24:170).

When ants are swallowed, a medicine is prepared from the inner bark

of this plant, which is pounded into a pulp, mixed with water, and taken internally (24:116).

A notched stick made of this shrub is used in the Mountain Chant Ceremony, where it is placed on a small basket and the notches rubbed with a smooth stick instead of beating a drum (26:164). This shrub is also used by the Home God in the Mountain Chant Ceremony (58:187).

Heuchera bracteata (Torr.) Ser. Alum Root, Navajo Tea, Kalispell. 1. Tc'ilkoxwéhíh (plant, coffee). 2. Woo'ts'íní'azee' (tooth flesh, medicine). Toothache medicine consists of a mush prepared from the crushed leaves of this plant, and the crushed leaves of *Aplopappus lanuginosus*, which are mixed with water. The resulting mass is held to the aching tooth with a heated stone. It is sometimes chewed to relieve sore gums (24:113). To this mixture is sometimes added sugar, and then it is thought to be a good remedy for indigestion. The stems of this plant also make a pinkish-tan dye (73:41).

Lithophragma tenella Nutt.

Tellima tenella (Nutt.) Walp. Woodland Star, Star Flower. Tshétáa'-sikhaat (rock, among, several standing; i. e. clustered among [the] rocks). See *Phlox caespitosa*.

Philadelphus microphyllus A. Gray. Mock Orange, Syringa. Tshé-tshohk'íi' (rock, big, twig; i. e. twig [plant which grows among the boulder[s]).

Ribes aureum Pursh. Golden Currant, Flowering Currant, Buffalo Currant, Missouri Currant. 1. Tshé'eskízíih (stone, twisted; i. e. [plant whose fruit] stone [is] twisted). 2. Tshé'est'ísíih (stone, twisted; i. e. [plant whose fruit] stone [is] twisted). 3. Tshiínt'ízíh (wood, hard; i. e. [plant whose] wood [is] hard).

Ribes inebrians Lindl. Wild Currant, Wild Gooseberry, Grosella, "Manzanita." K'íntjil'ahíh (no meaning: the currant). The fruits are eaten by the Navajo. Arrow shafts (24:318), and the distaff used in spinning (24:226) are usually made of currant wood because it is very hard.

Family 42. ROSACEAE (Rose)

Amelanchier alnifolia Nutt.

Aronia alnifolia Nutt. Western Serviceberry, Alder-leaved Serviceberry, Shad Blow. 1. Titzétit'ótíh (berry, soft; i. e. [plant which has] soft berries). 2. Tshé'eskízíih (stone, twisted; i. e. [plant whose fruit] stone [is] twisted). The Navajo regard this as a variety of cherry, or closely allied to it (55:772). The fruits are eaten (24:211).

Amelanchier prunifolia Greene. Prune-leaved Serviceberry, Prune-leaved Shadberry, Prune-leaved Juneberry. The fruits of the native serviceberries are eaten fresh (24:211) or they are dried and preserved for winter use. They are tasteless in all species (83:322). See *Spirogyra* sp.

Cerasus crenulata Greene. Wild Plum. The roots are used in coloring wool purple (10:3).

Cercocarpus montanus Raf.

Cercocarpus parvifolius Nutt. Mountain Mahogany, Palo Duro. Tshé'estaazih (stone, heavy; i. e. [plant whose wood is as] heavy [as] stone). The root bark is called tshé'estaazih pexet'óol pikhaaz (mountain mahogany, its root, its bark). The handle of the distaff used in weaving (24:407), Navajo dice (24:479), and the sweathouse for the Mountain Chant Ceremony are all made of mountain mahogany (56:389). Mountain mahogany is probably used in making the prayerstick of the east because its seed styles are white, the color of the east (44:63).

The root and bark are used for stomachic troubles,⁹ while the whole plant is browsed by sheep. See *Alnus tenuifolia*, *Cowania stansburiana*, *Juniperus occidentalis*, and *Phragmites communis*.

Cowania stansburiana Torr.

Cowania mexicana Don. Cliff Rose, Cliff Rosewood, Quinine Bush, Buck Brush. 1. 'Átshá'ástc'íł (bedding, curly; i. e. [plant whose inner] curly [bark is used for] bedding). 2. 'Awée'ts'áal (baby cradle; i. e. [plant whose bark is used in making backing for the] baby['s] cradle). The cliff rose serves a variety of purposes. The bark is stripped from the shrub, softened by plying between the hands, and used as backing for cradle boards and as stuffing for pillows. It is spread out in the sun every day to take the odor off. It is also used to stuff the Navajo baseball, which is covered with the hide of any animal that can be eaten with impunity, such as horsehide, buckskin, or goatskin (5:789) & (24:485). The pounded leaves and stems serve to make a yellow-brown or tan dye when mixed with pounded juniper (*Juniperus* sp.) branches (73:40).

In the myth of He Who Teaches Himself, in the Night Chant, the mountain mahogany (*Cercocarpus montanus*) is said to be used for the male prayersticks and the cliff rose for the female prayersticks. The prayersticks are also described as being made of the coarse sunflower for the male prayerstick and made of *Verbesina encelioides exauriculata* for the female prayersticks. In the myth of the prophet, Reared Within the Mountains, in the Mountain Chant, the cliff rose and the mountain mahogany are also associated with the male and female (59:235). Another use for this plant is found in the Mountain Chant Ceremony, during which it is made into arrows which are supposedly swallowed (56:409).

Fragaria bracteata Heller. Wood Strawberry. The fruits of this species have a very good flavor, although they are somewhat small. They are considered a delicacy by the Navajo (13:29).

Potentilla sp. Five Fingers, Cinquefoil. Łee'ezee' (earth medicine).

Potentilla gracilis Dougl. Slender Goosegrass, Slender Five Fingers, Slender Cinquefoil. 'Azee'xokháńíih (medicine, terraced; i. e. medicine [plant whose stems] rise in tiers).

Potentilla strigosa (Pursh.) Pall.

9. See note 1, p. 16.

Potentilla pennsylvanica L. var. *strigosa* Pursh. Hairy Five Fingers, Hairy Cinquefoil. 'Azee'ntł'ini'tshoh (medicine, sticky, big; i. e. big medicine [plant which is] sticky). See *Achillea millefolium lanulosa*.

Prunus spp. Wild Cherry, Wild Plum, Capulín. The fruits of these shrubs are usually eaten as soon as they are picked (24:211). Prayersticks are made of the wild cherry (24:396). The Humpback in the Night Chant carries a staff made of the wild cherry (61:14). A green dye is made of the wild cherry (3:34), while the roots make a purple dye (82:6). The roots of the wild plum are also used to obtain a reddish-purple dye (82:6). See *Prunus demissa*.

Prunus americana Marsh. American Plum, Yellow Plum, Red Plum, River Plum, Thorn Plum, August Plum, Goose Plum, Hog Plum, Sloe. The roots are used in dyeing wool red (19:3).

***Prunus armeniaca* L.**

Armeniaca vulgaris Lam. Common Apricot, Cultivated Apricot, Albaricoque. Titzétik'ójiih (berry, bitter; i. e. [plant whose] berry [fruit is] bitter).

***Prunus demissa* (Nutt.) Walp.**

Cerasus demissa Nutt.

Prunus virginiana L. var. *demissa* (Nutt.) Sarg. Western Chokecherry. 1. K'ícjíníh (K'íc, black). 2. Mą'itáa' (coyote food). 3. Titzéh (berry). The chokecherry is a sacred tree to the Navajo. Its wood is used for making implements of the dance and prayersticks, and is often mentioned in the sings (56:450). It is used in making prayersticks of the north probably because its fruits ripen black, the color of the north (44:63). A conventionalized chokecherry branch in blossom is represented in the third day dry painting of the Mountain Chant (56:450). Five square hoops for use in unraveling ceremonial objects on four successive days are made of sumac (*Rhus trilobata*), chokecherry, wild cherry (*Prunus* sp.), spruce (*Picea* sp.), and scrub oak (*Quercus pungens*) (24:416). See *Leptotænia dissecta multifida*, *Mentha* sp., *Oenothera* sp., *Phragmites communis*, *Populus tremuloides*, and footnote no. 6, p. 38.

Prunus domestica L. Cultivated Plum, European Plum, Ciruela. Tc'ilna'atł'ó'itshoh (plant, winding, big; i. e. big grape). The Navajo know only the fruit. Its name is derived from its resemblance to the grape (24:197).

***Prunus persica* Sieb. & Zucc.**

Amygdalus persica L.

Persica vulgaris Mill. Cultivated Peach. Titzétshoh (berry, big; i. e. [plant which has a] big fruit). The Navajo trade for most of their peaches with the Hopi Indians, because Canyon de Chelly is about the only place where the Navajo themselves are able to raise them. The medicine men use large quantities of the dried fruit for purgatives (35:438). A yellow dye is obtained from the leaves (48:13) & (81:3).

***Purshia tridentata* (Pursh.) DC.**

Tigarea tridentata Pursh. Antelope Brush, Buck Brush, Bitter Brush, "Greasewood." K'intji'ahíh (no meaning: the antelope brush). Arrows are made of this plant.

Pyrus communis L. Cultivated Pear, Pera. Pilisâanah pitshee' xólóníh (apple, tail, having; i. e. apple having [a] tail).

Pyrus malus L.

Malus communis DC.

Malus sylvestris Mill. Cultivated Apple, Manzana. Pilisâanah (corrupted from the Spanish manzana, apple). Apple bark produces a reddish-yellow dye (81:3).

Rosa fendleri Crép. Wild Rose, Fendler Rose. 1. Tc'q' (no meaning: the rose). 2. Tc'ö' (no meaning: the rose). Medicine made from this plant is used in the Sun's House Chant (72:187). The fruits are also eaten as picked without special preparation (24:211). Wooden needles used in leather work are sometimes made of the rosebush (24:309).

Rubus arizonicus (Greene) Rydb.

Batidaea arizonica Greene. Arizona Red Raspberry, Arizona Bramble. The fruits of this plant are eaten by the Navajo (24:211).

Rubus strigosus Michx. Wild Red Raspberry, American Raspberry. Taxwoj (spiny, fruit: referring to the fruit and to the spines of the plant). Unidentified *Rosaceae*: Pistxaxistc'il (adobe, curled, plant).

Family 43. LEGUMINOSAE (Pea)

Amorpha microphyllus Pursh.

Amorpha nana Nutt.

Hosackia microphylla Nutt.

Hosackia nana S. Wats. Small-leaved Bird's Foot, Small-leaved Deerweed, False Indigo, Shoe-strings, Indigo Bush, Lead Plant. 1. Ni'pístjah (ground, lying flat; i. e. [plant which is] lying flat [on the] ground). 2. Tc'iic'azee' (cold medicine). This plant is used as a snuff for catarrh (55:770-1).

Arachis hypogaea L. Cultivated Peanut, Goober, Ground Nut, Ground Pea, Earth Nut, Cacahuate. Pilakâanah pinictc'ii' (Americano, his piñon nut).

Astragalus spp. Locoweed, Rattlepod. Four unidentified species of locoweed are noted: 1. Ta'agáliih (rattling; i. e. [plant that has] rattling [pods]). 2. Tc'il'agániih (plant, deadly; i. e. plant [which is] deadly). 3. Tiiltc'ilíh (it pops; i. e. [plant which has pods that] pop). 4. Naatjñ (eyes, none). The second plant mentioned is supposed to kill flies and even human beings, if they are unlucky enough to eat it. The fourth plant mentioned is supposed to cause blindness when eaten.

Astragalus allochrous A. Gray. Many-colored Rattleweed, Many-colored Rattlepod. Txáa'iiltchóciih (forehead, popped; i. e. [plant which has pods that can be] popped [on the] forehead). This is one of the plants that has an unknown use in the Night Chant.

Astragalus matthewsii S. Wats. Matthew Locoweed, Matthew Rattleweed. 1. 'Azee'pi'âatiitshoh (medicine, female, big; i. e. big female medicine [plant]). 2. 'Azee'pikha'iitshoh (medicine, male, big; i. e. big male medicine [plant]). This plant is used by the male and female shooters in the Lightning Chant (26:44).

Astragalus mortoni Nutt.

Astragalus canadensis L. var. *mortoni* S. Wats. Morton Milk Vetch. 'Azee'tilxyil'ih (medicine, darkish; i. e. darkish medicine [plant]). See *Achillea millefolium lanulosa*.

Astragalus thompsonae S. Wats. Thompson Locoweed. Ta'agaliits'óoz (rattling, slender; i. e. slender [plant which has] rattling [pods]).

Astragalus triflorus A. Gray.

Astragalus geyeri A. Gray. Locoweed, Rattlepod. Txáa'iiltchóciih (forehead, popped; i. e. [plant which has pods that can be] popped [on the] forehead).

Cercis occidentalis Torr. Western Red Bud, Judas Tree. Pit'áa' naspas pexetshiin (its leaves, round, its base; i. e. [which has] round leaves [at the] base [of the plant]). The Navajo roast the pods of this plant in ashes and eat the seeds, although it is not native to their immediate country (24:21). Anyone for whom the Mountain Chant has been given cannot eat this plant, for its leaves are used as an incense in the Chant (27:92).

Gleditsia triacanthos L. Honey Locust, Sweet Locust, Three-thorned Acacia. 1. Naatzxán (lying down). 2. Naatzxáanih (those that lie about). So called from the habit of the roots of spreading out on the ground.

Glycyrrhiza lepidota (Nutt.) Pursh.

Glycyrrhiza glutinosa Nutt. Wild Licorice, Wild Liquorice. 1. 'Altxa'niits'éhiits'óoz (adhering, slender; i. e. slender [plant which] adheres [as a burr does]). 2. Txa'niits'éhiits'óoz (adhering, slender).

Kentrophyta montana Nutt. Spur Plant, Prickle Plant. Ma'jina'ooltjil'azee' (coyote, craziness, medicine; i. e. medicine [plant which is good for] coyote rabies). It is a reputed remedy for rabies (55:772).

Lathyrus decaphyllus Pursh.

Lathyrus polymorphus Nutt. Everlasting Pea, Vetchling. Naa'ok'i yil t'aa'ih (bean, like, leaved; i. e. [plant which is] leaved like [the] bean).

Lotus wrightii (A. Gray) Greene.

Anisolotus wrightii (A. Gray) Rydb.

Hosackia wrightii A. Gray. Wright Lotus, Wright Deerweed, Wright Birdsfoot Trefoil. 1. 'Azee'pitóotchiit (medicine, releasing; i. e. medicine [plant which] releases [something]). 2. Tc'ilnaneestizih (plant, winding).

Lupinus sp. Lupine. 'Azee'pikha'ih (medicine, male). This unidentified species of lupine is used in the Male Shooting Chant (24:192).

Lupinus brevicaulis S. Wats. Short-stem Lupine. 'Azee'pi'âatiih (medicine, female). This plant is used in the female shooters branch of the Lightning Chant (24:409). The name and use were probably suggested

by the peculiar appearance of the pods. It is supposed to be a remedy for sterility and to especially favor the production of female offspring (55:771).

Lupinus lyallii A. Gray. Lyall Lupine. Yiiltc'oj'azee' (boil medicine; i. e. medicine [for] boils). A remedy for boils, which is applied in the form of a liniment, is made of this plant (24:115).

Medicago sativa L. Cultivated Alfalfa, Lucerne, Medick. 1. Łíi' pit'oh waa'íkíih (horse, his hay, beehay; i. e. horse hay [which looks like the] beehay). 2. T'owaa'ih (grass or hay, beeweed; i. e. hay [which looks like the] beeweed). Any blue flower may be used for a blue dye, but nowadays alfalfa is the favorite. The plant is also used to produce a green dye (17.2). See *Trifolium repens*.

Melilotus alba Desr. White Sweet Clover, White Melilot. T'ohwaa'í-tshoh (alfalfa, big).

Oxytropis spp. Loco Weed. There are several unidentified species of this plant which are used as follows:

1. Tipétáa' (sheep food).

2. Tipépitáa' (sheep, his food).

3. Tipéxaitc'ítíih (sheep, scratch out). The sheep scratch this species out of the ground in the spring to eat. See *Amaranthus graecizans*.

4. Tipéxaitc'ítíiintsháakíih (sheep, scratch out, large; i. e. [the] large[r] [one of those plants which the] sheep scratch out [for food]). Medicine for bronchial troubles and troubles of the esophagus is found in a tea made of the crushed and boiled leaves of this plant (24:114).

5. Txá'iltchóciits'óoz (forehead, popped, slender; i. e. slender [plant which has pods that can be] popped [on the] forehead).

6. Mą'jina'ooltjil'azee' (coyote, craziness, medicine; i. e. medicine [plant which is good for] coyote rabies). This plant is supposed to cure the rabies.

Oxytropis lambertii Pursh.

Aragallus lambertii (Pursh.) Greene. Lambert Loco Weed. Tipénát'oooh (sheep tobacco). This plant is offered to the bighorn at the Night Chant (24:394).

Petalostemon candidus Michx.

Petalostemon candidum Michx. Prairie Clover. 1. Xastxiin pitshiyéel (man, his queue; i. e. [plant whose flower cluster looks like a] man[']s queue). 2. Ni'ts'q̄siitshoh (earth, veins, big; i. e. [plant whose roots look like] big veins [in the] earth). 2. Ni'ts'q̄siih (earth, veins; i. e. [plant whose roots look like] veins [in the] earth). The roots of this species are eaten as a delicacy by little children and by shepherders. The roots are also eaten as a medicine when one gets hurt. The plant itself, when mixed with 'áyaa'áih (standing upright), an unidentified herb, was used to remove pain in the abdomen caused by colds, loose bowels, or lifting heavy weights (24:114). It is also used as toothache medicine.

In the Wind Chant, it is dried and ground up with the plants of *Eriogonum alatum*, *Lithospermum angustifolium*, and pollen from the

juniper (*Juniperus* spp.), piñon (*Pinus edulis*), pine (*Pinus* spp.), and from other trees. This is mixed with water and given the patient to drink. See *Phlox caespitosa*.

Phaseolus limensis Macf. Lima Bean. Naa'ohí peexekot (bean, hoe; i. e. bean [which is shaped like a] hoe [blade]).

Phaseolus vulgaris L.

Faba vulgaris Moench. Common Bean, Cultivated Bean, Kidney Bean, Frijol, Haba. Naa'ohí (no meaning: the bean). See *Nicotiana tabacum* and *Zea mays*.

Pisum sativum L. Cultivated Pea, Garden Pea, Guisante, Chicharo. Naa'ohínimaazíkiih (bean, spherical).

Prosopis chilensis (Molina) Stuntz.

Ceratonia chilensis Molina.

Prosopis glandulosa Torr.

Prosopis juliflora (Swartz) DC.

Prosopis juliflora (Swartz) (DC.) var. *glandulosa* (Torr.) Cockerell. Honey Mesquite, Mezquite, Algarroba. Mesquite wood is used in making the Navajo bow (51:pl. LXXIX).

Psoralea tenuiflora Pursh. Few-flowered Psoralea, Indian Turnip, Bread Root, Leather Root, Pomme de Prairie, Pomme Blanche. 1. Na-t'oohwaa'ih (tobacco, beeweed; i. e. [plant which is used for] tobacco [and looks like the] beeweed). 2. Łji' pit'áa ts'óos (horse food, slender; i. e. slender [plant which the] horse [uses for] food). This plant is smoked by the maskers after the feast celebrating the completion of the masks for the Night Chant (24:389). See *Aster* sp.

Robinia neomexicana A. Gray. New Mexican Locust, Cat's Claw, Uña de Gato. Cactáa' (bear food).

Schrankia uncinata Willd.

Leptoglottis microphylla (Dryand) B. & R.

Morongia uncinata (Willd.) Britt. Sensitive Brier. 1. 'Azee'ts'óoz-hipáhíkiih (medicine, slender, grey; i. e. slender grey [plant which is used as] medicine). 2. 'Azee'ts'óozntshaahíkiih (medicine, slender, big; i. e. big slender [plant which is used as] medicine). See *Achillea millefolium lanulosa*.

Sophora sericea Nutt. Silky Sophora. Tipéxaitc'íitiih (sheep, scratch out; i. e. [plant which the] sheep scratch out [for food]). It is said that the sheep scratch it out of the ground for food (55:771).

Trifolium eriocephalum Nutt. Woolly-headed Clover. Naa'asts'qosi yil tjaa'ih (mouse, like, ear; i. e. [plant that has leaves] like [a] mouse ear).

Trifolium involucratum Ort. Cow Clover. Tjaa'nts'íliih (ear, transparent; i. e. [plant which has leaves that look like] transparent ear[s]).

Trifolium repens L. Common White Clover. T'owaa'ihnaxaliníkiih (alfalfa, resembling). This plant and *Medicago sativa* are of recent intro-

duction, and their names are taken from resemblance of their leaves to those of the Rocky Mountain bee weed (*Cleome serrulata*) (24:193).

Vicia americana Muhl. American Vetch, American Tare. Tc'iitáa'ts'óoz (Tc'ii, food, slender; i. e. slender [plant which is] food [for] tc'ii).

Vicia faba L.

Faba vulgaris Moench. Broad Bean. Naa'ohi (no meaning: the bean).

Unidentified *Leguminosae*:

'Azee'píni' (medicine, mind, i. e. [plant which is bad] medicine [for the] mind). This is a very poisonous herb, and is said to poison people, first causing insanity. It is related to the loco weed (26:44). See *Datura* sp.

'Azee'tiiltc'íhiih (medicine, curly; i. e. curly [plant which is used as] medicine). It is also called h'i'táa' (horse food).

Łi'táa' (horse food). Same plant as 'azee'tiiltc'íhiih.

Ma'jit'éé'iih (coyote, resting-place; i. e. [plant on which the] coyote rests). This plant is used in the Coyote Chant for medicine.

Tinastshoh (Tinas, large). A plant supposed to resemble the mesquite, or perhaps the mesquite itself (26:82). This unidentified plant is crushed and mixed with tobacco and smoked. See *Amaranthus graecizans*.

Tinasts'óoz (Tinas, slender). A smaller species than tinastshoh, but related.

Tipék'óoxaltchín (sheep, seed, smelly; i. e. seed [which] smells [like a] sheep). See *Amaranthus graecizans*.

Order XXV. GERANIALES

Family 44. GERANIACEAE (Geranium)

Erodium cicutarium (L.) L'Her.

Geranium cicutarium L. Crane's Bill, Heron's Bill, Stork's Bill, Pin Grass, Red-stem, Pin Clover, Filaree, Alfilaria. Tzílí pilackaan (chicken-hawk, its claw).

Geranium incisum Nutt. Wild Geranium. Tc'o iltchiin yilt'aa'ih (spruce, like, odor, like, leaved; i. e. [plant which is] leaved like [the] phlox).

Family 45. LINACEAE (Flax)

Linum lewisii Pursh. Blue Flax, Prairie Flax, Lewis Flax. Tiné-te'il'ałts'óozíkíih (Navajo, plant, slender).

Linum rigidum Pursh. Yellow Flax. Látxahtitjoolíkíih (top rounded; i. e. [plant whose] top [is] rounded).

Family 46. ZYGOPHYLLACEAE (Caltrop)

Tribulus terrestris L. Puncture Vine, Puncture Weed, Caltrop, Burr Nut, Bean Caper. Cacán'óoh (bear tobacco). See *Aster* sp.

Family 47. RUTACEAE (Rue)

Citrus limonia Osbeck.

Citrus limonium Risso. Cultivated Lemon, Limón. Tc'ilhitshöiti-k'ójíkíih (plant, yellow, sour; i. e. plant [whose fruits are both] yellow [and] sour).

Citrus sinensis Osbeck.

Citrus aurantium L. var. *sinensis* L. Cultivated Orange, Naranja. Tc'ilhitshöihk'háníkíih (plant, yellow, sweet; i. e. plant [whose fruits are both] yellow [and] sweet).

Family 48. EUPHORBIACEAE (Spurge)

Croton texensis (Klotzsch) Muell.

Hendecandras texensis Klotzsch. Texas Croton. 1. Na'ast'éi'ii'táa' (gopher-like animal, food). 2. Na'actjé'ii'táa' (spider food).

Euphorbia montana Engelm. Mountain Spurge, Mountain Euphorbia, Mountain Carpet Weed, Golondrina. 1. Naałtc'ih'azee' (pimple medicine; i. e. [plant which is used as a] pimple medicine). 2. Naałtc'ih'izii' (a variant spelling of number one). 3. Tc'il'apé'elts'óozíkíih (plant, milk, slender; i. e. slender plant [which exudes a] milk[y] [juice when crushed]). A remedy for boils and pimples is made from this plant by chewing it and spreading it over the sores in the form of a liniment (24:115). Medicines for confinement consist of beverages prepared from the following plants: spurge, 'awée'pilái ilpéej (baby, afterbirth, boils it; i. e. [plant which] boil[s] [the] baby['s] afterbirth, and 'ayán pilij xaltchin (buffalo, urine, smelly; i. e. [plant which] smells [like] buffalo urine). These are also used for purging (24:115-6).

Euphorbia pringlei Engelm. Pringle Spurge, Pringle Euphorbia. Khyets'itxaałtc'ih (base, red; i. e. [plant which is] red [at its] base). A liniment prepared from this plant is a remedy for boils (24:115).

Ricinus communis L. Castor Bean, Castor-oil Plant, Palma Cristi. This plant is used in an unknown manner as a protection from the spirit of the bear. A woman using it is supposed to become sterile.

Order XXVI. SAPINDALES

Family 49. ANACARDIACEAE (Cashew)

Rhus rydbergii Small.

Rhus radicans L.

Rhus toxicodendron L.

Rhus toxicodendron L. var. *radicans* Auth.

Toxicodendron radicans (L.) Kuntze.

Toxicodendron rydbergii (Small) Greene. Poison Oak, Poison Ivy. K'ic'ictjje (no meaning: the poison oak).

Rhus trilobata Nutt.

Rhus aromatica Aiton var. *trilobata* (Nutt.) A. Gray.

Rhus canadensis Marsh var. *trilobata* (Nutt.) A. Gray.

Schmaltzia trilobata (Nutt.) Small. Three-leaved Sumac, Three-lobed Sumac, Squaw Bush, Squaw Berry, Aromatic Sumac, Fragrant Sumac, Ill-scented Sumac, Skunk Bush, Polecat Bush, Lemonade Berry, Lemita.

1. K'ji' (twig: the sumac). 2. Tchiitchin (———, red; refers to the red fruits). One of my informants stated that the fruits are ground with sugar in a little water and eaten, or they are eaten just as they come off the bush. The fruits are also ground into a meal and eaten, or cooked with cornmeal in the form of a gruel (13:49). Another informant stated that the *Old Navajos* used the stems to make baskets by splitting them three times. His mother used to make *old* baskets, and occasionally makes them now.¹⁰

A small stick or twig of sumac is sharpened and driven into the reed (*Phragmites communis*) shaft of an arrow, and fastened there with sinew. The arrowpoint is then secured to this stick (24:182). Bows were also made of sumac (24:318).

The masks used by the Fringe Mouths in the Night Chant are decorated on the crown with several objects, among them a tripod of sumac twigs painted white (61:12). The Hunchback in the Night Chant carries a bag which appears to be full, but is only distended with a light frame of aromatic sumac twigs (61:14). On the last night of the Mountain Chant the dancers carry sumac wands with eagle down attached, which is ignited from the fire (23:222).

The Navajo sacred baskets, used in their rites to hold sacred meal, are made of sumac (40:35), which is used for the rods, and *Yucca baccata* which is used for the bundle (81:257). Black for basketry dyes (24:293) and leather dyes (24:303) was made from the leaves. The basketry dyes must be stirred with a sumac stick. When sumac is cut in preparation for making a basket, it must be tied with yucca (*Yucca* sp.), and never with a string or anything else. When a woman is making a basket she must never allow a child to place the sumac on its head else it would stunt its growth (81:259). Water bottles are made or sewed with it (24:303), and carrying baskets are made of it (25:51).

Sumac is also used in many other ways: the pollen is used in some ceremonies (25:400); circle prayersticks are made of it and tied with yucca (*Yucca* sp.) fiber (61:67); insubordinate children were formerly subdued by bugaboos made of it (24:495); the ashes are used in setting dyes (17:3); and a native blue dye was formerly made of sumac boiled with a kind of pulverized blue clay (14:97). See *Helianthus annuus*, *Leptotaenia dissecta multifida*, *Pinus edulis*, and *Prunus demissa*.

Family 50. ACERACEAE (Maple)

Acer glabrum Torr.

Acer diffusum Greene.

Acer tripartitum Nutt. Rocky Mountain Maple. Sooltite'ijiih (box elder, rough).

10. This statement was made to the author in 1935. In 1939, this informant was again questioned and he said that his mother had not made a basket for several years.

Acer negundo L.*Negundo aceroides* Moench.

Negundo negundo (L.) Karst. Box Elder, Ash-leaved Maple. Sool (no meaning: the box elder). The wooden tubes for bellows are made of two pieces of box elder wood, hollowed out and placed together (24:272).

Order XXVII. RHAMNALES

Family 51. RHAMNACEAE (Buckthorn)

Ceanothus fendleri A. Gray. Fendler Ceanothus, New Jersey Tea. 1. Píih pitáa' (deer, his food). 2. Píitáa' (deer food). 3. Tc'iitáa' (Tc'ii food; i. e. food [for] tc'ii). 4. Tinétc'il (Navajo plant). A remedy for alarm and nervousness is made with this plant and *Swertia radiata* applied externally and taken internally (24:116). The deer also eat it for food.

Family 52. VITACEAE (Grape)

Parthenocissus vitacea (Knerr.) Hitch.*Ampelopsis quinquefolia* (L.) Michx.*Ampelopsis quinquefolia* (L.) Planch. var. *vitacea* Knerr.

Hedera quinquefolia L. Virginia Creeper, Thicket Creeper, American Ivy, Woodbine, False Grapes. 1. Tc'ilna'atł'ó'ih (plant, vinelike). 2. Tc'ilna'atł'ó'its'óoz (plant, grapelike, slender). 3. Píla'astla'ih (five-fingered). When these vines grow large down by the river, they are gathered and put on ramadas for shade. This plant, among others, is also used as part of the medicine which the patient drinks in the Mountain Chant Ceremony (24:408).

Vitis arizonica Engelm. Arizona Wild Grape, Canyon Grape, Uva. Tc'ilna'atł'ó'ih (plant, winding; i. e. the grape). The fruit of this species is not very edible, but is used by the Navajo (13:53). A cross of this vine is put on top of the basket of cornmeal and paper bread offered in courtship (5:112).

Vitis vinifera L. Cultivated Grape. Tc'ilna'atł'ó'itshoh (plant, winding, big; i. e. big grape).

Order XXVIII. MALVALES

Family 53. MALVACEAE (Mallow)

Gossypium sp. Wild Cotton, Cultivated Cotton. Ntiik'aa' (something that burns: the cotton plant). Although almost any cotton string is used in many of the Navajo ceremonies, aboriginal cotton is preferred (61:58). The Navajo formerly made cotton fabrics from raw cotton brought in from Santa Fe and other places (74:106). Twisted cotton soaked in mutton tallow serves as a lampwick when soldering (24:274). The Moving Upward Chant legend records the art of weaving as taught by the Spider Woman and the Spider Man. The Spider Man drew cotton from his side and instructed the Navajo to make a loom. The cotton warp was made of spider web (24:222). See *Zea mays*.

Malvastrum coccineum (Pursh.) A. Gray.*Cristaria coccinea* Pursh.

Sphaeralcea coccinea (Pursh.) Rydb. Scarlet False Mallow, Red False Mallow. 'Azee'ntł'inih (medicine, gummy; i. e. medicine [plant whose roots are] gummy). An infusion of this plant is supposed to be a remedy for diseases produced by witchcraft (55:770). In times of food shortage the roots have been chewed. It is also used to stop bleeding.¹¹ See *Achillea millefolium lanulosa*.

Sidalcea malvaeflora (DC.) A. Gray.

Sida malvaeflora DC. False Mallow, Wild Hollyhock. Łí'táa' (horse food).

Sphaeralcea cuspidata (A. Gray) Britt.

Sphaeralcea angustifolia (Cav.) G. Don var. *cuspidata* A. Gray. Globe Mallow. 'Azee'ntł'iníipáhíkihi (medicine, gummy, grey; i. e. grey medicine [plant whose roots are] gummy).

Sphaeralcea fendleri A. Gray. Fendler False Mallow. 'Azee'ntł'ini'tshoh (medicine, gummy, big; i. e. big medicine [plant whose roots are] gummy).

Sphaeralcea lobata Wooton. Copper Mallow, Nigger Weed, Yerba del Negro. Ts'ahtc'il (sage plant). The seeds are probably eaten, or so one of my informants states. The roots, which are sticky like molasses, are used as ceremonial medicine for small sings, after the bark is removed.

Order XXIX. VIOLALES

Family 54. TERNSTROEMACEAE (Tea)

Thea sinensis L.

Camellia thea Link. Commercial Tea. 1. Téeh (corruption of the Spanish té). 2. Tc'ilkoxwéhíh (plant, coffee).

Family 55. TAMARICACEAE (Tamarix)

Tamarix gallica L. Tamarisk, Salt Cedar. Kat yil 'axyilt'éhíkihi (juniper, like, looking; i. e. [plant which] looks like [the] juniper).

Family 56. VIOLACEAE (Violet)

Viola spp. Violet. One species is called tl'éetjí'tcǰ' (no meaning: the violet), while another is called txóltchiin (water, odor; i. e. [plant which has the] odor [of] water). See *Phlox caespitosa*.

Family 57. LOASACEAE (Loasa)

Mentzelia albicaulis Dougl. White-stem Blazing Star. See *Mentzelia multiflora*.

Mentzelia multiflora (Nutt.) A. Gray.

Bartonia multiflora Nutt. Desert Blazing Star, Sand Lily. 'Iiltł'ihíh (tenacious; i. e. [plant whose leaves are] tenacious). One of my informants stated that the seeds of this species and of *Mentzelia albicaulis* were eaten. This herb is also chewed up and sprayed with the mouth on offerings before and after making prayersticks. See *Achillea millefolium lanulosa*.

Mentzelia nuda (Pursh.) T. & G.

Bartonia nuda Pursh. Blazing Star. Tc'iiltchin (Tc'ii, odor; i. e. [plant which has the] odor [of] tc'ii).

11. See note 1, p. 16.

Mentzelia pumila (Nutt.) T. & G.

Bartonia pumila Nutt. Little Blazing Star, Stick-leaf. 'Iilt'ihji'ts'óoz (tenacious, slender; i. e. slender [plant whose leaves are] tenacious). See *Achillea millefolium lanulosa*.

Order XXX. OPUNTIALES

Family 58. CACTACEAE (Cactus)

Carnegiea gigantea (Engelm.) Britt. & Rose.

Cereus giganteus Engelm. Saguaro, Sahuaro, Giant Cactus. Xwoctí-tshahiih (cactus, awled; i. e. cactus[which has] awl[-like spines]).

Echinocereus sp. Hedgehog Cactus, Barrel Cactus. The fruits of several species of this genus are eaten by the Navajo (13:26). One of my informants stated that they were a little bit sweet and taste something like avocado.

Echinocereus coccineus Engelm.

Cereus aggregatus Coult.

Cereus coccineus Engelm.

Cereus phoenicius Engelm.

Echinocereus aggregatus (Engelm.) Rydb. Crimson Hedgehog Cereus, Crimson Hedgehog Cactus, Crimson Barrel Cactus. 1. Tjeenáyookísih (heart, twisted; i. e. [plant, which if eaten makes the] heart [feel as if it were] twisted). 2. Xwoctineespiniih (cactus, several squatting; i. e. cactus [which grows in] bunches). The Navajo eat the fresh fruits of several species of this genus (13:26), but this particular species is supposed to be poisonous (55:773). The name is probably derived from the effects produced after eating it, since the Navajo say that it makes your heart feel as if it were twisted (24:183). This species is used in medicine as a heart stimulant.

Echinocereus conoideus (Engelm. & Bigel.) Rümpl.

Cereus conoideus Engelm. & Bigel.

Cereus roemerii Muhlenpf.

Echinocereus roemerii (Muhlenpf.) Engelm. & Bigel. Xwoctítáhih (cactus, singular squatting; i. e. cactus [which grows] singular).

Mammillaria sp. Ball Cactus, Pincushion Cactus, Fishhook Cactus. The flesh is eaten as a food.¹²

Neomammillaria sp. Fishhook Cactus. K'aa'píjiih (no meaning: the fishhook cactus). The spines are removed and the plants eaten.

Opuntia spp. Cane Cactus, Candelabrum Cactus, Coyote Candles, Prickly Pear, Nopales, Cholla, Velas de Coyotes. The general term for all cacti is xwoc (spine or thorn). The fruits of a number of species of prickly pears are eaten by the Navajo (13:35) & (29:115). They gather the fruits with a cactus picker made of a forked stick, and after the spines are removed, the tunas¹³ are split and dried in the sun and served in much

12. *Ibid.*

13. Tunas are the fruits of any of the species of *Opuntia*.

the same manner as we serve dried fruit (13:37). In the sandpainting of the Cactus People, in the Wind Chant, four figures are fashioned after the conventionalization of the cactus plant (11:11). Cactus stalks are never used for firewood because superstition prohibits its use (45:35). Other species of *Opuntia* have the following names:

Titchin pixwoc (hunger cactus; i. e. cactus [which does not satisfy the] hunger). It produces no edible fruit.

Xwoc'atiniit'oo'iih (cactus, holding; i. e. cactus [whose awls are hard to extract]).

Xwoc'ineecpíjiih (cactus, broken braids; i. e. cactus [which resembles a food preparation called] broken braids) (24:184).

Xwochípáhíh (cactus, grey).

Xwochitshoih (cactus, yellow).

Xwocnáneehzahniih (cactus, rimmed).

Xwoctxyéelipáhíkíih (cactus, wide, grey; i. e. grey cactus [which has] wide [joints]).

Xwocteeltxqohiih (cactus, smooth).

Xwoctik'oojiih (cactus, sour; i. e. cactus [which is] sour [tasting]).

Xwocts'óoz (cactus, slender).

Opuntia arborescens Engelm. Tree Cactus, Cane Cactus, Indian Fig, Chandelier Cactus, Candelabrum Cactus, Candelabra, Entraña, Velas de Coyotes (coyote candles). Xwoctítshahiitshoh (cactus, awled, big; i. e. big cactus [which has] awl [-like spines]).

Opuntia camanchica Engelm. & Bigel. Xwoctshoh (cactus, big).

Opuntia polyacantha Haw.

Opuntia missouriensis DC. Many-spined Cactus. Xwoctxyeelí (cactus, flat; i. e. cactus [which has] flat [joints, instead of round ones]). In making war shirts in former times, a buckskin was first laid flat and cut to pattern. On it the points of this cactus were rubbed, which left a sticky substance. Next the cuttings and trimmings of the buckskin were put on and held in position by the secretion of the cactus (30:9).

Ordinary hunting arrows and spears were treated with a preparation believed to make them poisonous. One of these poisons was prepared in the following manner: A rattlesnake was first caught and killed on a rock. Next a yucca (*Yucca* sp.) leaf was heated over a fire and the juice squeezed onto the blood of the snake. Finally charcoal made from the pith of this cactus was added. The arrows were then painted from the point to about six inches back up the shaft (30:10).

The fruit is used in coloring wool pink (19:3). To make a cardinal dye the fruits must be dead ripe. A handful of the bark or roots of the Colorado blue spruce (*Picea pungens*) is added, and the whole steeped in water (73:42).

Opuntia rutila Nutt. Red Cactus. Xwoc (thorn, spine: the cactus).

Opuntia spinosior (Engelm. & Bigel.) Toumey.

Opuntia whipplei Engelm. & Bigel. var. *spinosior* Engelm. & Bigel.

Thorny Cactus, Cane Cholla. Xwoctítshahiih (cactus, awled; i. e. cactus [which has] awl [-like spines]).

Order XXXI. MYRTALES

Family 59. PUNICACEAE (Pomegranate)

Punica granatum L. Pomegranate. The so-called squash blossom necklaces of the Navajo are supposed to be pomegranate blossoms. The pomegranate is the national emblem of Spain.

Family 60. ONAGRACEAE (Evening Primrose)

Epilobium adenocaulon (Hauskn.) Rydb.

Epilobium coloratum Torr.

Epilobium paniculatum Nutt. var. *adenocaulon* Hauskn. Fireweed, Willow Herb. Tc'illátxa'áts'ós (plant, top, feather; i. e. plant [which has] top [flowers] [that look like] feather[s]). See *Achillea millefolium lanulosa*.

Epilobium angustifolium L.

Chamaenerion angustifolium (L.) Scop.

Chamaenerion spicatum S. F. Gray.

Epilobium spicatum Lam. Narrow-leaf Fireweed, Narrow-leaf Willow Herb, Great Willow Herb, Blooming Sally. Tshétxahtipé pítc'il (rock, among, sheep, plant; i. e. Rocky Mountain bighorn sheep's plant).

Epilobium origanifolium Lam. Willow Herb. Xwoctch'iits'óoz (spine, jumps at one, slender; i. e. slender spin[y] [plant which] jumps at one).

Gaura parviflora Dougl. Butterfly Weed, Velvet Weed. 'Azee'sik'ázih (medicine, coldness; i. e. medicine [plant which keeps one] cool). An infusion of this plant is supposed to allay inflammation and cure burns (55:772). It is also used in the Fire Dance at the Mountain Chant. It is supposed to keep the dancers from burning themselves (46:14) or prevent them from getting too hot. See *Achillea millefolium lanulosa*.

Oenothera spp. Evening Primrose. There are three unidentified species which are called as follows: 1. 'Azee'laatil'ihih (medicine, lone; i. e. medicine [plant which grows] [a]lone [or scattered]). 2. T'ée'iikahitshoh (night blooming, big; i. e. big [plant which] blooms [at] night). When an insect or snake has touched a Navajo and he has rubbed the skin until it is sore, he grinds some of these leaves with Fuller's earth, mixes them with corn (*Zea mays*) pollen and water, and bathes the sore (27:92). 3. Xwoctc'í'ii'tshoh (spiny, angry, big; i. e. big spiny [plant which gets] angry).

Oenothera breviflora T. & G. White Evening Primrose. T'ée'iikahih (night bloomer; i. e. [plant which] blooms [at] night).

Oenothera caespitosa Nutt. var. *marginata* (Nutt.) Munz.

Oenothera caespitosa Nutt.

Oenothera marginata Nutt. Evening Primrose. T'ée'iikahihípahikíih (night bloomer, grey; i. e. grey [plant which] blooms [at] night). See *Achillea millefolium lanulosa*.

Oenothera grandiflora S. Wats. Large-flowered Evening Primrose, 'Azee'hitshoih (medicine, yellow; i. e. medicine [plant which has] yellow [flowers]).

Oenothera hookeri T. & G. Hooker Evening Primrose. 1. 'Azee'hitshoih (medicine, yellow; i. e. medicine [plant which has] yellow [flowers]). 2. 'Azee'hitshoikíih (medicine, yellow). 3. T'ée'iikahits'óoz (night bloomer, slender; i. e. slender [plant which] blooms [at] night). See *Achillea millefolium lanulosa*.

Oenothera pinnatifolia Nutt. Pinnate-leaved Evening Primrose. 1. 'Azee'sisiikíih (medicine, crampy). 2. 'Azee'xáasíh (medicine, sour belching). See *Achillea millefolium lanulosa*.

Oenothera tanacetifolia T. & G. Tansy-leaved Evening Primrose. 'Azee'pixe'tshíin xaltchiihikíih (medicine, its base, red; i. e. medicine [plant which is] red [at] its base). It is used as a remedy for boils in the form of a liniment (24:115).

Order XXXII. UMBELLALES

Family 61. UMBELLIFERAE (Carrot)

Carum carui L. Caraway Seed. Náa'nootóòziih (seed, striped; i. e. [plant which has a] striped seed).

Cymopterus alpinus A. Gray. Wild Mountain Celery. 'Azee'nltchiniih (medicine, smelly; i. e. medicine [plant which is] smelly). Medicine for the Coyote Chant contains several plants, among which is wild mountain celery, greasewood (*Sarcobatus vermiculatus*), and wild privet (*Forestiera neomexicana*) (24:409).

Cymopterus fendleri A. Gray. Fendler Wild Celery. The leaves are used as food.¹⁴

Cymopterus glomeratus Raf. Wild Celery. Xaza'aleeh (no meaning, except perhaps appetizer: the wild celery). See *Cleome serrulata*.

Cymopterus purpureus S. Wats. Purple Wild Celery, Indian Parsnip. Xaza'alee'tshoh (wild celery, big). This plant is used as a potherb in seasoning mush and soup (55:773).

Daucus carota L. Cultivated Carrot. Tc'illitshoih (plant, yellow; i. e. plant [with] yellow [roots]).

Daucus pusillus Michx. Queen Anne's Lace, Beggar's Louse, Wild Carrot, Rattlesnake Weed, Yerba de la Víbora. The roots of this species are gathered in early spring by the Navajo who eat them raw or dry them for winter use, when they are cooked with or without wild celery (*Phellopterus montanus*) (13:26).

Leptotaenia dissecta Nutt. var. **multifida** (Nutt.) Jeps.

Ferula multifida A. Gray.

Leptotaenia multifida Nutt. Wild Parsnip, Indian Balsam. Xaza'alee'tshoh (wild celery, big). In the Mountain Top Chant this plant is dried and ground up with the plants of *Eriogonum alatum* and *Lithospermum*

14. See note 1, p. 16.

angustifolium, the finely ground berries of the chokecherry (*Prunus demissa*) and of the squaw bush (*Rhus trilobata*), together with pollen from the piñon (*Pinus edulis*), juniper (*Juniperus* spp.), pine (*Pinus* spp.), and other kinds of trees, and mixed with water and given the patient to drink. See *Amaranthus graecizans*.

Lomatium orientale Coult. & Rose.

Cogswellia orientalis (Coult. & Rose) Jones. Whisk-broom Parsley, Eastern Wild Carrot. The roots are used for food.¹⁵

Phellopterus montanus Nutt.

Cymopterus montanus T. & G. Mountain Gamot, Wild Mountain Celery. Tchaakt'éjîh (no meaning: the mountain gamot). The tuberous roots are peeled, baked, and ground as an occasional substitute for cornmeal (24:210). The roots are also eaten raw. The stems are sometimes peeled and eaten. See *Allium deserticola* and *Daucus pusillus*.

Pseudocymopterus montanus (A. Gray) Coult. & Rose.

Thaspium montanum A. Gray. False Mountain Celery. Tc'ohltchiin (spruce, odorous; i. e. [plant which has the] odor [of] spruce).

Zizia aurea (L.) Koch.

Smyrniium aureum L. Golden Meadow Parsnip, Golden Alexanders. See *Datura* sp.

Unidentified *Umbelliferae*: 1. Pila'stla'iih (fingers, five; i. e. [plant whose leaves are] five[-parted like the] fingers). 2. Zaaxwoćkíih (which contracts the lips together).

Order XXXIII. ERICALES

Family 62. ERICACEAE (Heath)

Gaultheria humifusa (Graham) Rydb.

Vaccinium humifusum Graham. Teaberry, Checkerberry, Salal, Aromatic Wintergreen, Creeping Wintergreen. This plant is used for a black dye (17:2).

Order XXXIV. GENTIANALES

Family 63. OLEACEAE (Olive)

Forestiera neomexicana A. Gray.

Adelia neomexicana (A. Gray) Kuntze. Russian Olive, Swamp Privet, Wild Privet, Ironwood. 1. K'ijicjínîh (K'ijic, black). 2. Ma'jitáa' (coyote food). This plant is used for making the prayersitcks of the south, probably because its small olive-shaped fruits are blue, the color of the south (44:63). See *Cymopterus alpinus* and *Phragmites communis*.

Fraxinus cuspidata Torr. Flowering Ash. Tahpa' (high up; [referring to the tree] high up [on top of a hill]). The Navajos have succeeded in making a fair imitation of the Mexican saddle of hard ash (8:501). The stems are also used for making arrows.

Menodora scabra A. Gray. Yellow Menodora, Rough Menodora. Tinétc'il (Navajo plant).

15. *Ibid.*

Family 64. GENTIANACEAE (Gentian)

Gentiana spp. Gentian. There are two unidentified species of gentian: 1. Tc'il pexet'óol hitshóikíih (plant, its roots, yellow; i. e. plant [which has a] yellow root). 2. Tc'il pexet'óol nneezikíih (plant, its roots, long; i. e. plant [which has] long roots).

Gentiana affinis Griseb. Closed Gentian. 'Iiníizjite'il (wizard plant; i. e. plant [which is used as an antidote against] wizard[s]). For headaches, a snuff prepared from the gentian is said to afford relief (24:112). It is used in cases of swooning, and is supposed to be an antidote for witchcraft (55:774).

Swertia sp.

Fraseria sp. Green Gentian. Tc'il peezet'óol hitshóikíih (plant, its roots, yellow; i. e. plant [whose] roots [are] yellow). See *Achillea millefolium lanulosa*.

Swertia radiata (Kell.) Ktze.**Fraseria radiata** Kell.

Fraseria speciosa Dougl. Deer's Tongue, Green Gentian, American Columbo. 1. Píih il tjaa'ih (deer, like, ear; i. e. [plant which has leaves that look] like deer[s] ear[s]). 2. Tc'il peezet'óol nneezikíih (plant, its roots, long; i. e. plant [which has] long roots). See *Achillea millefolium lanulosa* and *Ceanothus fendleri*.

Family 65. ASCLEPIADACEAE (Milkweed)

Asclepias spp. Milkweed. All milkweeds are called tc'il'apé' (plant, milk). An unidentified species is called t'iic pitee' (snake, its horn; i. e. [plant which has pods that resemble a sidewinder] snake[s] horn[s]). These plants are used for stomach troubles in general by crushing the dried leaves between the fingers and stirring the resulting powder into a bowl of water (24:114). These plants can also be eaten raw or boiled.

Asclepias hallii A. Gray. Hall Milkweed. T'óopitc'í' itc'ih (negative, toward it, hurt; i. e. [plant which women drink so that birth does] not hurt). This plant is used as a tonic after deliverance (24:116).

Asclepias speciosa Torr. Showy Milkweed. 1. Tc'eel'apé'tshoh (plant, milk, big; i. e. big plant [which exudes] milk [when crushed]). 2. Tc'il'apé'tshoh (plant, milk, big; a variation of number one).

Asclepias verticillata L. Verticillate Milkweed, Verticillate Silkweed. T'iic pitee'ts'óoz (snake, its horn, slender; i. e. slender [plant which has pods that are like a sidewinder] snake[s] horn[s]). See *Sisyrinchium mucronatum*.

Asclepiodora decumbens (Nutt.) A. Gray.

Anantherix decumbens Nutt. Antelope Horns, Spider Milkweed. Tjatiltee'ih (antelope horn; i. e. [plant which has pods that resemble] antelope horn[s]). See *Achillea millefolium lanulosa*.

Order XXXV. POLEMONIALES

Family 66. CONVULVULACEAE (Morning-glory)

Convolvulus arvensis L. Field Morning-glory, Field Bindweed. Naaxóoyaaiah (descending; i. e. [plant which has] descending [roots]). This species of bindweed has a fleshy tuberous root which looks like a sweet potato (26:132).

Cuscuta spp. Dodder, Bindweed, Love Vine. The Navajo use the parched seeds of these plants for food. The seeds are treated similarly to those of *Sisymbrium officinale* (13:22) & (83:514).

Cuscuta umbellata H.B.K. Dodder. Tshiigánltc'iih (head-hair, red; i. e. [plant which looks like] red head-hair).

Ipomoea batatas Poir.

Batatas batatas Auth.

Batatas edulis Auth. 1. Naaxóoyaaiah (descending; i. e. [plant which has] descending [roots]). 2. Námasiitshohłikháníkíih (potato, big, sweet).

Family 67. POLEMONIACEAE (Phlox)

Gilia attenuata (A. Gray) A. Nels.

Gilia aggregata (Pursh.) Spreng. var. *attenuata* A. Gray. Scarlet Gilia, Skyrocket, Scarlet Trumpet. Taxitxihíhtáa' (humming-bird food). The dried leaves crushed between the fingers and stirred in a bowl of water are used as a remedy for stomach troubles in general (24:114).

Gilia longiflora (Torr.) G. Don.

Cantua longiflora Torr. Blue-flowered Gilia, Lina. 1. Pilatxa'atoot'ij (its top, blue; i. e. [plant which has] blue flowers). 2. 'Atshánát'ooh (eagle tobacco). This species of gilia is made into a drink which is taken just before breakfast to make the Navajo "bark" or sing loudly for a Squaw Dance.

When sheep drink too much muddy water, the flowers of this plant are gathered, cooked into a broth, and when the broth is fairly well done, salt and the chopped-up gullet of a sheep is added. This is then fed to the sheep, and it is said to be most effective (33:38). This species of plant is also used by the Navajo themselves. It is pounded with rocks and boiled and drunk for vomiting, and also to make the bowels move. It is also used as medicine in the Navajo Wind Chant and the Female Shooting Chant. See *Amaranthus graecizans* and *Aster* sp.

Phlox caespitosa Nutt.

Phlox douglasii Hook. var. *caespitosa* (Nutt.) Mason. Pink Phlox. Tc'ohłtchiin (spruce, smelly; i. e. the phlox). The Night Chant liniment consists of the crushed plants of phlox, violet (*Viola* sp.), thoroughwort (*Eupatorium occidentale*), horsemint (*Monarda punctata*), field mouse ear (*Cerastium arvense*), prairie clover (*Petalostemon candidus*), woodland star (*Lithophragma tenella*), and an unidentified water plant (24:405).

Phlox douglasii Hook. Douglas Phlox. 1. 'Azee'ts'óoz (medicine, slender; i. e. medicine [plant which is] slender). 2. Tshítítáa' (bird food).

Family 68. HYDROPHYLLACEAE (Waterleaf)

Phacelia glandulosa Nutt. Phacelia, Scorpion Weed, Waterleaf. 'Azee'-ntchí'í'hipahíkíih (medicine, irritating, grey; i. e. grey medicine [plant which is] irritating [to the skin]). The plant is said to inflame the skin when it is contacted, hence the name (55:774).

Phacelia palmeri Torr.

Phacelia integrifolia Torr. var. *palmeri* (Torr.) A. Gray. Palmer Phacelia. 'Azee'-ntchí'í'tshoh (medicine, irritating, big; i. e. big medicine [plant which is] irritating [to the skin]).

Family 69. BORAGINACEAE (Borage)

Cryptantha¹⁶ *crassisepala* (T. & G.) Greene.

Eritrichum crassisepala T. & G.

Krynitzkia crassisepala A. Gray. White Forget-me-not, Thick-sepaled Forget-me-not. 'Iiltjeehí'hipahíkíih (sticky, grey; i. e. grey [plant whose seeds are] sticky).

Lappula occidentalis (S. Wats.) Greene.

Echinospermum redowskii Lehm.

Echinospermum redowskii Lehm. var. *occidentalis* S. Wats.

Lappula redowskii (Hornem.) Greene.

Lappula redowskii (Hornem.) var. *occidentalis* (S. Wats.) Rydb. Western Stickseed. 'ítjiihíh (sticky; i. e. [plant whose seeds are] sticky).

Lithospermum angustifolium Michx.

Lithospermum linearifolium Goldie. Narrow-leaf Gromwell, Indian Paint. 'Azee'xaatjiniih (medicine, black; i. e. medicine [plant whose roots are] black). This is one of the plants used in the Life or Knife Chant. Soreness about the attachment of the umbilical cord is supposed to be healed by the use of two roots; one of these is from this plant, and the other is known as 'azee'hikáih (medicine, white; i. e. medicine [plant whose roots are] white). It is also chewed for coughs and colds (55:774). See *Leptotaenia dissecta multifida* and *Petalostemon candidus*.

Lithospermum canescens (Michx.) Lehm. Stoneseed Gromwell, Puccoon. 'Azee'nanistizíts'óoz (medicine, twisting, slender; i. e. slender medicine [plant which] twists [around among shrubs]). See *Achillea millefolium lanulosa*.

Lithospermum incisum Lehm. Stoneseed Gromwell. 'Azee'htchí' (medicine, red; i. e. medicine [plant whose roots are] red). See *Achillea millefolium lanulosa*.

Lithospermum multiflorum Torr. Many-flowered Gromwell. 1. 'Azee'-lijin (medicine, black; i. e. medicine [plant whose roots are] black). 2. 'Azee'xaatjinihipahíkíih (medicine, black, grey; i. e. black [stemmed] medicine [plant with a] grey [root]). 3. 'Azee'xaatjiniitshoh (medicine,

16. Sometimes spelled *Cryptantha*.

black, big; i. e. black [stemmed] medicine [plant with a] big [root]). See *Achillea millefolium lanulosa*.

Oreocarya fulvocanescens (A. Gray) Greene.

Krynitzkia fulvocanescens A. Gray. 'Azee'xaatjiniih (medicine, black). It is chewed for coughs and colds. It is also used when a person is hurt, as from a fall.

Oreocarya glomerata (Pursh.) Greene.

Krynitzkia glomerata A. Gray in part. Txaajiintchiin (turkey, smelly; i. e. [plant which] smell[s] [like a] turkey).

Family 70. VERBENACEAE (Verbena)

Verbena canadensis (L.) Britt.

Verbena aubletia Jacq.

Verbena drummondii Hort. Canada Verbena, Canada Vervain. 'Azee'ntchij'ih (medicine, irritating; i. e. medicine [plant which is] irritating [to the skin]).

Verbena macdougali Heller. MacDougal Verbena, MacDougal Vervain. Tshék'ihnaa'ałtc'ijiih (rock, against, scratches; i. e. [plant which] scratches against [the] rock).

Verbena stricta Vent. Hoary Verbena, Hoary Vervain, Upright Verbena, Upright Vervain. 1. 'Azee'ntc'oyiih (medicine, ?). 2. 'Azee'xatii-kaih (medicine, white).

Family 71. LABIATAE (Mint)

Agastache urticifolia (Benth.) Kuntze.

Lophanthus urticifolius Benth. Giant Hyssop, Nettle-leaf Hyssop. Tshék'ihnaa'ałtc'ijiih (rock, against, scratches; i. e. [plant which] scratches against [the] rock).

Dracocephalum parviflorum Nutt. Small-flowered Dragon's Head. 'Azee'ntchij'ih (medicine, irritating; i. e. medicine [plant which is] irritating). This is not a medicine plant, although it is called a medicine. One informant stated that he was afraid of it, and that if one ate it their body would swell much as one swells from a spider bite.

Hedeoma drummondii Benth. Drummond Pennyroyal, Lemon Verbena, Sweet Grass. T'ohntchiin (grass, smelly). In one part of the Night Chant, an assistant chews sweet grass and a quantity of black seeds. After they are thoroughly chewed, the assistant blows on his hands, and presses on the body of the patient. He then blows three times in the face of the sick man, and finally goes around the circle of spectators, blowing once in the face of each, or on a special part of the body where a pain is felt (80:341).

Hedeoma nana (Torr.) Greene.

Hedeoma dentata Rydb. var. *nana* Torr. Mock Pennyroyal, American Pennyroyal. 'At'aa'ts'óoz (leaf, slender; i. e. [plant which has a] slender leaf). At noon of the third day of the War Dance, the body of the patient

is painted black. Medicine is then made of yarrow (*Achillea millefolium lanulosa*), red juniper (*Juniperus scopulorum*), pine (*Pinus* sp.) needles, and meadow rue (*Thalictrum fendleri*), which are previously pulverized, then thrown into a bowl of water and stirred. This is then dabbed all over the patient who sips the mixture before bathing his whole body in it. Fox-tail grass (*Hordeum jubatum*) and mock pennyroyal are then chewed by the assistant and sputtered on the patient (24:371-2). See *Brickellia grandiflora petiolaris*.

Marrubium vulgare L. Common Horehound. 'Azee'ntoot'ijintshahíkiih (medicine, tied at intervals, large; i. e. large medicine [plant which is] tied at intervals, or large medicine [plant whose flowers are in] whorls). This plant is used as a tea for sore throat. See *Brickellia grandiflora petiolaris*.

Mentha sp. Mint. The medicine for the Shooting Chant Ceremony is made of several species of plants which are chopped finely. One of these plants is this unidentified mint, while the others are sage (*Salvia lanceolata*), red penstemon (*Penstemon torreyi*), red willow (*Salix laevigata*), scrub oak (*Quercus undulata*), and chokecherry (*Prunus demissa*) (72:148).

Mentha arvensis L. var. *glabrata* (Benth.) Fern.

Mentha canadensis L. var. *glabrata* Benth. Tule Mint. Txóltchiin (water, smelly; i. e. smelly [plant that grows in or near the] water). See *Brickellia grandiflora petiolaris*.

Monarda fistulosa L.

Monarda menthaefolia Graham. Wild Bergamot, Mintleaf Beebalm, Horsemint. 1. 'Azee'ntoot'ijíh (medicine, tied at intervals; i. e. medicine [plant which is] tied at intervals, or medicine [plant whose flowers are in] whorls). 2. T'óhntchiin (fragrant; i. e. [plant which has a] fragrance). This plant is put in cold water and applied to the head. This preparation cools the head and is supposed to relieve headache.

Monarda pectinata Nutt.

Monarda nuttallii A. Nels. Lemon Monarda, Lemon Mint, Pony Beebalm. 'Azee'ntoot'ijíh (medicine, tied at intervals; i. e. medicine [plant which is] tied at intervals, or medicine [plant whose flowers are in] whorls). See *Brickellia grandiflora petiolaris*.

Monarda punctata L. Horsemint, Wild Bergamot, Lemon Mint. 'Azee'ntoot'ijíh (medicine, tied at intervals). Because it has such a pleasing odor, it is sometimes hung in the hogan. See *Phlox caespitosa*.

Salvia lanceolata Willd. Lance-leaf Sage. 1. 'Azee'ntchí'íh (medicine, irritating; i. e. medicine [plant which is] irritating [to the skin]). 2. Tc'áltáa' (frog food). See *Mentha* sp.

Family 72. SOLANACEAE (Nightshade)

Capsicum frutescens L. Chili, Red Pepper. 'Azee'títe'ii'hitchí'íkiih (medicine, peppery, red; i. e. red medicine [-like plant which is] peppery).

Datura sp. Jimson Weed, Jamestown Weed. In a ceremony for the cure of chill and fever, the raw root of the Jamestown weed is given the patient at sunrise, noon, and sunset. Each dose is about half an ounce of the dried root. This is chewed and swallowed. After three doses, the patient is given a piece of the stalk of the golden Alexander (*Zizia aurea*) about six inches long and about three-quarters of an inch thick. This is chewed and the saliva but not the fiber is swallowed. Infusions of herbs were also given at different times of the day and night. These were known as 'azee'píni' (medicine, bad or dreaded talk), txootji'xwiitsoh (water, toward, line; i. e. [plant which extends] toward [the] water [in a] line), and New Mexico thistle (*Cirsium neomexicanum*) (77:154). Trachoma, if caught at its beginning, is said to be cured with a species of this plant (33:21). *Datura* is also used as a pain killer for headaches and toothaches.

Datura meteloides Dunal. Jamestown Weed, Jimson Weed, Thorn Apple, Indian Apple, Ooze Apple, Sacred *Datura*, Toloache, Tolguacha, Toluache. Ntígilitshoh (sunflower, large). One of my informants stated that the seeds might be eaten in ceremonies but did not know how. He further stated that the Navajo were afraid of it because of its bad effects. If sheep eat it they go crazy. When sheep are castrated, the leaves of this plant are made into an infusion and applied to the open wound.

Datura stramonium L. Jimson Weed, Stramonium. Tc'óxwotjilyáih (spruce that one wraps around a hurt).

Lycium pallidum Miers. Rabbit Thorn, Boxthorn, Matrimony Vine, Tomatillo. Xaactc'éetáa' (God food). The fruits are eaten as they come off the bush, or they are boiled into a soup. They are picked in the summer and boiled to the right consistency and spread on the rocks to dry. When dry, they are stored until winter, then eaten dried or made into a soup. The flavor is rather flat (83:569). The fruit is also sacrificed to the gods (55:775).

Lycopersicon esculentum Mill. var. **commune** Bailey.

Lycopersicon esculentum Mill. var. *vulgare* Bailey.

Lycopersicon lycopersicon (L.) Karst.

Solanum lycopersicon L. Cultivated Tomato, Love Apple. 1. Tc'illi-tchii' (plant, red; i. e. plant [whose fruits are] red). 2. Tc'illitchí'íkíih (plant, red).

Nicotiana spp. Wild Tobacco. There are several unidentified species of wild tobacco, some of which may be identical with some of the identified species. These are called:

1. Kâakiintchinínát'oooh (crow, smelly, tobacco; i. e. raven tobacco). This plant is supposed to cure sores on the hands or any part of the body which were caused by the handling or burning of a raven's nest. It is also used in the Raven Chant, where it is brewed and given the patient to drink in a painted turtle shell (27:92). See *Phragmites communis* and *Zea mays*.

2. K'ósnát'oooh (cloud tobacco).

3. Ni'pikháa'litshoh (earth, on top of it, yellow; i. e. [plant which is] yellow on top of [the] earth). This is supposed to be identical with raven tobacco.

4. Pjínát'oooh (deer tobacco). See *Amaranthus graecizans*.

5. Tlǫ'jínát'oooh (weasel tobacco).

Nicotiana attenuata Torr. Wild Tobacco, Mountain Tobacco, Coyote Tobacco, Punche. Tzihnát'oooh (mountain tobacco). Tobacco is used extensively in the ceremonies of the Navajo. After the feast which follows the completion of the masks for the Night Chant, the maskers smoke mountain tobacco (24:389). This tobacco is also used for filling ceremonial prayersticks in the Night Chant (61:308).

Nicotiana palmeri A. Gray. Palmer Wild Tobacco. Tipénát'oooh (sheep tobacco). This tobacco is used in filling ceremonial prayersticks (61:308).

Nicotiana tabacum L. Cultivated Tobacco. 1. Nát'ooohñt'ízikíih (tobacco, hard; i. e. a plug of chewing tobacco). 2. Nát'ooohjinih (tobacco, black; i. e. chewing tobacco). 3. Nát'ooohxiit'aakíh (tobacco, chewing). In the first sacred painting of the Mountain Chant, the four sacred domestic plants, tobacco, beans (*Phaseolus vulgaris*), corn (*Zea mays*), and squash (*Cucurbita* sp.) are depicted as coming from the center of the world (56:448).

Physalis longifolia Nutt.

Physalis lanceolata Michx. var. *laevigata* A. Gray. Ground Cherry, Ground Tomato, Strawberry Tomato, Tomato, Tomate del Campo. Pji yil tee'ih (deer, like, horn; i. e. [plant which has leaves] like [a] deer['s] horn).

Solanum elaeagnifolium Cav. Silver-leaved Nightshade, White Horse Nettle, Trompillo. Náa'tshoih (seed, yellow; i. e. [plant which has] yellow seed[s]). This plant is used as a remedy for sore eyes (24:112). See *Sisyrinchium mucronatum*.

Solanum heterodoxum Dunal.

Solanum citrullifolium A. Br. Nightshade. Náa'tshoih (seed, yellow; i. e. [plant which has] yellow seed[s]).

Solanum jamesii Torr. James Wild Potato. Námasiih (that which can be rolled; i. e. the wild potato). One of my informants stated that these potatoes are eaten raw, boiled, or baked. A pinch of alum is sometimes added to prevent vomiting (24:210). The tubers are usually dug out of the ground with almost any implement. It is often a strong smooth piece of wood with a wedge-shaped end. Sometimes the Navajo eat so much that griping pains are caused. In this case, they consume a quantity of earthy matter containing magnesia, which relieves the stomach (66:409).

Solanum triflorum Nutt. Wild Tomato, Three-flowered Nightshade. T'iictáa' (snake food).

Solanum tuberosum L. Cultivated Potato, Papa. Námasiitshoh (potato, big).

Family 73. SCROPHULARIACEAE (Figwort)

Castilleja¹⁷ **affinis** H. & A. Scarlet Cup. Taxitxíhíhtáa' (humming-bird food). This is the common pronunciation, but it is also pronounced taxitxítáa' and taxyiitxyíhítáa'.

Castilleja angustifolia (Nutt.) G. Don.

Castilleja parviflora of authors, not Bong.

Euchroma angustifolia Nutt. Slender-leaf Paint Brush. Taxitxíhíhtáa'tipáhíkiíh (humming-bird food, grey). See *Castilleja integra*.

Castilleja integra A. Gray. Mexican Paint Brush, Painted Cup. Taxitxíhíhtáa'tshoh (humming-bird food, big). By crushing the leaves of this plant, or of *Castilleja angustifolia*, and placing them in a bowl of water, a remedy for stomach troubles is made (24:114).

Castilleja lineata Greene. Indian Paint Brush, Painted Cup. Taxitxíhíhtáa' (humming-bird food). Indian paint brush is used as a delicacy by the Navajo. They pull out the flowers and suck the honey from them, much as we do with honeysuckle (*Lonicera japonica*). It is also used as a remedy for stomach troubles in general. The usual method is to crush the dried leaves between the fingers and add the resulting powder to a bowl of water (24:495).

Castilleja minor A. Gray.

Castilleja affinis H. & A. var. *minor* A. Gray. Painted Cup, Indian Paint Brush. Nát'oohtchiin (tobacco, smelly; i. e. smelly [plant that is used for] tobacco). See *Amaranthus graecizans*.

Cordylanthus kingii S. Wats.

Adenostegia kingii (S. Wats.) Greene. King Bird Beak. Tict'it'azee' (itch medicine; i. e. medicine [plant which is good for the] itch).

Cordylanthus ramosus Nutt.

Adenostegia ramosa (Nutt.) Greene. Bird's Beak. 1. Pé'ootchítí pee'íik'óh (Pé'ootchítí[']s) vomit[ing] [medicine]. 2. Tchéat'oc'azee' (syphilis medicine). Syphilis is supposed to be cured by a beverage prepared from this plant and the buttercup (*Ranunculus cymbalaria saximontanus*). Both are powdered and taken in water every morning (24:113). It is also used to make a person vomit. When a woman has a baby and someone gets their hands in the blood they are liable to break a rib or something, so this plant is boiled and drunk so that it won't bother them. It is also drunk by menstruating women to stop the blood from flowing. It will also stop a man's nosebleed.

Cordylanthus wrightii A. Gray.

Adenostegia wrightii (A. Gray) Greene. Wright Bird's Beak. A decoction of this plant is used by the Navajo to cure syphilis (83:591).

Gratiola virginiana L. Hedge Hyssop, Virginia Hyssop. Tshék'ihnaa'-ahtc'íjiih (rock, against, scratches; i. e. [plant which] scratches against [the] rock[s]).

17. Sometimes spelled *Castilleia* or *Castilleya*, but it is dedicated to Domingo Castillejo, so should be spelled *Castilleja*.

Linaria vulgaris Mill.*Linaria linaria* (L.) Karst.

Antirrhinum linaria L. Common Toadflax, Butter-and-eggs, Ramsted. Tinétc'il'atts'óozikíih (Navajo, plant, slender; i. e. slender plant [belonging to the] Navajo).

Penstemon¹⁸ sp. Penstemon, Beard Tongue. T'iic'agáał (snake rattle). The leaves of this unidentified species of penstemon are pounded and used as poultices on rattlesnake bites. "This treatment is apparently an absolute antidote against rattlesnake poison." It is also made into a tea and drunk (33:20).

Penstemon ambiguus Torr. Penstemon, Beard Tongue. 1. 'Azee'-xyináh (medicine, life). 2. 'Ináatji'izee' (life medicine). See *Achillea millefolium lanulosa*.

Penstemon azureus Benth.

Penstemon heterophyllus Lindl. var. *azureus* Jeps. n. comb. Azure Penstemon, Azure Beard Tongue. 'Azee'ntchí'j'i'tshoh (medicine, irritating, big; i. e. big medicine [plant which is] irritating [to the skin]).

Penstemon glaber Pursh. Penstemon, Beard Tongue. 'Azee'ntl'aalih (medicine, ——).

Penstemon laricifolius Hook. & Arn. 1. 'Azee'xyináh (medicine, life). 2. 'Ináatji'izee' (life medicine). 3. Pji yil tjaa'ih (deer, like, ear; i. e. [plant which has leaves] like [a] deer['s] ear), also pronounced pji ih il tjaa'ih.

Penstemon torreyi Benth. Torrey Beard Tongue, Scarlet Beard Tongue, Red Penstemon, Torrey Penstemon. Taxitxíhíhtáa'ts'óoz (humming-bird food, slender). Diuretic troubles were removed by beverages prepared from plants such as this (24:113). See *Mentha* sp.

Family 74. OROBANCHACEAE (Broom Rape)

Orobanche fasciculata Nutt.*Aphyllon fasciculatum* (Nutt.) A. Gray.

Thalesia fasciculata (Nutt.) Britt. Cancer Root, Broom Rape. Łeetoo-Łeezih (earth footprints). It is so called from its vague resemblance to a moccasined foot partly sunk in the ground (24:196). A liniment made of the leaves and branchlets of this plant is employed in curing sores (24:113).

Orobanche multiflora Nutt.

Aphyllon multiflorum (Nutt.) A. Gray. Many-flowered Cancer Root, Many-flowered Broom Rape. Łeetool'eezih (earth footprints).

Order XXXVI. PLANTAGINALES

Family 75. PLANTAGINACEAE (Plantain)

Plantago purshii R. & S.*Plantago gnaphaloides* Nutt.*Plantago patagonica* Jacq. var. *gnaphaloides* A. Gray. Pursh Plantain,

18. Sometimes spelled *Penstemon*.

Pursh Ribgrass, Woolly Indianwheat. 1. 'Azee'it'eł (medicine, ?). 2. Yiitjáh (it catches [hold of it]).

Order XXXVII. RUBIALES

Family 76. RUBIACEAE (Madder)

Coffea arabica L. Common Coffee, Arabian Coffee. K'hoxwéeh or k'hoxwéh. The Navajo name is a corruption of the Spanish word café, which is in turn corrupted from the Arabic qahwe.

Family 77. CAPRIFOLIACEAE (Honeysuckle)

Symphoricarpos orbiculatus Moench.*Symphoricarpos symphoricarpos* (L.) MacMillan.

Symphoricarpos vulgaris Michx. Snowberry, Indian Currant, Coralberry, Stagberry, Waxberry, Wolfberry. Tshétshohk'í' (rock, big, twig; i. e. twig [plant which grows among the] boulder[s]).

Viburnum sp. Marsh Elder, High Water Shrub, Cranberry Tree, Arrowwood, Snowballs. 1. Ntástc'íin (no etymology). 2. T'yohteeih (grass, seed; i. e. [plant which has] grass [-like] seed[s]).

Family 78. DIPSACACEAE (Teasel)

Dipsacus sylvestris Huds. Wild Teasel. In the olden days wool was carded with teasels (44:109).

Order XXXVIII. CAMPANULALES

Family 79. CUCURBITACEAE (Gourd)

Citrullus vulgaris Schrad.*Citrullus citrullus* (L.) Karst.

Cucumis citrullus L. Watermelon, Sandía. 1. Te'éehtjiiyáníh (raw eaten). 2. T'éehtjiiyáníh (raw, eaten; i. e. [plant whose fruit is] eaten raw). See *Cucurbita* spp. and *Zea mays*.

Cucumis melo L. Muskmelon. Tá'neesk'áníh (squarish: the muskmelon).

Cucumis melo L. var. *cantalupensis* Naud. Cantaloupe. Tá'neesk'ántite'íjikiíh (squarish, rough: the cantaloupe).

Cucurbita spp. Squashes, Pumpkins, Calabash, Calabasa, Calabacin. There are several kinds of these plants which are designated as follows:

1. Naayízih (no meaning: the pumpkin).
2. Naayízih'tchii' (pumpkin, red; i. e. the squash).
3. Naayízih'páhih (pumpkin, grey; i. e. the squash).
4. Naayízihnxyeest'áhih (pumpkin, flat).
5. Naayízih'ts'éé'iih (pumpkin, tailed). A tailed or pear-shaped pumpkin.
6. Naayízih't'é'iih (pumpkin, navel-shaped). A navel-shaped pumpkin, a black pumpkin with a double tip.
7. Tahnaayiziih (top, pumpkin). A mere pumpkin.

When the pumpkin is in blossom it is called naayízih pitxa'iitshóih (pumpkin, its top, yellow).

The squash is designated as peeck'anítshoh or peeck'anítshoh (iron,

squarish, big) in the Night Chant and other ceremonies (24:204). Another sacred name is *la'tjint'ih* (day grower). See *Nicotiana tabacum* and *Zea mays*.

Cucurbita foetidissima H. B. K.

Cucurbita perennis A. Gray. Wild Squash, Wild Gourd. Ntilkhal (no meaning: the wild squash).

Cucurbita maxima Duch. Autumn Squash, Winter Squash. Naayízih (it moves around a little; i. e. the squash).

Cucurbita pepo L. Field Pumpkin. Naayízihitshöih (squash, yellow). The seeds are called naayízihitshöih pik'óo' (squash, yellow, its seeds).

Cucurbita pepo L. var. *condensa* Bailey. Summer Squash. Naayízihitshöih (squash, yellow).

Lagenaria vulgaris Ser.

Cucurbita siceraria Molina.

Lagenaria leucantha (Duch.) Rusby.

Lagenaria siceraria (Molina) Standley. Bottle Gourd, Dipper Gourd, Calabash. 'Atee' (someone's horn; i. e. a gourd, dipper, or spoon). Rattles made of the gourd are used in various ceremonies. Medicines are prepared frequently in cups made of the gourd (24:407). Dippers are also made of the gourd. See *Yucca* sp.

Family 80. CAMPANULACEAE (Bellflower)

Campanula uniflora L. One-flowered Bellflower, One-flowered Bluebell, One-flowered Harebell. Txatit'it'oot'ij'aats'isih (pollen, blue, small; i. e. small blue [-flowered plant which is used for] pollen). Pollen for some of the sacred ceremonies is gathered from this plant (24:400).

Family 81. LOBELIACEAE (Lobelia)

Lobelia cardinalis L.

Lobelia splendens Willd. Cardinal Flower, Cardinal Lobelia. Taxitxíhí yil taakíih (humming-bird, like, bill; i. e. [plant whose flowers look] like [a] humming-bird['s] bill).

Family 82. COMPOSITAE (Sunflower)

Achillea millefolium L. var. *lanulosa* (Nutt.) Piper.

Achillea lanulosa Nutt. Common Milfoil, Common Yarrow, Sneezeweed. 1. 'Azee'iitshee'ih (medicine, dried; i. e. [plant which is] dried [and used for] medicine). 2. Xazéiltshee'éh (chipmunk tail; i. e. [plant whose leaves look like a] chipmunk['s] tail). A universal tonic or remedy known as a "life medicine" is applied in cases of "impaired vitality." A provision of this medicine is usually kept in stock and carried on journeys for eventual use. The stems and twigs of various herbs are gathered in season and dried, in which condition they are called 'azee'tshin (medicine twigs) (26:44). They are eventually pulverized, mixed with water, and applied internally as well as externally. The species are quite numerous and include such plants as yarrow, narrow-leaf rubber plant (*Actinella scaposa*), rock-

cress (*Arabis communis*), sagebrushes (*Artemisia franserioides* and *Artemisia tridentata*), antelope horns (*Asclepiodora decumbens*), aster (*Aster* sp.), milk vetch (*Astragalus mortoni*), rayless goldenrod (*Chrysothamnus vaseyi*), plumed thistle (*Cirsium ochrocentrum*), willow herb (*Epilobium adenocaulon*), wild buckwheats (*Eriogonum alatum* and *Eriogonum racemosum*), western wallflower (*Erysimum asperum*), butterfly weed (*Gaura parviflora*), cudweed (*Gnaphalium chilense*), *Hymenopappus filifolius*, bladderpod (*Lesquerella alpina*), stoneseed gromwells (*Lithospermum canescens* and *Lithospermum incisum*), false mallow (*Malvastrum coccineum*), blazing stars (*Mentzelia multiflora* and *Mentzelia pumila*), evening primroses (*Oenothera caespitosa marginata*, *Oenothera hookeri*, and *Oenothera pinnatifolia*), penstemons (*Penstemon ambiguus* and *Penstemon laricifolius*), five fingers (*Potentilla strigosa*), water cress (*Radicula obtusa*), sensitive brier (*Schrankia uncinata*), bulrush (*Scirpus acutus*), sow thistle (*Sonchus oleraceus asper*), prince's plume (*Stanleya pinnata*), green gentians (*Swertia radiata* and *Swertia* sp.), meadow rue (*Thalictrum fendleri*), pennycress (*Thlaspi alpestre*), and several unidentified herbs: 'áyaa'áih (standing erect; i. e. [plant which] stands erect), 'azee'íikáih (medicine, white; i. e. white [plant which is used as] medicine), 'azee'hitchíí'íkíih (medicine, red; i. e. red [plant which is used as] medicine), 'azee' píi'tjitchii'íh (medicine, inside, red; i. e. medicine [plant which has] a red core), and 'azee'tit'íhíkíih (medicine, thick; i. e. medicine [plant which is made into a] thick [mixture]) (24:114-115) & (85:640). In an emergency two or four of these plants may be used, but it is better to have six. Any others may be added if at hand (85:640). One of my informants stated that yarrow acted just like iodine when mixed with water and applied to cuts. It is also ground up and the solution applied to saddle sores. It is interesting to note that legend ascribes the discovery of its healing virtues to Achilles, in whose honor it was named. See *Hedeoma nana*.

Actinella richardsoni Nutt.

Actinea richardsoni (Hook.) Kuntze.

Actinella richardsoni Nutt. var. *floribunda* A. Gray.

Hymenoxys floribunda (A. Gray) Cockerell.

Hymenoxys richardsonii (Hook.) Cockerell var. *floribunda* A. Gray.

Colorado Rubber Plant, Many-flowered Rubber Plant. 1. Pée'oołtshóih pee'íik'hóh (Pée'oołtshóih, his emetic; i. e. [plant which] pee'oołtshóih [uses for an] emetic). 2. Tc'iljóó' (plant, flexible). The Navajo use this plant as a chewing gum (67:12).

Actinella scaposa Nutt. Narrow-leaf Rubber Plant. 1. 'Azee'íikháníh (medicine, sweet; i. e. [plant that is used as a] medicine [and tastes] sweet). 2. Pé'ootchítí pee'íik'óh (Pé'ootchítí, his emetic; i. e. [plant which] pé'ootchítí [uses for an] emetic). See *Achillea millefolium lanulosa*.

Aplopappus lanuginosus A. Gray. 1. Tc'ilts'óoz (plant, slender). 2. T'íictilwóó'íh (snake, swift?). 3. T'íic yil 'awóó'íh (snake, like, tooth; i. e. [plant whose leaves are sharp] like snake teeth). It is used as tooth-

ache medicine. One has to be very careful in using it, putting it only on the hurting tooth. It is said that if it gets on the good teeth it eats them up. See *Heuchera bracteata* and *Sisyrinchium mucronatum*.

Artemisia spp. Sagebrush, Altamisa. There are several species of unidentified sagebrushes:

1. 'Atshá'azee' (eagle medicine). A fine leaved species.
2. Ts'ah (no meaning: the sagebrush).
3. Ts'ahtchil (sage, smell).
4. Tshé'ejiih (rock, bark).

When practicing for the Night Chant the Navajo use sagebrush instead of spruce (*Picea* sp.) wands (61:136). Bunches of sagebrush, grama grass (*Bouteloua hirsuta*), water cress (*Radicula obtusa*), and dodgeweed (*Gutierrezia sarothrae*) are tied to the corners of the hoops used in unraveling ceremonial objects (24:416). The leaves of an unidentified species of sagebrush yield a soft yellow dye (73:40 & 213). See *Aster* sp., *Chrysothamnus viscidiflorus*, and *Picea* sp.

Artemisia filifolia Torr. Silver Sagebrush, Silvery Wormwood. Tc'iljoo' (plant, flexible). This plant is sometimes used as stock feed. It is also a very soft and convenient substitute for toilet paper.

Artemisia franserioides Greene. Sagebrush. 'Azee'ntookaih (medicine, standing stalk, white; i. e. medicine [plant whose] stalk [is] white). See *Achillea millefolium lanulosa*.

Artemisia frigida Willd. Mountain Sagebrush, Arctic Sagebrush, Fringed Sagebrush, Estafiata. Tc'iljoo' (plant, flexible). This plant is a very soft and convenient substitute for toilet paper.

Artemisia ludoviciana Nutt. Western Mugwort. This plant is used by the medicine men in some way unknown to the author.

Artemisia tridentata Nutt. Three-toothed Sagebrush, Basin Sagebrush, Big Sagebrush, Rocky Mountain Sagebrush, Black Sagebrush, Blue Sagebrush, Chamiso hediondo (stinking sagebrush), Estafiata, Estafiate. Kah pilikhanih (rabbit, his candy; i. e. [plant which] rabbit[s] [eat like] candy). This plant is mixed with *Artemisia trifida* as a medicine for headaches, which are supposed to be cured by the odor alone. It is also used for colds and fevers.¹⁹ This plant is taken before long hikes and athletic contests and is supposed to rid the body of undesirable things that are lingering in the body. A drink made from this same plant is used as an aid in deliverance of children (24:116). When this plant is boiled and drunk, it is supposed to act like epsom salts and cure stomach-ache.

In general, the Navajo are not acquainted with the fire drill, but among the medicine men it is still used. A small cylindrical piece of wood of this plant is set in the end of the drill. The hearth is usually the stalk of a large weed, while the tinder is softened juniper (*Juniperus* sp.) bark or

19. See note 1, p. 16.

cottonwood (*Populus* sp.). Sand is usually put into the cavity to increase friction (36:586).

In the building of the sweathouse for the Mountain Chant, four upright poles are placed at the four cardinal points; between the uprights, smaller poles are laid; and between these poles sagebrush is placed compactly to prevent the sand from sifting through (78:239). See *Achillea millefolium lanulosa* and *Portulaca oleracea*.

Artemisia trifida Nutt.

Artemisia tridentata Nutt. var. *trifida* (Nutt.) Hall & Clements.

Artemisia tripartita Rydb. Three-lobed Sagebrush, Three-lobed Wormwood. 1. 'Azee'xáaltzit (medicine, rotten; i. e. medicine [plant whose roots look as if they were] rotten). 2. Txoo'khaał (dew, holds; i. e. [plant which] holds [the] dew). Washington Matthews states that the name is derived from the way in which it collects dew, because in the dry climates where it grows, it collects dew more readily than any other plant (55:773).

In the Mountain Chant Ceremony, a bundle of plants is burned to charcoal and given the sick Indian to blacken his legs and forearms. Included in this bundle are the following plants: sagebrush, grama grass (*Bouteloua hirsuta*), snakeweed (*Gutierrezia sarothrae*), and an unidentified plant (56:406). In the Night Chant, winter fat (*Eurotia lanata*) is substituted for the sagebrush (61:46). Bark of the sagebrush is also used to stuff into the necks of bottles to keep the water from spilling out (24:300). Corns are usually removed with a knife, but a liniment is sometimes used to spread over the wound (24:116). See *Artemisia tridentata* and *Gutierrezia sarothrae*.

Artemisia wrightii A. Gray. Wright Sagebrush, Wright Wormwood. The seeds of this species of sagebrush are used for food.²⁰

Aster sp. Aster. There are several unidentified species of aster:

1. 'Atshánłtchiin (eagle, smelly; i. e. [plant which] smells [like an] eagle).
2. Tc'ilnłxyiníkiih (plant, brown; i. e. plant [which has a] brown[ish] [appearance]).
3. Nii'ii'nił (face, put into; i. e. [plant which you] put into [the] face [nose]).

Liniment for the Bead Chant consists of aster, tumbleweed (*Amaranthus graecizans*), and an unidentified species of *Artemisia* (24:405). The Bead Chant tobacco consists of the following plants: gilia (*Gilia longiflora*), four-o'clock (*Mirabilis oxybaphoides*), bread root (*Psoralea tenuiflora*), catchfly (*Silene douglasii*), and caltrop (*Tribulus terrestris*) (24:395).

Aster canescens Pursh. Hairy Aster, Hairy Starwort. Nii'ii'niłshoh (face, put into, big; i. e. big [plant which you] put into [the] face [nose]).

20. *Ibid.*

The dried and pulverized herb was used as a snuff for nose and throat troubles (24:112). See *Sisyrinchium mucronatum*.

Aster integrifolius Nutt.

Bellis integrifolia Michx. Western Wild Daisy. Na'actjéi'itáa'hipah-ikíih (spider, food, grey; i. e. grey [plant which the] spider [uses for] food).

Aster multiflorus Ait. Many-flowered Aster. Nátiznneezíh (eyelash, long; i. e. [plant whose rays look like] long eyelash[es]).

Aster spinosus Benth. Spiny Aster, Mexican Devil Weed. The stems are chewed for gum.²¹

Bidens sp. Bur Marigold. Tc'ilxwocíh (plant, spiny).

Bidens bipinnata L. Bur Marigold, Spanish Needles, Stick-tights, Tick-seed, Beggar's Ticks. Naa'ohí yil t'aa'íh (bean, like, leaf; i. e. [plant which has a] leaf like [the] bean).

Brickellia grandiflora Nutt. var. *petiolaris* A. Gray.

Coleosanthus petiolaris (A. Gray) Greene. Large-flowered Brickellia. The ceremonial liniment for the Female Shooting Life Chant consists of this plant, *Hedeoma nana*, *Marrubium vulgare*, *Mentha arvensis glabrata*, and *Monarda pectinata* (85:651).

Chrysothamnus spp. Rabbit Brush, Chamisa. K'iiltshóititjoolíh (on top, yellow, rounded; i. e. [plant whose] top [is both] yellow [and] rounded). A number of unidentified species of *Chrysothamnus* are used as yellow dyes. See *Juniperus monosperma*.

Chrysothamnus greenei (A. Gray) Greene.

Bigelovia greenei A. Gray. Greene Rabbit Brush. 'Anaa'azee' (alien medicine; i. e. medicine [plant which is used for] alien [diseases]). Some of the Navajo use this plant for chickenpox and measles. The tops of the plant are broken off and put in lukewarm water, and after the mixture has steeped for a while, the whole body of the patient is rubbed with the liquid, and then the body is covered. The eruptions are said to darken rapidly and then dry up (38:239).

Chrysothamnus latisquameus (A. Gray) Greene.

Bigelovia graveolens A. Gray var. *latisquamea* A. Gray. Broadscale Rabbit Brush. The twigs and flowers of this species of rabbit brush are used in coloring wool yellow.

Chrysothamnus nauseosus (Pall.) Britt. var. *albicaulis* Rydb.

Bigelovia graveolens A. Gray var. *albicaulis* A. Gray.

Chrysoma nauseosus Pall. White-stemmed Rabbit Brush, White-stemmed Rabbit Bush, White-stemmed Golden Bush. 1. K'iiltshóintshaaíkiíh (on top, yellow, big; i. e. big [plant which is] yellow on top). 2. K'iiltshóitshoh (on top, yellow, big). See *Amaranthus graecizans*.

Chrysothamnus nauseosus (Pall.) Britt. var. *graveolens* Greene.

Bigelovia graveolens A. Gray.

21. *Ibid.*

Chrysocoma graveolens Nutt.

Chrysothamnus graveolens (Nutt.) Greene. Heavy-scented Rabbit Brush, Heavy-scented Rabbit Bush, False Goldenrod, Golden Bush, Chamisa. 1. Kahpéitc'il (rabbit, grey, weed; i. e. [the] cottontail rabbit[']s weed). 2. K'iiltshōih (on top, yellow; i. e. [plant which is] yellow on top). 3. Tc'fītiitc'il (evil spirit, dead, or dead body plant). To produce a lemon-yellow dye, the flowering tops of the rabbit brush are boiled for about six hours. Native alum is then heated over a fire until it is reduced to a pasty consistency. These two are then mixed together and the wool put in and allowed to boil for about half an hour, or until the desired shade is obtained (53:377). Amsden states that it may seem strange that the same process should yield both a bright yellow and an "olive-green," but if the dyer is careful to include only the mature blossoms of the shrub, a clear yellow will result; but if the immature flowers, leaves, or green bark are used, a green tint proportionate to the quantity of green used will appear (1:5). This species of rabbit brush is also used to remove evil spells in the Witch, Wind, and other Chants (26:73).

Chrysothamnus vaseyi (A. Gray) Greene.

Bigelovia vaseyi A. Gray. Vasey Rayless Goldenrod. 'Azee'woo' (medicine, teeth; i. e. medicine [plant which is good for the] teeth). See *Achillea millefolium lanulosa*.

Chrysothamnus viscidiflorus (Hook.) Nutt.

Bigelovia douglasii A. Gray.

Chrysothamnus douglasii (A. Gray) Greene.

Crinitaria viscidiflora Hook. Sticky-flowered Rabbit Brush, Sticky-flowered Rabbit Bush, Sticky-flowered Golden Bush, Sticky-flowered False Goldenrod. K'iiltshōih (on top, yellow). A yellow or light-orange dye is made by boiling the flowers with alum which is previously roasted in ashes. This, with a ground lichen (*Parmelia molliuscula*), is again boiled, and when it is thoroughly dissolved and cooled off, it is applied to leather with a wool brush (24:304). It is also used as a wool (55:773) and basketry dye (24:304).

In building the sweathouse for the Mountain Chant, four upright poles are placed at the four cardinal points; between the uprights smaller poles are laid; on these poles piñon (*Pinus edulis*) boughs, sagebrush (*Artemisia* sp.), and this plant are laid as a thatch to prevent the sand on top from sifting through (78:239). See *Eurotia lanata*.

Chrysothamnus viscidiflorus (Hook.) Nutt. var. *pumilus* (Nutt.) Hall and Clements.

Bigelovia douglasii A. Gray var. *pumila* A. Gray.

Chrysothamnus pumilus Nutt. Douglas Rabbit Brush. Tc'iltiilyéesiitshoh (plant, refuge, big; i. e. big plant [which is used as a] refuge [by small animals]). It is mixed with the pollens of five different trees in the five night sings to make a sick person vomit.

Cirsium lanceolatum (L.) Hill.

Carduus lanceolatus L. Bull Thistle. Ma'jítáa' (coyote food). This plant is used to make a person vomit. It is first boiled, cooled, and then drunk.

Cirsium neomexicanum A. Gray.

Carduus neomexicanus (A. Gray) Greene.

Cnicus neomexicanus A. Gray. New Mexico Thistle, Yellow Thistle. 'Azee'tit'óih (medicine, laughing; i. e. medicine [plant that looks as if it were] laughing [when its flowers go to seed]). See *Datura* sp.

Cirsium ochrocentrum A. Gray.

Carduus ochrocentrus (A. Gray) Greene.

Cnicus ochrocentrus A. Gray.

Ochrocentrus of the Franciscan Fathers (24:185). Plumed Thistle, Yellow-spined Thistle. 'Azee'xókhániitshoh (medicine, rising in tiers, big; i. e. big medicine [plant whose stems] rise in tiers). See *Achillea millefolium lanulosa*.

Cirsium spp. Thistle. 1. 'Azee'xokháníih (medicine, rising in tiers; i. e. medicine [plant whose stems] rise in tiers). This is a small species resembling *Cirsium ochrocentrum*. 2. Tc'ilteenínih (plant, sharp; i. e. plant [whose leaves are] sharp). The name for any thistle.

Dahlia pinnata Cav. Cultivated Dahlia. A yellow-orange dye is obtained from the roots and flowers (82:3).

Erigeron spp. Fleabane. There are two unidentified species of fleabane: 1. 'Azee'na'oltxátiits'óoz (medicine, untying, slender; i. e. slender medicine [plant which is used for] untying [ceremonial knots]). 2. Naa-t'eejihkaiih (eyelashes, white; i. e. [plant whose] white [rays look like] eyelashes).

Erigeron divergens T. & G. Spreading Fleabane. 'Azee'na'oltxátiih (medicine, untying; i. e. medicine [plant which is used for] untying [ceremonial knots]). On the first night of the five night sings, this plant is chewed and blown on the ceremonial knots on the strings which are tied around the bundles of weeds. If a woman has a hard time having a baby, this plant is put in warm water and given the woman to drink as an aid to deliverance.

Erigeron flagellaris A. Gray. Fleabane. K'aalókiitáa' (butterfly food; i. e. [plant which the] butterfly [uses for] food).

Eupatorium occidentale Hook. Western Thoroughwort. Pilxaaajtc'iih (with it, odor, breeze; i. e. [its] odor [is carried] with [the] breeze). So called because its fragrance is carried on the breeze (24:186). See *Phlox caespitosa*.

Eupatorium purpureum L. Joe-pye Weed, Purple Thoroughwort, Boneset, White Snakeroot, Trumpet Weed. K'astáh peekáh (arrow-wound, its cure; i. e. [plant which is used as an] arrow-wound cure). My informant states that after a person gets shot with an arrow he drinks a decoction of this plant to get well. This genus is named after Eupator Mithridates,

King of Pontus, who used another species of this same genus as an antidote for poison.

Gaillardia pinnatifida Torr. Blanket Flower. Tshés'natáa' (rock, on, food; i. e. wasp food). A gout tonic is prepared from this plant. The crushed leaves and twigs are added to lukewarm water and applied externally and internally (24:113).

Gnaphalium chilense Spreng.

Gnaphalium sprengelii H. & A. Sprengel Cudweed, Sprengel Everlasting. 'Azee'tisòs (medicine, glossy; i. e. medicine [plant whose roots are] glossy). See *Achillea millefolium lanulosa*.

Gutierrezia sarothrae (Pursh.) Britt. & Rusby.

Gutierrezia diversifolia Greene.

Gutierrezia euthamiae T. & G.

Gutierrezia linearis Rydb.

Gutierrezia longifolia Greene.

Gutierrezia tenuis Greene.

Solidago sarothrae Pursh. Snakeweed, Brownweed, Yellow-weed, Sheepweed, Dodgeweed, Matchweed, Scareweed, Yerba de la Víbora, Coyaje. 1. Tc'iltiilyéésiih (plant, refuge; i. e. plant [which is used as a] refuge [by small animals]). 2. Tc'ilniilyéésiih (plant, refuge). The Navajo chew this plant and place the pulp on the swelling caused by the stings of ants, bees, and wasps (24:117) & (83:656). It is also supposed to heal wounds.²² The stems are used for whirls when making fire-by-friction. The tops are made into a yellow dye. This plant is claimed also to be good for snake-bite. When a sheep is bitten by a snake, this plant is ground and boiled and placed on the wound as a poultice. The swelling is said to go down immediately and the sheep cured.

Two kinds of charcoal are used in the medicines which are applied to the ailing gods. The first is made from the bark of the pine (*Pinus* sp.) and willow (*Salix* sp.). The second is made from this plant, *Bouteloua hirsuta*, and *Artemisia trifida*, to which are added the feathers dropped from a live crow and a live buzzard (60:22). On the second day of the War Dance Ceremony, four kinds of leaves are burned to charcoal for the blackening ceremony. These are dodgeweed, grama grass (*Bouteloua hirsuta*), sagebrush (*Artemisia trifida*), and an unidentified plant, tshé'ezee' (rock medicine; i. e. [plant which grows on] rock[s] [and is used for] medicine) (71:124). It is also burned to ashes and rubbed on the body to cure headache. The bull-roarer used in the Female Shooting Life Chant is made of lightning-struck oak (*Quercus* sp.) and covered with the ashes of snake-weed and pitch (85:637). See *Artemisia* sp., *Artemisia trifida*, *Juniperus monosperma*, *Phragmites communis*, and *Pinus edulis*.

Gymnolomia multiflora (Nutt.) Benth. & Hook.

Heliomeris multiflora Nutt.

22. See note 1, p. 16.

Viguiera multiflora (Nutt.) Blake. Slender Sunflower. Ntígíliits'óoz (sunflower, slender).

Helenium hoopesii A. Gray.

Dugaldia hoopesii (A. Gray) Rydb. South American Rubber Plant, Orange Sneezeweed, Owl's Claws. Ne'éctjaa' yil khee'éh (tuft, ear, like, foot; i. e. [plant whose leaves look] like [the] foot [of the] owl). This plant is used as a remedy for vomiting (42:115). Various shades of yellow for dyeing are obtained from *Helenium*. The flowers are crushed and boiled with juniper (*Juniperus* sp.) ashes thrown in (24:293). The flowers alone make a soft yellow dye (74:39). Chewing gum is made from the roots.

Helianthus annuus L. Common Sunflower, Wild Sunflower, Añil. Ntígíliitshoh (sunflower, big). Liniment for the War Dance consists of *Physaria* sp., wild sunflower, sumac (*Rhus trilobata*), and mistletoe (*Phoradendron* sp.) (42:405). In the Mountain Chant, the illusion of swallowing the arrow is made possible by the use of a hollow sunflower stalk into which the shaft and arrow point are gradually and slowly hidden (24:419). There is also an ancient custom of timing the grinding of the corn at the War Dance by a flute made of the stalk of the sunflower. The flutes were provided with only four keys (24:511). The Navajo formerly cultivated the sunflower and mixed the seeds with corn. This mixture was then ground into a meal and made into cakes (12:41).

Bird snares are made of sunflower stalks in which are drilled two small holes. In one of these holes is inserted a twig of greasewood (*Sarcobatus vermiculatus*) and at the end of this is fastened a sliding loop of horsehair. The greasewood twig is then bent in a bow and the loop passed through the upper hole, across which is laid a small piece of reed (*Phragmites communis*). The small stick below the loop is placed so that one end rests on the rim of the stalk and the other end on the reed. When a bird alights on this, the small piece of reed is disturbed and the greasewood twig straightens, drawing the horsehair loop with the bird's foot in it into the stalk (24:323).

The outer seed coatings of the sunflower are boiled to obtain a dull, dark-red dye.²³

Helianthus nuttallii T. & G. Nuttall Sunflower. Ntígíliintchinítshoh (sunflower, smelly, big). The dried leaves are crushed between the fingers and stirred in a bowl of water and used as a remedy for stomach troubles (24:114).

Helianthus sp. Sunflower. An unidentified species of sunflower is called ntígíliipáih (sunflower, grey).

Hymenopappus²⁴ *filifolius* Hook. 'Azee'xáaltzit (medicine, rotten; i. e. medicine [plant whose roots look as if they were] rotten). See *Achillea millefolium lanulosa*.

23. From legend on exhibit of the Kirk Brothers Trading Company, at the Inter-Tribal Indian Ceremonial held in Gallup, New Mexico, August, 1936.

24. Sometimes written *Xymenopappus*.

Hymenopappus nudatus W. & S. K'astáh peekáh (arrow-wound, its cure; i. e. [plant which is used as an] arrow-wound cure). This plant is supposed to take away blood poisoning. The whole plant is boiled and drunk.

Hymenoxys metcalfei Cockerell. Metcalfe Rubber Plant. The flowers are used for coloring wool yellow (19:3).

Lactuca scariola L. Prickly Lettuce. 'Azee'xokháanii'lipáhíkíih (medicine, rising in tiers, grey; i. e. grey medicine [plant whose stems] rise in tiers).

Lygodesmia grandiflora (Nutt.) T. & G.

Erythremia grandiflora Nutt. Large-flowered Wild Asparagus. Tc'á-táa' (frog food).

Lygodesmia rostrata A. Gray. Wild Asparagus, Skeleton Weed, Prairie Pink. 1. Tjátínát'oooh (antelope tobacco). 2. Tinénát'oooh (Navajo tobacco). 3. Tinétc'il (Navajo plant). 4. Tinéxonecihna't'oooh (Navajo, alarmed, tobacco; i. e. tobacco [plant which is smoked when a] Navajo [becomes] alarmed). By smoking this plant, the nerves of a person who has been suddenly scared are quieted. This plant is also offered to the antelope at the Corral Chant (24:395). See *Amaranthus graecizans*.

Machaeranthera alta A. Nels. Purple Aster, Tansy Aster, Viscid Aster. Ne'etshah'azee' (pimple medicine; i. e. medicine [plant which is used in removing] pimple[s]). Pimples are removed by rubbing them with the leaves of this plant (24:113).

Pectis angustifolia Torr. Lemon Scent, Chinch Weed, Limoncillo. TshéGáannhtc'íih (rock, through, breeze; i. e. [a plant, the odor of which the] breeze [is able to blow] through rock). The Navajo name is derived from the fact that the odor of this plant is said to penetrate sandstone two feet or more in thickness (55:769). The leaves when crushed and a little salt added are supposed to cure stomach-ache. It is also used as a carminative (24:769). The liniment for the Chiricahua Apache Wind Chant also requires this plant (24:405).

Sanvitalia aberti A. Gray. 'Azee'xotshe'íih (medicine, numbing; i. e. medicine [plant which will] numb [the mouth if eaten]). This plant is chewed to cure sores in the mouth. When it is chewed it has a salty pungent taste, which is followed by a sense of numbness in the mouth. It is also said to produce increased perspiration (55:773). One of my informants stated that it was "hot" like chili.

Senecio douglasii DC. Douglas Groundsel, Douglas Ragwort, Douglas Squaw Weed, Creek Senecio, Old Man. Xwocpiht'íhíh (thorns, for brushing off; i. e. [plant with which cactus] thorns [are] brushed off). Also pronounced xwocpiht'íhíkíih. To get a good voice for the Night Chant, this plant is boiled and drunk before the person goes into the sweathouse. The tops are used as brooms to brush the spines from cactus fruit (55:774). See *Amaranthus graecizans*.

Solidago nemoralis Ait. Goldenrod. 1. Ma'jite'il (coyote plant). 2.

Tixití'áih (point of; e. g. a stick is stuck in the fire and the end which does not burn is spoken of as tixití'áih). This plant is used as an incense (26:76).

Solidago pumila T. & G.

Petradoria pumila (T. & G.) Greene.

Solidago petradoria Blake nom. nov. Rock Goldenrod. Tc'íłitshöih (plant, yellow; i. e. plant [which has] yellow [blossoms]). The flowering tops are mixed with *Rumex hymenosepalus* to obtain a yellow dye.

Sonchus oleraceus L. var. **asper** L.

Sonchus asper (L.) Hill. Prickly Sow Thistle, Spiny-leaved Sow Thistle. 'Azee'xokháni'lipáhíki (medicine, rising in tiers, grey; i. e. grey medicine [plant whose stems] rise in tiers). See *Achillea millefolium lanulosa*.

Tagetes micrantha Cav. Bitter Ball. The entire plant is used in coloring wool yellow (19:3). It is also used for colds, fevers, summer complaints, and stomach troubles.²⁵

Thelesperma gracile (Torr.) A. Gray.

Bidens gracilis Torr. Navajo Tea, Slender Bur Marigold, Slender Beggar's Ticks, Slender Pitchforks, Té de los Navajoses, Té silvestre, Cota. 1. Tc'íłkoxwéhíh (plant, coffee). 2. Téeh (tea, a corruption of the Spanish té). 3. Woots'in'azee' (tooth-flesh medicine; i. e. [plant which is used as a] medicine [for the] gums). A substitute for tea is made from this plant by boiling the leaves and stems. It is supposed to be a nervous stimulant. It is also said to be good for the teeth (55:773).

Thelesperma longipes A. Gray. Cota. This plant is used as a substitute for tea by the Navajo. When boiled it gives the water a deep red tinge. The same material may be boiled several times before losing its strength (83:703).

Thelesperma subnudum A. Gray. The leaves, stems, and blossoms of this plant are used in coloring wool orange (19:2).

Townsendia spp. 1. 'Azee'na'oltxátii'alts'íisíki (medicine, untying, slender; i. e. slender medicine [plant which is used in] untying [ceremonial knots]). 2. 'Azee'na'oltxátiits'óoz (medicine, untying, slender). Several species of this plant help to accelerate deliverance (24:116).

Townsendia exscapa (Rich.) Porter.

Aster exscapus Richards.

Townsendia sericea Hook. 'Azee'na'oltxátiih (medicine, untying; i. e. medicine [plant which is used for] untying [ceremonial knots]). It is called "untying medicine" because it is chewed and spit upon ceremonial knots, which are then unraveled (26:45).

Townsendia strigosa Nutt. Aster. 1. 'Azee'na'oltxátiih (medicine, untying). 2. Nii'ii'niłts'óoz (face, put into, slender; i. e. slender [plant which you] put into [the] face [nose] [as a snuff]). 3. Tc'íic'azee' (sneeze medi-

25. See note 1, p. 16.

cine). This plant is used for stomach troubles by drinking a decoction made by crushing the dried leaves between the fingers and stirring the powder into a bowl of water (24:114). A beverage prepared from this plant helps to accelerate deliverance (24:116). It is chewed by the chanter in the Night Chant and spit upon prayersticks. This is supposed to facilitate the disentanglement of the string. The same juice is also spit upon the wand used in the Night Chant (61:68). The use of the dried and pulverized herb as a snuff for nose and throat troubles suggests a reason for one of the names of the plant (26:141).

Verbesina encelioides A. Gray var. *exauriculata* Rob. & Greenm.

Ximenesia encelioides Cav.

Ximenesia exauriculata (Rob. & Greenm.) Rydb. Crownbeard. Ntígíiinktchiníh (sunflower, smelly). One of my informants stated that it was possible that the Navajo ate the seeds. It is drunk for stomach troubles after the dried leaves are crushed and stirred in a bowl of water (24:114). See *Cowania stansburiana*.

Xanthium canadense Mill.

Xanthium strumarium L. var. *canadense* T. & G. Common Cocklebur, Burdock, Sheepbur, Buttonbur, Clotbur, Ditchbur. 'Ałtxa'niits'éhiih (adhering; i. e. [plant whose burs] adhere[to one]). A liniment made of the cocklebur is held under the armpit to remove excessive perspiration (24:116).

Zinnia grandiflora Nutt. Large-flowered Zinnia. Nii'ii'nihtshahíkíih (snuff, big). See *Sisyrinchium mucronatum*.

Unidentified *Compositae*:

'Azee'táгаа'ii' (medicine, beard). It is drunk as a medicine in certain ceremonials.

Zaaxwocíkíih (which contracts the lips).

Appendixes

APPENDIX A

UNIDENTIFIED PLANTS

'At'aa'tshoh (leaf, large; i. e. [plant which has a] large leaf).

'Atjaa'k'óoxaltchíni (ear, seed, smelly; i. e. [plant which has] seed[s] [that are both] ear[-shaped and] smelly). See *Amaranthus graecizans*.

'Awée'pilái ilpéej (baby, afterbirth, boils it; i. e. [plant which] boils [the] baby[']s afterbirth). A decoction is made of this plant which the woman drinks to make the baby come out quickly and easily. It also makes the afterbirth come out. It is also used as a purgative (26:41) and as a beverage for confinement (24:116). See *Euphorbia montana*.

'Awée'pilái ilpéej alts'íisíki (baby, afterbirth, boils it, slender; i. e. slender [plant which] boils [the] baby[']s afterbirth). This plant is used the same way as 'awée'pilái lipéej.

'Awée' pilái ilpéej pijiih xwólóní'kíi (baby, afterbirth, boils it, its fuzz, having; i. e. [plant] having bark [and which] boils [the] baby[']s afterbirth). This plant is used the same way as 'awée'pilái ilpéej.

'Áyaa'áih (standing erect; i. e. [plant which] stands erect). See *Achillea millefolium lanulosa* and *Petalostemon candidus*.

'Ayán pilij xaltchin (buffalo, urine, smelly; i. e. [plant which is] smelly [like] buffalo urine). Same plant as 'awée'pilái ilpéej. See *Euphorbia montana*.

'Azee'hikáih (medicine, white; i. e. white [plant which is used as] medicine). See *Achillea millefolium lanulosa* and *Lithospermum linearifolium*.

'Azee'hitchii'íkíi (medicine, red; i. e. red [plant which is used as] medicine). See *Achillea millefolium lanulosa*.

'Azee' pii'tjitchii'ih (medicine, inside, red; i. e. medicine [plant which has a] red core). It is used at childbirth (24:115). See *Achillea millefolium lanulosa*.

'Azee'ticóokíi (medicine, velvety; i. e. medicine [plant whose leaves have] velvety [surfaces]). A foot ease was prepared from this plant and applied to the foot or placed in the moccasin to remove the odor (24:116).

'Azee'tit'ihíkíi (medicine, thick; i. e. medicine [plant which is made into a] thick [mixture]). See *Achillea millefolium lanulosa*.

Cilatshoh (my finger, big; my thumb). A poison, but the medicine men use it.

'Ee'nii'nitjít'íl (thunder plant). Same as 'ee'nii'tc'íl.

'Ee'nii'tc'íl (thunder plant). This plant is applied internally and externally in cases of lightning stroke or snake bite (24:117). This cure is applied to both man and animals with good results, but is known only to a few, who apply it without any ceremony (24:155).

'Ee'nii'tjítc'il (thunder plant). Same as 'ee'nii'tc'il, but a varying pronunciation.

'Ee'niltjítcil (thunder plant). Same as 'ee'nii'tc'il, but a variant pronunciation.

Ma'ji pilij xaltchin (coyote, his urine, smelly; i. e. [plant which is] smelly [like] coyote urine). This plant grows in sandy places and is a favorite of the burro who will go to any extent to find it.

Ma'jitjaa'peeltc'iil (coyote, ear, scab; i. e. [plant which is good for] coyote ear scab[s]). This unidentified plant is made into a paste and used for the treatment of skin diseases and dandruff (33:20).

Náak'yicijiih (two of them roll together?).

Naapihtshoh (no meaning). The dried leaves of this plant are crushed and mixed with tobacco and smoked to cure colds. It is also used to cure sores behind the ears of babies. Snakes are afraid of it, so it is made into an incense and sprinkled about the hogan. It is said to kill the snakes instantly. As a blood purifier it is mixed with pollen from three other unidentified herbs and steeped into a tea (33:21).

Nák'yecyíliih (eye, which is stuck into). Same plant as nák'yeetxyíih.

Nák'yeetxyíih (eye benefit). The root of this plant is crushed and placed beneath the eyelids for ophthalmia (61:79).

Nák'yeyíhíih (eye, inside). The same plant as nák'yeetxyíih.

Na'tjicooc (turns on its side).

Na'tjicoocíh (turns on its side). A variant pronunciation of na'tjicooc.

Ntootchii' (standing, red; i. e. red [plant which is] standing). A plant with a large red root (24:202) which is supposed to cure blood poisoning. A poultice is made of it and placed on the swelling (24:113).

Pehetshíiltchii' pit'aa' (base, red, leaf; i. e. leaves [of a plant which is] red [at the] base [between the stalk and the root]).

Silatshoh (my finger, big; i. e. my thumb). A variant pronunciation of cilatshoh.

Tá'acjih'alt'áaikíih (salt, thin; i. e. [plant with] thin [leaves that have a] salt[y] [taste]). This herb is pounded into a paste with mutton tallow and used as a remedy for burns. The first application is said to be almost unendurable, but the pain suddenly ceases, and the effect is very soothing (33:20).

Tc'ahnát'oooh (frog tobacco). This plant is taken in the form of a tea after a person has been rescued from drowning (33:21).

Tchiltchin yil t'aa'íkíih (plant, odorous, like, leaves; i. e. [plant with] leaves like the sumac).

Tchiltchin yil t'éxíkíih (plant, odorous, like, leaves; i. e. [plant with] leaves like the sumac). A variant pronunciation of tchiltchin yil t'aa'íkíih.

Tc'ikhyéexaltchin (adolescent girls, smelly; i. e. [plant which] smells [like] adolescent girls). See *Amaranthus graecizans*.

Tc'il'agániih (plant, deadly). A plant, which if insects or persons eat,

they will get "skinny" and after a time die. Diuretic troubles were also removed by beverages made of this plant (24:113).

Tc'ilnaaskaatikíih (plant, spread out).

Tc'il pit'aa' hipáhíih (plant, leaf, grey; i. e. plant [with] grey leaves).

Tshé'ezee' (rock medicine; i. e. medicine [plant that grows on] rocks).

This is one of the plants which is burned to charcoal and given the patient in the Mountain Chant to blacken his legs and forearms (56:406). See *Gutierrezia sarothrae*.

Tsheikhanih (rock, sweet; i. e. [plant whose wood is both] sweet [and hard as a] rock). This is a very hard wood which was formerly used for making war bows (24:318).

Tshekhyéxaltchin (young men, smelly; i. e. [plant which] smells [like] young men). See *Amaranthus graecizans*.

Tshéts'aa' (stone basket ?). On the ninth day of the Night Chant, when the masks are completed, an assistant chews the fruits of this plant and spits the juice on the masks (61:136).

Ts'istisiih (———, twisting). This tree is found in the San Francisco Mountains of Arizona. The pulp was pulverized, mixed with water, and dripped into the ear as a remedy for earache (24:112).

Tshiyankchi (tree, under, smelly; i. e. smelly [plant which grows] under trees). This plant is used in the same manner as *Portulaca oleracea*.

Txootji'xwiitsoh (water, toward, line; i. e. [plant which extends] toward [the] water [in a] line). See *Datura* sp.

Wolitchii' pikah (red ant, antidote; i. e. red ant [bite] antidote). This unidentified plant is chewed to a pulp and placed on the stings of ants, bees, and wasps for relief (24:117).

Xatchítiniih'azee' (nose, hurt, medicine; i. e. [plant which is used as a] medicine [for] nose troubles). This unidentified plant is used as a snuff for headaches and nose troubles (24:112).

Yáxaltshöih (standing, yellow; i. e. yellow [plant which is] standing [up]). This plant is steeped into a tea and taken internally to counteract insect poison injected into the blood stream. The bites are also bathed in it (33:20). This plant is given the scientific name of *Peritonia arevellerum* in (33), but is not a correct one. Perhaps a typographical error.

APPENDIX B

PLANT PRODUCTS AND BY-PRODUCTS

- Leectc'ih, ashes.
 Naactc'ii', the piñon nut; a variant pronunciation of neectc'ii'.
 Neectc'ii', the piñon nut.
 Pinest'á', its fruit.
 Pitjeeh, its gum or pitch.
 Tchá'ot, green piñon wood, which, if dry would be called teestshiin.
 Tchíc, wood, fuel, firewood.
 T'éec, charcoal. The charcoal of various plants is used extensively in many ceremonies to produce black for sandpaintings and body paint.
 Teestshiin, dry piñon log, which, if green would be called tchá'ot.
 Tilk'yis, dry juniper wood.
 Titlhée', green, unburnable wood.
 Tshin, stick of wood, a stick, pole, log, or tree.
 Tshinixeeestjii', a board.

APPENDIX C

GENERAL TERMS FOR PLANTS

- Nánsé', vegetation, from nooséel, it is growing.
 Te'il, plant, grass, weed.
 Te'ilnaaskhaatíih (plant, spreading). Any vine.
 Te'il pináa' (plant, its seeds). A seed-bearing plant.
 Te'il sikhaat, a clump of weeds, a bush, or tuft of grass.
 T'oh, any kind of grass, or hay.
 T'óotc'il, any kind of a plant.
 Tshin, a tree, log, pole, stick, or wood.

APPENDIX D

ANNOTATED LIST OF PLANT PARTS

- 'Ajíih, fuzz. This is the inner fiber of a plant, between the bark and the bast, especially when dry. Only juniper (*Juniperus* sp.) and cliffrose (*Cowania stansburiana*) have it.
 'Atcho' (hanging down), a catkin, of the walnut, cottonwood, willow, and the like.
 'Atchok, a catkin. A variation in pronunciation of 'atcho'.
 Naactc'ii', the piñon nut. A variation in pronunciation of neectc'ii'.
 Neectc'ii', the piñon nut.
 Nteeckyic, it is single-forked. Said of a tree branch.
 Pexet'óol, its strings. The roots of a plant, tree, or grass.
 Pexetshiin, its base. The base of a tree where it meets the ground.
 Also said of the feet of a man.

Pi'iil, its needles. Said of pine, spruce, juniper, and all coniferous trees.

Pijiih, its fuzz. The inner fiber of juniper (*Juniperus* sp.) or cliffrose (*Cowania stansburiana*), especially when dry.

Pikáan, its arm. Used of tree boughs.

Pikháct'óoj, its bark.

Pikhákíih, its inner rind.

Pik'óó', its seed. Seeds of any fruits, especially pumpkins and squashes. See pilastshii'.

Pilastshii', its seeds. Said mostly of small seeds.

Pilátxah, its tip or top. Said of a flower.

Pilátxah'atkaaíkíih (its top, white; i. e. a white flower).

Pilátxah'atshii (its top, red; i. e. a red flower).

Pilátxah'atshoíkíih (its top, yellow; i. e. a yellow flower).

Pilátxahtoot'ijíkíih (its top, blue; i. e. a blue flower).

Pináa', its seed. The seed of any plant.

Pinest'á', its pod. A fruit.

Pit'aa', its leaf.

Pitaa'tiyah, turning the corner on its edge. Can be said of the branching periphery of a tree.

Pitjeeh, its gum or pitch, especially of a pine or piñon tree.

Pit'óol, its string. A tendril of any vine.

Pits'áooz'á', its bough or limb.

Pitshin, its wood. The pith or pulp of a plant stalk, or the stalk itself.

Pitxát'ahíh, its bast.

Pizit, its liver. The pith or the inside of a tree.

Taxalkyíc, several forks. The several forks of a stick, or the cracks between the fingers.

Taxastxai, a crack. Any crack, in the bark of a tree, or even a chapped crack in the finger.

Te'illátxah, plant tip or top. A flower.

Tilk'yis, dry juniper wood.

Tilk'yis pijíih, dry juniper bark.

Tjee''iilt'íhíih (gum, sticky). Gum or pitch.

T'ohzool, a grass tassel.

T'ó pexét'óol (grass, its strings; i. e. grass roots).

Tshin, a log, pole, or stick of wood.

Txátítjin, pollen.

Xalkyic, one fork (of a stick).

TABLE I
 MEDICINAL PLANTS
 FOR INTERNAL DISORDERS
 USE INTERNALLY

<i>Amorpha microphylla</i>	<i>Euphorbia montana</i>
For catarrh	As a beverage for confinement and for purging
<i>Aplopappus lanuginosus</i>	<i>Eurotia lanata</i>
For nose and throat troubles and as a remedy for indigestion	For the relief of blood spitting
<i>Artemisia tridentata</i>	<i>Gaillardia pinnatifida</i>
To help deliverance of children and for stomach-ache	As a relief for gout
<i>Asclepias hallii</i>	<i>Gentiana affinis</i>
As a tonic after deliverance	As a snuff for headaches
<i>Asclepias</i> spp.	<i>Gilia attenuata</i>
For stomach troubles	As a remedy for stomach troubles
<i>Asclepias verticillata</i>	<i>Gilia longiflora</i>
For nose and throat troubles	For stomach troubles of sheep, to move bowels, and to make a person vomit
<i>Aster canescens</i>	<i>Helenium hoopesii</i>
For nose and throat troubles	As a remedy for vomiting
<i>Berberis repens</i>	<i>Helianthus nuttallii</i>
As a rheumatic remedy	As a remedy for stomach troubles
<i>Castilleja angustifolia</i>	<i>Heuchera bracteata</i>
For stomach troubles	As a remedy for indigestion
<i>Castilleja integra</i>	<i>Hymenopappus nudatus</i>
For stomach troubles	As a cure for blood poisoning
<i>Castilleja lineata</i>	<i>Juniperus</i> sp.
For stomach troubles	As a supposed cure for influenza
<i>Ceanothus fendleri</i>	<i>Lesquerella fendleri</i>
As a remedy for alarm and nervousness	As a remedy for spider bites
<i>Cercocarpus montanus</i>	<i>Lithospermum angustifolium</i>
For stomach troubles	As a remedy for coughs and colds
<i>Cirsium lanceolatum</i>	<i>Lupinus brevicaulis</i>
To make a person vomit	As a remedy for sterility
<i>Cirsium neomexicanum</i>	<i>Lygodesmia rostrata</i>
For chill and fever	As a remedy for alarm and nervous disposition
<i>Clematis ligusticifolia</i>	<i>Marrubium vulgare</i>
As a tonic after deliverance	As a tea for sore throat
<i>Cordylanthus ramosus</i>	<i>Oreocarya fulvocanescens</i>
As a syphilitic remedy, to prevent broken ribs, and to stop blood flow	For coughs and colds
<i>Cordylanthus wrightii</i>	<i>Oxytropis</i> sp.
As a remedy for syphilis	As a remedy for bronchial and esophageal troubles
<i>Corydalis montana</i>	<i>Pectis angustifolia</i>
As a rheumatic remedy	For stomach-ache and as a carminative
<i>Datura</i> sp.	<i>Penstemon</i> sp.
For chill and fever, and as a pain killer	For rattlesnake bites
<i>Draba montana</i>	<i>Penstemon torreyi</i>
As a remedy for diuretic troubles	As a remedy for diuretic troubles
<i>Ephedra trifurca</i>	<i>Petalostemon candidus</i>
As a remedy for venereal, kidney, and stomach troubles	To remove pains in the abdomen
<i>Ephedra viridis</i>	<i>Physaria newberryi</i>
As a cough medicine	As a snuff for catarrh
<i>Erigeron divergens</i>	<i>Prunus persica</i>
To aid deliverance	As a purgative
<i>Eriogonum</i> sp.	<i>Radicula alpina</i>
For diarrhea	As a tonic after deliverance
<i>Eupatorium purpureum</i>	<i>Ranunculus cymbalaria</i>
As an antidote for arrow poison.	As a remedy for syphilis

- Sisyrinchium mucronatum*
For nose troubles
- Solanum elaeagnifolium*
For nose and throat troubles
- Swertia radiata*
As a remedy for alarm and nervousness
- Thelesperma gracile*
As a nervous stimulant
- Townsendia* spp.
To accelerate deliverance
- Townsendia strigosa*
As a remedy for stomach troubles, and to accelerate deliverance
- Verbesina encelioides exauriculata*
For stomach troubles
- Yucca baccata*
As a remedy for vomiting and to relieve heartburn
- Zea mays*
To cure sore throat
- Zinnia grandiflora*
For nose and throat troubles

APPLIED EXTERNALLY

- Aplopappus lanuginosus*
For aching teeth and sore gums
- Artemisia tridentata*
For headache
- Artemisia trifida*
For headaches
- Ceanothus fendleri*
As a remedy for alarm and nervousness
- Chrysothamnus Greenei*
As a remedy for chickenpox and measles
- Datura* sp.
For trachoma
- Ephedra trifurca*
For venereal disease
- Euphorbia montana*
As a remedy for boils and pimples
- Euphorbia pringlei*
As a remedy for boils
- Gaillardia pinnatifida*
For the relief of gout
- Gutierrezia sarothrae*
For relief of headaches
- Heuchera bracteata*
For aching teeth and sore gums
- Lupinus lyallii*
As a remedy for boils
- Machaeranthera alta*
To remove pimples
- Monarda fistulosa*
To relieve headaches
- Oenothera tanacetifolia*
As a remedy for boils
- Penstemon* sp.
For rattlesnake bites
- Portulaca oleracea*
For hurts
- Swertia radiata*
As a remedy for alarm and nervousness
- Thelypodium wrightii*
For relief of swellings
- Zea mays*
To cure sore throat

FOR EXTERNAL DISORDERS

APPLIED EXTERNALLY

- Achillea millefolium lanulosa*
For saddle sores and cuts
- Artemisia trifida*
As a corn liniment
- Atriplex* sp.
For the relief of insect bites
- Datura meteloides*
To heal wound made from castrating sheep
- Gaura parviflora*
To allay inflammation and cure burns
- Gutierrezia sarothrae*
For the relief of insect bites, to heal wounds, and for snake bite
- Juniperus scopulorum*
As a remedy for dandruff
- Lithospermum angustifolium*
For soreness of umbilical cord
- Nicotiana* sp.
To cure sores on hands
- Oenothera* sp.
For sores
- Orobanche fasciculata*
For curing sores
- Pinus edulis*
For cuts and sores
- Sanvitalia aberti*
For mouth sores
- Sarcobatus vermiculatus*
For relief of insect bites
- Xanthium canadense*
To remove excess perspiration
- Zea mays*
For sores

FOR WITCHCRAFT

FOR ANT WITCHCRAFT

- Eriogonum* sp.
Eriogonum fasciculatum
- Eriogonum microthecum*
Eriogonum rotundifolium

FOR OTHER WITCHCRAFT

*Gentiana affinis**Malvastrum coccineum*

FOR "ACCIDENTS"

TAKEN INTERNALLY

Abronia fragrans

For the swallowing of a spider

Fendlera rupicola

For the swallowing of ants

Eriogonum rotundifolium

For the swallowing of ants

AS INGREDIENTS OF THE "LIFE MEDICINE"

USE BOTH INTERNALLY AND EXTERNALLY

*Achillea millefolium lanulosa**Actinella scaposa**Arabis communis**Artemisia franserioides**Artemisia tridentata**Asclepiodora decumbens**Aster* sp.*Astragalus mortoni**Chrysothamnus vaseyi**Cirsium ochrocentrum**Epilobium adenocaulon**Eriogonum alatum**Eriogonum racemosum**Erysimum asperum**Gaura parviflora**Gnaphalium sprengelii**Hymenopappus filifolius**Lesquerella alpina**Lithospermum canescens**Lithospermum incisum**Lithospermum multiflorum**Malvastrum coccineum**Mentzelia multiflora**Mentzelia pumila**Oenothera caespitosa marginata**Oenothera hookeri**Oenothera pinnatifolia**Penstemon ambiguus**Penstemon laricifolius**Potentilla strigosa**Radicula obtusa**Schrankia uncinata**Scirpus acutus**Sonchus asper**Stanleya pinnata**Swertia* sp.*Swertia radiata**Thalictrum fendleri**Thlaspi alpestre*MISCELLANEOUS USES AS MEDICINES¹*Artemisia ludoviciana*

By the shaman

Artemisia tridentata

For colds and fevers

Clematis ligusticifolia

For hurts

Eriogonum alatum

For hurts

Gentiana affinis

For swooning

Kentrophyta montana

As a reputed remedy for rabies

Malvastrum coccineum

To stop bleeding

Oreocarya fulvocanescens

For hurts

Parmelia molliuscula

For impetigo

Portulaca oleracea

For stomach-ache

Sagittaria arifolia

For headaches

Solanum elaeagnifolium

As a remedy for sore eyes

Sphaeralcea lobata

As a ceremonial medicine

Stanleya pinnata

For glandular swellings

*Tagetes micrantha*For colds, fevers, summer complaints,
and stomach troubles

1. It is not known how these plants are used.

TABLE II

CEREMONIAL PLANTS

BEAD CHANT

<i>Amaranthus graecizans</i>	<i>Psoralea tenuiflora</i>
<i>Artemisia</i> sp.	<i>Silene douglasii</i>
<i>Aster</i> sp.	<i>Tribulus terrestris</i>
<i>Gilia longiflora</i>	<i>Zea mays rugosa</i>
<i>Mirabilis oxybaphoides</i>	

CHIRICAHUA APACHE WIND CHANT

Pectis angustifolia

CORRAL CHANT (Part of Mountain Chant)

Lygodesmia rostrata

COYOTE CHANT

<i>Amaranthus graecizans</i>	<i>Lygodesmia rostrata</i>
<i>Castilleja minor</i>	<i>Mirabilis oxybaphoides</i>
<i>Chenopodium</i> sp.	<i>Mirabilis</i> sp.
<i>Chrysothamnus nauseosus albicaulis</i>	<i>Oxytropis lambertii</i>
<i>Cymopterus alpinus</i>	<i>Oxytropis</i> sp.
<i>Eriogonum jamesii</i>	<i>Sarcobatus vermiculatus</i>
<i>Forestiera neomexicana</i>	<i>Senecio douglasii</i>
<i>Gilia longiflora</i>	<i>Zea mays rugosa</i>
<i>Leptotaenia dissecta multifida</i>	

LIFE OR KNIFE CHANT

<i>Eriogonum alatum</i>	<i>Lithospermum angustifolium</i>
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LIGHTNING CHANT

<i>Arundo donax</i>	<i>Picea</i> sp.
<i>Astragalus matthewsii</i>	<i>Sarcobatus vermiculatus</i>
<i>Lupinus brevicaulis</i>	

MOTION-IN-HAND CEREMONY

Zea mays

MOUNTAIN CHANT

<i>Artemisia</i> sp.	<i>Nicotiana</i> sp.
<i>Artemisia tridentata</i>	<i>Nicotiana tabacum</i>
<i>Artemisia trifida</i>	<i>Parthenocissus vitacea</i>
<i>Bouteloua hirsuta</i>	<i>Phaseolus vulgaris</i>
<i>Cercis occidentalis</i>	<i>Phragmites communis</i>
<i>Cercocarpus montanus</i>	<i>Picea</i> sp.—Fire Dance
<i>Chenopodium cornutum</i>	<i>Pinus edulis</i>
<i>Chenopodium</i> spp.	<i>Pinus</i> sp.—Fire Dance
<i>Chrysothamnus viscidiflorus</i>	<i>Prunus demissa</i>
<i>Cowania stansburiana</i>	<i>Rhus trilobata</i>
<i>Cucurbita</i> sp.	<i>Salix</i> sp.
<i>Eurotia lanata</i>	<i>Sarcobatus vermiculatus</i>
<i>Fendlera rupicola</i>	<i>Yucca baccata</i>
<i>Gaura parviflora</i> —Fire Dance	<i>Yucca</i> sp.
<i>Gutierrezia sarothrae</i>	<i>Zea mays</i>
<i>Helianthus annuus</i>	<i>Zea mays rugosa</i>
<i>Juniperus</i> sp.—Fire Dance and elsewhere	

ETHNOBOTANY OF THE NAVAJO

MOUNTAIN TOP CHANT

<i>Eriogonum alatum</i>	<i>Pinus edulis</i>
<i>Juniperus</i> spp.	<i>Pinus</i> spp.
<i>Leptotaenia dissecta multifida</i>	<i>Prunus demissa</i>
<i>Lithospermum linearifolium</i>	<i>Quercus</i> spp.
<i>Oenothera</i> spp.	<i>Rhus trilobata</i>

MOVING UPWARD CHANT

Gossypium sp.

NIGHT CHANT

<i>Arabis holboellii</i>	<i>Nicotiana attenuata</i>
<i>Artemisia</i> sp.	<i>Nicotiana</i> sp.
<i>Artemisia trifida</i>	<i>Oxytropis lambertii</i>
<i>Arundo donax</i>	<i>Petalostemon candidus</i>
<i>Astragalus allochrous</i>	<i>Phlox caespitosa</i>
<i>Bouteloua hirsuta</i>	<i>Phaseolus vulgaris</i>
<i>Cerastium arvense</i>	<i>Phragmites communis</i>
<i>Cercocarpus montanus</i>	<i>Picea</i> sp.
<i>Cowania stansburiana</i>	<i>Pinus edulis</i>
<i>Citrullus vulgaris</i>	<i>Pinus ponderosa</i>
<i>Cleome sonorae</i>	<i>Prunus demissa</i>
<i>Cucumis melo</i>	<i>Prunus</i> sp.
<i>Cucurbita</i> sp.	<i>Psoralea tenuiflora</i>
<i>Delphinium scaposum</i>	<i>Rhus trilobata</i>
<i>Eupatorium occidentale</i>	<i>Salix</i> sp.
<i>Eurotia lanata</i>	<i>Senecio douglasii</i>
<i>Forestiera neomexicana</i>	<i>Townsendia strigosa</i>
<i>Gutierrezia sarothrae</i>	<i>Verbesina encelioides</i>
<i>Hedeoma drummondii</i>	<i>exauriculata</i>
<i>Juniperus occidentalis</i>	<i>Viola</i> sp.
<i>Juniperus</i> sp.	<i>Yucca baccata</i>
<i>Juniperus virginiana</i>	<i>Yucca elata</i>
<i>Lagenaria vulgaris</i>	<i>Yucca</i> sp.
<i>Lithophragma tenella</i>	<i>Zea mays rugosa</i>
<i>Monarda punctata</i>	

RAVEN CHANT

Nicotiana sp.

SHOOTING CHANTS (Male and Female)

<i>Gilia longiflora</i>	<i>Pseudotsuga taxifolia</i>
<i>Lupinus</i> sp.	<i>Quercus</i> sp.
<i>Mentha</i> sp.	<i>Quercus undulata</i>
<i>Penstemon torreyi</i>	<i>Salix laevigata</i>
<i>Picea</i> sp.	<i>Salvia lanceolata</i>
<i>Pinus flexilis</i>	<i>Typha latifolia</i>
<i>Prunus demissa</i>	<i>Yucca</i> sp.

SHOOTING LIFE CHANT (Female)

<i>Brickellia grandiflora petiolaris</i>	<i>Mentha arvensis glabrata</i>
<i>Gutierrezia sarothrae</i>	<i>Monarda pectinata</i>
<i>Hedeoma nana</i>	<i>Quercus</i> sp.
<i>Marrubium vulgare</i>	

SQUAW DANCE

(See War Dance)

SUN'S HOUSE CHANT

<i>Picea pungens</i>	<i>Pseudotsuga taxifolia</i>
<i>Populus tremuloides</i>	<i>Rosa fendleri</i>
<i>Prunus demissa</i>	<i>Salix laevigata</i>

WAR (SQUAW) DANCE

<i>Achillea millefolium lanulosa</i>	<i>Juniperus</i> sp.
<i>Artemisia trifida</i>	<i>Juniperus virginiana</i>
<i>Bouteloua gracilis</i>	<i>Phoradendron</i> sp.
<i>Bouteloua hirsuta</i>	<i>Physaria</i> sp.
<i>Chrysothamnus</i> sp.	<i>Picea</i> sp.
<i>Gutierrezia sarothrae</i>	<i>Pinus edulis</i>
<i>Hedeoma nana</i>	<i>Pinus</i> sp.
<i>Helianthus annuus</i>	<i>Quercus</i> sp.
<i>Hordeum jubatum</i>	<i>Rhus trilobata</i>
<i>Juniperus monosperma</i>	<i>Salix</i> sp.
<i>Juniperus occidentalis</i>	<i>Thalictrum fendleri</i>
<i>Juniperus scopulorum</i>	<i>Yucca</i> sp.

WATER CHANT

Populus sp.

WIND CHANT

<i>Chrysothamnus nauseosus</i>	<i>Lithospermum angustifolium</i>
<i>graveolens</i>	<i>Opuntia</i> sp.
<i>Eriogonum alatum</i>	<i>Pinus edulis</i>
<i>Gilia longiflora</i>	<i>Yucca</i> sp.
<i>Juniperus</i> spp.	

WITCH CHANT

<i>Chrysothamnus nauseosus</i>	<i>Picea</i> sp.
<i>graveolens</i>	<i>Pinus flexilis</i>

MISCELLANEOUS USES IN CEREMONIES

FOR APPLICATIONS (Blackening)

<i>Artemisia trifida</i>	<i>Gutierrezia sarothrae</i>
<i>Bouteloua hirsuta</i>	<i>Pinus</i> sp.
<i>Eurotia lanata</i>	<i>Salix</i> sp.

FOR ARROWS

<i>Cowania stansburiana</i>	<i>Pinus flexilis</i>
<i>Picea</i> sp.	<i>Pinus</i> sp.

FOR BATHS

<i>Yucca baccata</i>	<i>Yucca</i> spp.
<i>Yucca glauca</i>	

FOR BOWS

<i>Picea</i> sp.	<i>Pinus flexilis</i>
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FOR BRACELETS

Yucca sp.

FOR BULLROARERS

<i>Gutierrezia sarothrae</i>	<i>Quercus</i> sp.
<i>Pinus</i> sp.	<i>Yucca</i> sp.

FOR COLLARS

Picea sp.

FOR CORRALS

<i>Juniperus</i> sp.	<i>Pinus edulis</i>
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ETHNOBOTANY OF THE NAVAJO

FOR DANCE IMPLEMENTS

Prunus demissa

FOR DIGGING STICKS

Quercus sp.

FOR DOLLS

Populus wislizeni

FOR DRESSES

Picea sp.

FOR DRINKS

Cleome sonorae
*Erigeron divergens**Thalictrum fendleri*

FOR HOGANS

*Juniperus monosperma**Pinus edulis*

FOR IMAGES

Populus sp.
*Populus wislizeni**Sarcobatus vermiculatus*
Zea mays rugosa

FOR INCENSE

Cercis occidentalis
*Pinus edulis**Solidago nemoralis*

FOR MEDICINE CONTAINERS

~~MISSING~~
*Lagenaria vulgaris**Quercus* sp.

FOR NECKLACES

Pseudotsuga taxifolia
*Typha latifolia**Yucca* sp.

FOR POKERS

Pinus edulis

FOR POLLEN

Campanula uniflora
Delphinium bicolor
Delphinium menziesii
*Delphinium scaposum**Rhus trilobata*
Typha latifolia
Zea mays

FOR PRAYERSTICKS

Arundo donax
Cercocarpus montanus
Cowania stansburiana
Forestiera neomexicana
Juniperus monosperma
Juniperus occidentalis
Juniperus sp.
*Phragmites communis**Populus* sp.
Prunus demissa
Prunus sp.
Rhus trilobata
Salix sp.
Verbescina encelioides
exauriculata

FOR PRAYERSTICK FILLINGS

Nicotiana attenuata
*Nicotiana palmeri**Nicotiana* sp.

FOR PRAYERSTICK HOLDERS (while painting)

Yucca sp.

FOR PRAYERSTICK RUBBING

*Gutierrezia sarothrae**Nicotiana* sp.

FOR RATTLES

Lagenaria vulgaris

FOR SANDPAINTING COLOR (Black)

Juniperus sp.*Pinus edulis**Quercus pungens*

FOR SANDPAINTING FIGURES

*Amelanchier prunifolia**Spirogyra* sp.

FOR SANDPAINTING TRAYS

Juniperus sp.*Pinus edulis**Pinus* sp.*Yucca* sp.

FOR STARS

Yucca sp.

FOR STRINGS

Gossypium sp.

FOR, OR IN, SWEATHOUSES

Artemisia sp.*Artemisia tridentata**Cercocarpus parvifolius**Chrysothamnus viscidiflorus**Eurotia lanata**Picea* sp.*Pinus edulis*

FOR UNRAVELING CEREMONIAL OBJECTS

*Erigeron divergens**Picea* sp.*Prunus demissa**Prunus* sp.*Quercus pungens**Rhus trilobata**Townsendia exscapa**Townsendia strigosa*

FOR WANDS

Artemisia sp.*Bouteloua gracilis**Eurotia lanata**Juniperus occidentalis**Juniperus* sp.*Juniperus virginiana**Picea* sp.*Pinus edulis**Rhus trilobata**Salix* sp.

FOR WHISTLES

Arundo donax

FOR WRISTBANDS

*Pseudotsuga taxifolia**Typha latifolia**Yucca* sp.

TABLE III
FOOD PLANTS AND FOOD ACCESSORIES

BARK (Inner)

Juniperus monosperma

BULBS

Allium cepa
Allium deserticola
Allium sativum

Calochortus aureus
Calochortus luteus
Calochortus nuttallii

FRUITS

Amelanchier alnifolia
Amelanchier prunifolia
Arachis hypogaea
Capsicum frutescens
Cercis occidentalis
Citrullus vulgaris
Citrus limonia
Citrus sinensis
Cleome serrulata
Cucumis melo
Cucumis melo cantalupensis
Cucurbita maxima
Cucurbita pepo
Cucurbita pepo condensa
Cucurbita spp.
Echinocereus spp.
Ficus carica
Fragaria bracteata
Juglans major
Juniperus monosperma

Lycium pallidum
Lycopersicon esculentum commune
Opuntia spp.
Phoenix dactylifera
Phoradendron juniperinum
Prunus armeniaca
Prunus domestica
Prunus persica
Prunus spp.
Pyrus communis
Pyrus malus
Quercus spp.
Rhus trilobata
Ribes inebrians
Rosa fendleri
Rubus arizonicus
Vitis arizonica
Vitis vinifera
Yucca baccata
Yucca glauca

LEAVES AND WHOLE PLANTS

Amaranthus blitoides
Amaranthus retroflexus
Asclepias spp.
Brassica oleracea botrytis
Brassica oleracea capitata
Chenopodium album

Cleome serrulata
Cleome sonorae
Cymopterus fendleri
Cymopterus glomeratus
Humulus lupulus neomexicanus
Zea mays

ROOTS

Beta vulgaris
Brassica rapa
Daucus carota
Daucus pusillus
Eriogonum alatum
Ipomoea batatas

Lomatium orientale
Malvastrum coccineum
Petalostemon candidus
Phellopterus montanus
Raphanus sativus

SEEDS

Amaranthus blitoides
Amaranthus palmeri
Amaranthus retroflexus
Artemisia wrightii
Carum carui
Cercis occidentalis
Chenopodium album
Chenopodium fremontii
Chenopodium spp.
Cuscuta sp.
Helianthus annuus
Mentzelia albicaulis
Mentzelia multiflora
Oryzopsis hymenoides
Panicum capillare

Phaseolus limensis
Phaseolus vulgaris
Pinus edulis
Piper nigrum
Pisum sativum
Portulaca oleracea
Portulaca retusa
Sisymbrium altissimum
Sisymbrium officinale
Sphaeralcea lobata
Sporobolus cryptandrus
Verbesina encelioides exauriculata
Vicia faba
Zea mays

STEMS

Mammillaria sp.
Neomammillaria sp.

Rumex hymenosepalus

TUBERS

Solanum jamesii

Solanum tuberosum

PLANTS USED AS FOOD ACCESSORIES

Amaranthus blitoides
 As sugar
Amaranthus palmeri
 As sugar
Castilleja lineata
 For honey

Chenopodium fremontii
 For glucose
Cymopterus purpureus
 For seasoning
Pinus edulis
 For butter

TABLE IV

WOOD PLANTS

ARROWSHAFTS

<i>Cowania stansburiana</i> (ceremonial)	<i>Pinus</i> sp. (ceremonial)
<i>Fendlera rupicola</i>	<i>Rhus trilobata</i>
<i>Phragmites communis</i>	<i>Ribes inebrians</i>
<i>Picea</i> sp. (ceremonial)	<i>Salix</i> sp.
<i>Pinus flexilis</i> (ceremonial)	

BELLOWS

<i>Acer negundo</i>	<i>Populus wislizeni</i>
<i>Celtis reticulata</i>	<i>Salix</i> sp.

BIRD SNARES

<i>Helianthus annuus</i>	<i>Sarcobatus vermiculatus</i>
<i>Phragmites communis</i>	

BOWS

<i>Juniperus monosperma</i>	<i>Quercus</i> sp.
<i>Picea</i> sp. (ceremonial)	<i>Rhus trilobata</i>
<i>Pinus flexilis</i> (ceremonial)	<i>Sarcobatus vermiculatus</i>
<i>Prosopis chilensis glandulosa</i>	

CHARCOAL

<i>Juniperus monosperma</i>	<i>Juniperus</i> sp.
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CLUB HANDLES

Quercus sp.

CRADLES, LININGS, AND CANOPIES

<i>Cowania stansburiana</i>	<i>Populus angustifolia</i>
<i>Juniperus monosperma</i>	<i>Populus wislizeni</i>
<i>Pinus edulis</i>	<i>Quercus undulata</i>
<i>Pinus</i> sp.	<i>Salix</i> sp.

DICE

<i>Cercocarpus montanus</i>	<i>Populus</i> sp.
<i>Juniperus</i> sp.	<i>Sarcobatus vermiculatus</i>

DIES

Quercus sp.

DIGGING STICKS

Quercus sp.

FENCE POSTS

<i>Juniperus monosperma</i>	<i>Populus wislizeni</i>
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FIRE DRILLS, WHIRLS, AND HEARTHES

<i>Artemisia tridentata</i>	<i>Juniperus</i> sp.
<i>Cleome sonora</i>	<i>Populus</i> sp.
<i>Gutierrezia sarothrae</i>	<i>Yucca</i> sp.

FIREWOOD

<i>Juniperus monosperma</i>	<i>Populus wislizeni</i>
<i>Pinus edulis</i>	<i>Sarcobatus vermiculatus</i>
<i>Pinus</i> sp.	

FLUTES

Helianthus annuus

HOES

Quercus sp.

HOGANS

<i>Juniperus monosperma</i>	<i>Pinus edulis</i>
<i>Juniperus</i> sp.	

KNITTING NEEDLES

Fendlera rupicola *Sarcobatus vermiculatus*

LANCES

Quercus sp. *Salix* sp.

LOUSE KILLER

Fendlera rupicola

MEDICINE SPOONS

Cercocarpus montanus

NEEDLES

Rosa fendleri

PLANTING STICKS

Fendlera rupicola *Sarcobatus vermiculatus*

PRAYERSTICKS

Arundo donax *Phragmites communis*
Cercocarpus montanus *Populus* sp.
Cowania stansburiana *Prunus demissa*
Forestiera neomexicana *Prunus* sp.
Juniperus monosperma *Rhus trilobata*
Juniperus occidentalis *Salix* sp.
Juniperus sp. *Verbesina encelioides exauriculata*

RUBBING STICKS

Fendlera rupicola

SADDLES

Fraxinus cuspidata

SHINNY BALLS

Pinus sp.

SUMMER SHELTERS

Juniperus sp. *Populus* sp.
Pinus sp.

THROWING STICKS

Quercus sp.

TINDER BOXES

Pinus sp. *Populus wislizeni*
Populus sp.

VIGAS

Populus wislizeni

WEAVING ACCESSORIES

Cercocarpus montanus *Quercus pungens*
 Distaff handle Batten sticks
Fendlera rupicola *Quercus undulata*
 Weaving forks Batten sticks
Juniperus sp. *Ribes inebrians*
 Loom frames Stick of the distaff
Pinus edulis *Salix* sp.
 Loom poles, beams, and uprights Heald sticks
Populus sp. *Sarcobatus vermiculatus*
 Loom frame Distaff handle and heald sticks

TABLE V

DYE PLANTS AND DYE ACCESSORIES

Black:	<i>Cercocarpus parvifolius</i>
<i>Gaultheria humifusa</i>	<i>Ephedra trifurca</i>
<i>Pinus edulis</i>	<i>Helianthus annuus</i>
<i>Rhus trilobata</i>	<i>Juniperus californica utahensis</i>
Blue:	<i>Juniperus monosperma</i>
<i>Delphinium scaposum</i>	<i>Juniperus occidentalis</i>
<i>Medicago sativa</i>	<i>Parmelia molliuscula</i>
<i>Rhus trilobata</i>	<i>Picea</i> sp.
Brownish:	<i>Prunus americana</i>
<i>Alnus incana</i>	<i>Prunus</i> sp.
<i>Alnus tenuifolia</i>	<i>Pyrus malus</i>
<i>Cercocarpus parvifolius</i>	<i>Rumex hymenosepalus</i>
<i>Juglans major</i>	Reddish-brown:
<i>Juniperus californica utahensis</i>	<i>Rumex hymenosepalus</i>
<i>Juniperus monosperma</i>	Tan:
<i>Juniperus occidentalis</i>	<i>Alnus incana</i>
<i>Mirabilis</i> sp.	<i>Alnus tenuifolia</i>
<i>Parmelia molliuscula</i>	<i>Cercocarpus montanus</i>
Cardinal:	<i>Cowania stansburiana</i>
<i>Opuntia polyacantha</i>	<i>Juniperus californica utahensis</i>
<i>Picea pungens</i>	<i>Juniperus monosperma</i>
Golden-brown:	<i>Juniperus occidentalis</i>
<i>Juglans major</i>	<i>Parmelia molliuscula</i>
<i>Juglans regia</i>	<i>Picea</i> sp.
Green or greenish:	Yellow and orange:
<i>Allium</i> sp.	<i>Artemisia</i> sp.
<i>Chrysothamnus nauseosus</i>	<i>Atriplex canescens</i>
<i>graveolens</i>	<i>Berberis fremontii</i>
<i>Iris</i> sp.	<i>Chrysothamnus latisquameus</i>
<i>Juniperus monosperma</i>	<i>Chrysothamnus nauseosus</i>
<i>Medicago sativa</i>	<i>graveolens</i>
<i>Prunus</i> sp.	<i>Chrysothamnus</i> spp.
<i>Rumex hymenosepalus</i>	<i>Chrysothamnus viscidiflorus</i>
"Olive-green":	<i>Dahlia pinnata</i>
<i>Chrysothamnus nauseosus</i>	<i>Helenium hoopesii</i>
<i>graveolens</i>	<i>Hymenoxys metcalfei</i>
Orange: (See yellow)	<i>Juniperus</i> sp.
Pinkish:	<i>Parmelia molliuscula</i>
<i>Heuchera bracteata</i>	<i>Petradoria pumila</i>
<i>Opuntia polyacantha</i>	<i>Phoradendron juniperinum</i>
Purplish:	<i>Prunus persica</i>
<i>Cerasus crenulata</i>	<i>Rumex hymenosepalus</i>
<i>Mirabilis</i> sp.	<i>Tagetes micrantha</i>
<i>Prunus</i> sp.	<i>Thelesperma subnudum</i>
Red or reddish:	Yellow-brown:
<i>Alnus incana</i>	<i>Cowania stansburiana</i>
<i>Alnus tenuifolia</i>	<i>Juniperus</i> sp.
<i>Celtis reticulata</i>	

DYE ACCESSORIES

MORDANTS

Parmelia molliuscula
Picea pungens

Rhus trilobata

TABLE VI
BASKETRY PLANTS

<i>Alnus incana</i>	<i>Juniperus</i> sp.
For dye	For dye
<i>Alnus tenuifolia</i>	<i>Picea</i> sp.
For dye	For dye
<i>Cercocarpus montanus</i>	<i>Pinus edulis</i>
For dye	For waterproofing
<i>Chrysothamnus viscidiflorus</i>	<i>Pinus</i> sp.
For dye	For waterproofing
<i>Ephedra trifurca</i>	<i>Quercus</i> sp.
For dye	For temporary carrying baskets
<i>Juniperus californica utahensis</i>	<i>Rhus trilobata</i>
For dye	For construction of baskets, water bottles, and for dye
<i>Juniperus monosperma</i>	<i>Salix</i> sp.
For design and dye	For carrying baskets and water bottles
<i>Juniperus occidentalis</i>	<i>Yucca</i> sp.
For dye	For pitch, basket bottoms, and baskets

TABLE VII
FORAGE AND BROWSE PLANTS

<i>Amaranthus blitoides</i>	<i>Eurotia lanata</i>
<i>Artemisia filifolia</i>	<i>Juniperus monosperma</i>
<i>Atriplex canescens</i>	<i>Juniperus</i> sp.
<i>Atriplex confertifolia</i>	<i>Medicago sativa</i>
<i>Atriplex expansa</i>	<i>Oxytropis</i> sp.
<i>Avena sativa</i>	<i>Portulaca retusa</i>
<i>Bouteloua</i> spp.	<i>Sarcobatus vermiculatus</i>
<i>Ceanothus fendleri</i>	<i>Sisymbrium officinale</i>
<i>Cercocarpus montanus</i>	<i>Sophora sericea</i>
<i>Dithyrea wislizeni</i>	<i>Yucca</i> sp.

TABLE VIII
GAMING PLANTS

<i>Betula fontinalis</i>	<i>Quercus pungens</i>
For the pole in the "hoop and pole" game	For the stick attached to the ball in "shooting the yucca" game
<i>Cowania stansburiana</i>	<i>Quercus</i> sp.
To stuff baseballs	For the stick used in "football," for the stick or bat used in "baseball," and for a shinny stick
<i>Pinus edulis</i>	<i>Yucca elata</i>
For the club used in the moccasin game, and the stick used in "football"	For the counting sticks in the moccasin game
<i>Pinus</i> sp.	<i>Yucca glauca</i>
For the ball used in shinny	For the counting sticks used in the moccasin game
<i>Populus</i> sp.	<i>Yucca</i> sp.
For the club used in the moccasin game, and the dice used in the "crossed stick" game	For the game of "shooting the yucca," for "ring-toss," and for the counting sticks used in the moccasin game

TABLE IX
BEVERAGE PLANTS

<i>Coffea arabica</i>	<i>Thelesperma gracile</i>
<i>Ephedra torreyana</i>	<i>Thelesperma longipes</i>
<i>Phoradendron juniperinum</i>	<i>Zea mays</i>
<i>Thea sinensis</i>	

TABLE X
MISCELLANEOUS PLANT USES

<i>Actinella richardsoni</i>	<i>Gossypium</i> sp.
As chewing gum	For fabrics and lampwicks
<i>Agave utahensis</i>	<i>Gutierrezia sarothrae</i>
As fiber	For tying to corners of hoops used in unraveling ceremonial objects, and for prayerstick depository
<i>Amelanchier prunifolia</i>	<i>Helenium hoopesii</i>
To drive the evil spirit of the bear from the body	For chewing gum
<i>Artemisia filifolia</i>	<i>Juncus</i> sp.
As a toilet paper substitute	For smoothing bows (?)
<i>Artemisia frigida</i>	<i>Juniperus monosperma</i>
As a toilet paper substitute	For luck and as design for basket rim
<i>Artemisia</i> sp.	<i>Juniperus scopulorum</i>
For practice wands, and for tying to corners of hoops used in unraveling ceremonial objects	As a talisman
<i>Artemisia tridentata</i>	<i>Juniperus</i> sp.
To rid body of undesirable things	For tinder, clothing, necklaces, anklets, wristlets, bracelets, sandals, curtains, and blankets
<i>Artemisia trifida</i>	<i>Lagenaria vulgaris</i>
As a cork	For drinking vessels
<i>Aster spinosus</i>	<i>Lupinus brevicaulis</i>
For chewing gum	As a remedy for sterility
<i>Bouteloua hirsuta</i>	<i>Lycium pallidum</i>
For tying to corners of hoops used in unraveling ceremonial objects	For sacrifice
<i>Chenopodium</i> sp.	<i>Mentzelia multiflora</i>
As a spread to keep insects from biting	For spraying on offerings and prayersticks
<i>Cowania stansburiana</i>	<i>Monarda punctata</i>
For pillow and cradle board stuffing	For its odor
<i>Datura meteloides</i>	<i>Muhlenbergia cuspidata</i>
Seeds perhaps eaten ceremonially	For brooms and brushes, roofing, bedding, leggings, shoes, and blankets
<i>Dipsacus sylvestris</i>	<i>Muhlenbergia pungens</i>
For carding wool	For brooms and brushes
<i>Eupatorium purpureum</i>	<i>Muhlenbergia</i> spp.
For arrow poison antidote	For brooms and brushes
<i>Gilia longiflora</i>	
To make the Navajo "bark" at the squaw dance	

- Opuntia polyacantha*
For glue and poison
- Parthenocissus vitacea*
For ramada roofing
- Phoradendron* sp.
For protection
- Phragmites communis*
For first people to ascend into this world
- Picea* sp.
As a beater
- Pinus edulis*
As a salve, for chewing gum, for waterproofing, for mourning, for necklaces, bracelets, anklets, and wristlets
- Pinus* sp.
For summer shelter coverings, and for waterproofing
- Polyporus* sp.
For drinking vessels
- Populus* sp.
For tinder
- Populus wislizeni*
For chewing gum
- Quercus* sp.
For blessing a new hogan, and acorns as medicine containers
- Radicula obtusa*
For tying to corners of hoops used in unraveling ceremonial objects
- Rhus trilobata*
For "bugaboos" and the stick to which the arrowpoint is fastened
- Ricinus communis*
As protection from spirit of the bear
- Salix* sp.
As a water bottle support
- Sanvitalia aberti*
To produce increased perspiration
- Senecio douglasii*
As brooms to brush the spines from cactus fruit, and for good voice at Night Chant
- Spirogyra* sp.
To drive the evil spirit of the bear from the body
- Thelesperma gracile*
Said to be good for the teeth
- Vitis arizonica*
For the cross on the courtship basket
- Xanthium canadense*
To remove excess perspiration
- Yucca baccata*
For soap and jelly
- Yucca elata*
As soap and scourges
- Yucca glauca*
For soap and ceremonial baths
- Yucca* spp.
For uses see *Yucca* spp. in text
- Zea mays*
For cigarette papers, leather beaters, punks, thatching, and food wrappings
- Zea mays rugosa*
For lining baking pits

TABLE XI
SUMMARY OF PLANT FAMILIES, WITH NUMBER OF
GENERA AND SPECIES OF EACH

	Family		Order		Unidentified		Order		Family		Unidentified
	Genera	Species	Genera	Species			Genera	Species	Genera	Species	
Division I Thallophyta											
Class I Algae											
Sub-class I Chlorophyceae											
Order I Conjugales			1	1							
Family 1 Zygnemaceae	1	1									
Class II Fungi											
Sub-class II Basidiomycetes											
Order II Ustilaginales			1	1							
Family 2 Ustilaginaceae	1	1									
Order III Hymenomycetales			2	2							1
Family 3 Agaricaceae	1	1									
Family 4 Polyporaceae	1	1									
Class III Lichenes											
Order IV Ascolichenales			2	2							6
Family 5 Usneaceae	1	1									
Family 6 Parmeliaceae	1	1									
Division II Pteridophyta											
Class IV Filicinae											
Order V Filicales			1	1							
Family 7 Polypodiaceae	1	1									
Division III Spermatophyta											
Sub-division I Gymnospermae											
Class V Coniferae											
Order VI Coniferales			5	19							
Family 8 Pinaceae	4	16									
Family 9 Gnetaceae	1	3									
Sub-division II Angiospermae											
Class VI Monocotyledonae											
Order VII Pandanales			1	1							
Family 10 Typhaceae	1	1									
Order VIII Najadales			1	1							
Family 11 Alismaceae	1	1									
Order IX Graminales			22	28	12						
Family 12 Gramineae	21	27									
Family 13 Cyperaceae	1	1									
Order X Palmales			1	1							
Family 14 Palmaceae	1	1									
Order XI Arales			1	1							
Family 15 Lemnaceae	1	1									
Order XII Liliales			8	21							2
Family 16 Juncaceae	1	1									
Family 17 Liliaceae	4	16									
Family 18 Amaryllidaceae	1	1									
Family 19 Iridaceae	2	3									
Class VII Dicotyledonae											
Order XIII Piperales			1	1							
Family 20 Piperaceae	1	1									
Order XIV Salicales			2	11							
Family 21 Salicaceae	2	11									
Order XV Juglandales			1	2							
Family 22 Juglandaceae	1	2									
Order XVI Fagales			4	9							
Family 23 Betulaceae	3	4									
Family 24 Fagaceae	1	5									
Order XVII Urticales			4	4							
Family 25 Ulmaceae	1	1									
Family 26 Moraceae	2	2									
Family 27 Urticaceae	1	1									
Order XVIII Santalales			2	3							
Family 28 Loranthaceae	1	2									
Family 29 Santalaceae	1	1									
Order XIX Polygonales			2	9							
Family 30 Polygonaceae	2	9									
Order XX Chenopodiales			11	29							
Family 31 Chenopodiaceae	7	18									
Family 32 Amaranthaceae	1	4									
Family 33 Nyctaginaceae	3	7									
Order XXI Caryophyllales								4	6		
Family 34 Portulacaceae	1	2									
Family 35 Caryophyllaceae	3	4									
Order XXII Ranunculales								5	8		
Family 36 Ranunculaceae	4	6									
Family 37 Berberidaceae	1	2									
Order XXIII Papaverales								15	27		
Family 38 Fumariaceae	1	1									
Family 39 Cruciferae	13	23									1
Family 40 Capparidaceae	1	3									
Order XXIV Rosales								39	70		
Family 41 Saxifragaceae	5	6									
Family 42 Rosaceae	11	21									
Family 43 Leguminosae	23	43									6
Order XXV Geraniales								8	11		
Family 44 Geraniaceae	2	2									
Family 45 Linaceae	1	2									
Family 46 Zygophyllaceae	1	1									
Family 47 Rutaceae	1	2									
Family 48 Euphorbiaceae	3	4									
Order XXVI Sapindales								2	4		
Family 49 Anacardiaceae	1	2									
Family 50 Aceraceae	1	2									
Order XXVII Rhamnales								3	4		
Family 51 Rhamnaceae	1	1									
Family 52 Vitaceae	2	3									
Order XXVIII Malvales								3	5		
Family 53 Malvaceae	3	5									
Order XXIX Violales								4	8		
Family 54 Ternstroemiaceae	1	1									
Family 55 Tamaricaceae	1	1									
Family 56 Violaceae	1	2									
Family 57 Loasaceae	1	4									
Order XXX Opuntiales								5	21		
Family 58 Cactaceae	5	21									
Order XXXI Myrtales								3	13		
Family 59 Punicaceae	1	1									
Family 60 Onagraceae	3	13									
Order XXXII Umbellales								8	12		
Family 61 Umbelliferae	8	12									2
Order XXXIII Ericales								1	1		
Family 62 Ericaceae	1	1									
Order XXXIV Gentianales								7	13		
Family 63 Oleaceae	3	3									
Family 64 Gentianaceae	2	5									
Family 65 Asclepiadaceae	2	5									
Order XXXV Polemoniales								39	69		
Family 66 Convulvaceae	3	4									
Family 67 Polemoniaceae	2	4									
Family 68 Hydrophyllaceae	1	2									
Family 69 Boraginaceae	4	8									
Family 70 Verbenaceae	1	3									
Family 71 Labiatae	8	11									
Family 72 Solanaceae	7	19									
Family 73 Scrophulariaceae	5	16									
Family 74 Orobanchaceae	1	2									
Order XXXVI Plantaginales								1	1		
Family 75 Plantaginaceae	1	1									
Order XXXVII Rubiales								4	4		
Family 76 Rubiaceae	1	1									
Family 77 Caprifoliaceae	2	2									
Family 78 Dipsacaceae	1	1									
Order XXXVIII Campanulales								44	97		
Family 79 Cucurbitaceae	4	15									
Family 80 Campanulaceae	1	1									
Family 81 Lobeliaceae	1	1									
Family 82 Compositae	33	75									2

SUMMARY

	Orders	Families	Genera	Species	Unidentified
Thallophyta	4	6	6	6	
Pteridophyta	1	1	1	1	
Spermatophyta					
Gymnospermae	1	2	5	19	
Angiospermae		10	34	53	12
Monocotyledonae	6				
Dicotyledonae	26	63	223	443	12
TOTALS	38	82	269	522	24

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- Litchii', 45
 Lizpeeyitsoł, 49
 Lók'aa', 26
 Lók'aa'tshoh, 24

 Ma'jina'ooltjil'azee', 56, 57
 Ma'ji pilij xaltchin, 92
 Ma'jitáa', 54, 68, 85
 Ma'jite'il, 88
 Ma'jit'ée'iih, 45, 59
 Ma'jitjaa'peelte'iih, 92

 Naa'asts'qosi yil tjaa'ih, 58
 Naaacte'ii', 94
 Na'actjé'ii'azee', 46
 Na'actjé'ii'táa', 60
 Na'actjé'ii'táa'lipahíkíih, 49, 83
 Na'ajqoc, 40
 Naak'yicpijiih, 92
 Naalaníh, 27
 Naalte'ih'azee', 60
 Naalte'ih'izii', 60
 Náa'itshoh, 75
 Náa'nootqóziih, 50, 67
 Naa'oi, 58, 59
 Naa'olínimaazíkiih, 58
 Naa'olí peexekot, 58
 Naa'olí yil t'aa'ih, 56, 83
 Naapjihtshoh, 92
 Naaskaatiíh, 45
 Na'ast'é'ii'táa', 60
 Naatáa', 27
 Naatáa'aitxas'áih, 29
 Naatáa'ast'pinkíih, 29
 Naatáa'astshiiCa', 29
 Naatáa'astzáan, 30
 Naatáa'cjiin, 29
 Naatáa'khaz, 29
 Naatáa'lkai, 29
 Naatáa'lkii, 29
 Naatáa'lpáih, 29
 Naatáa'itshoh, 29
 Naatáa'neectjahíitshoh, 30
 Naatáa'nootqóziih, 29
 Naatáa'pik'a', 29
 Naatáa'pikhétxal, 29
 Naatáa'pilatxah, 29
 Naatáa'pizool, 29
 Naatáa'pitshiiin, 29
 Naatáa'pizool, 29
 Naatáa'sit'éh, 29
 Naatáa'st'éh, 29
 Naatáa'tc'il, 29
 Naatáa'teeltchócih, 30
 Naatáa'toot'ijikíih, 29
 Naatáa'tshoh, 29
 Naat'eejfhlikai, 85
 Naat'jin, 55
 Naatshis'áan pintistchii', 23
 Naaxóoyaaíh, 70
 Naayizíh, 79
 Naayizíhliitshóih, 79
 Naayizíhliitshóih pik'óo', 79
 Naayizíhlpáih, 78
 Naayizíhltchii', 78
 Naayizíhnxyeest'áih, 78
 Naayizíh pitxa'itshóih, 78

 Naayizíht'é'iih, 78
 Naayizíhts'ée'iih, 78
 Naaztxáan, 56
 Naaztxán, 56
 Na'iiitjiih, 16
 Nákyeeyfíliih, 92
 Nákyeetxyjiih, 92
 Nákyeeyihíih, 92
 Námasiih, 75
 Námasiitshoh, 75
 Námasiitshohlíkhánikíih, 70
 Nánsé', 94
 Nantchaat'azee', 50
 Nátiznneezih, 83
 Na'tjicooc, 92
 Na'tjicoocih, 92
 Nat'oohtjiih, 75
 Nat'oohtlitchiiin, 76
 Nat'oohtlitzíkiih, 75
 Nat'oohtwaa'ih, 58
 Nat'oohtxii'taalíh, 75
 Nat'oonltchiiin, 76
 Naxast'é'ii'táa', 49
 Neecte'ii', 94
 Ne'ectjaa' yil khee'éh, 87
 Ne'etshah'azee', 88
 Nicté'ii pináa', 21
 Nii'ii'niit, 82
 Nii'ii'niitshahíkíih, 90
 Nii'ii'niitshoh, 82
 Nii'ii'niitshóoz, 89
 Ni'pikháa'itshoh, 75
 Ni'pikháa'ntshaakíih, 42
 Ni'pikháa'tée'ntshaakíih, 42
 Ni'pístjah, 55
 Ni'ts'qosiíh, 57
 Ni'ts'qosiitshoh, 57
 Nj'xatláat, 16
 Ni'xazées, 16
 Nooséel, 94
 Nootah, 37
 Ntáste'jin, 78
 Nteeckyic, 94
 Nteeskai, 34
 Nteestjiiin, 34
 Ntictchíiyaa pé'ejoo', 30
 Ntictchíiyaaatl'oh, 30
 Ntíiciliipáih, 37
 Ntíiciliimitchinih, 90
 Ntíiciliimitchiniitshoh, 87
 Ntíiciliitshoh, 74, 87
 Ntíiciliits'óoz, 87
 Ntiik'qa', 62
 Ntilkhal, 79
 Ntischií', 23
 Ntistchii', 23
 Ntiti'itih, 26
 Ntootchii', 92
 Ntootlóih, 34
 Ntxyeelníyiziíh, 37
 Ntxyeel pit'aa' lánikíih, 37

 'Ostshe', 50

 Peeck'anitshoh, 78
 Peeck'anítshoh, 78
 Peecte'ah, 16

 Pé'ejoo', 26
 Pé'ejóocaaíih, 30
 Pé'e'ooltshóih pee'iik'hóh, 80
 Pehetshíitshoh pit'aa', 92
 Pé'e'ootchití pee'iik'hóh, 76, 80
 Pexetl'óol, 94
 Pexetshiiin, 94
 Pjih il tjaa'ih, 69, 77
 Pjih pitáa', 62
 Pi'il, 21, 95
 Pji'nát'oooh, 45, 75
 Pjitáa', 62
 Pji yil tee'ih, 75
 Pji yil tjaa'ih, 77
 Pjiih, 95
 Píkáan, 95
 Píkháct'óoj, 95
 Píkhákíih, 95
 Pík'óo', 95
 Píla'astla'ih, 47, 62
 Pílakáanah píniecte'ii', 55
 Píla'stla'iih, 68
 Pílastshii', 95
 Pílatxa'atoot'ij, 70
 Pílatxah, 95
 Pílatxah'alkaakíih, 95
 Pílatxah'altchii, 95
 Pílatxah'attshohíkíih, 95
 Pílatxahtoot'ijikíih, 95
 Pílisáanah, 55
 Pílisáanah pítshee' xólóníh, 55
 Pílna'at'ohiih, 42
 Pílxaaite'iih, 85
 Pináa', 95
 Pinest'á, 94, 95
 Pisntootchii', 42
 Pisntootchii'pi'áatiíh, 42
 Pistxaxiste'il, 55
 Pit'aa', 95
 Pit'aa' naspas pexetshiiin, 56
 Pítaa'tiyah, 95
 Pítcho', 37, 39
 Pitjeeh, 21, 94, 95
 Pítl'óol, 95
 Píts'áooz'á, 95
 Pítsiin, 95
 Pítxát'ahíh, 95
 Píxa'oot'e'it, 33
 Pízit, 95

 S—see also C
 Silatshoh, 92
 Sool, 62
 Sooltite'ijiih, 61

 Táa', 27
 Taa'akhazlíkháníh, 27
 Táa'átchaan, 16
 Tá'acjih'ait'áaikíih, 92
 Ta'acáliih, 55
 Ta'acáliits'óoz, 56
 Ta'ak'óoj pitjaa'ntxyeelíh, 43
 Ta'ak'óoj sizínih, 43
 Tá'ak'óojteenínih, 43
 Táa't'aa', 29
 Taa'tshaa', 42
 Tahiet'e'il, 30

- Ts'aalpáih, 28
 Ts'ah, 81
 Ts'ahtchil, 81
 Ts'ahtc'il, 63
 Tshá'aszi'ntxyeelih, 32
 Tshá'aszi' pitee'ih, 32
 Tshá'aszi'ts'óoz, 33
 Tsháaxalts'aa', 49
 Tshé'ejiih, 81
 Tshé'eskiizih, 52
 Tshé'estaazih, 53
 Tshé'estaazih pexetl'óol pikhaaz, 53
 Tshé'est'isiih, 52
 Tshé'ezee', 86, 93
 Tshé'óaanntc'i'ih, 88
 Tshék'ihnaa'atc'ijiih, 72, 76
 Tshelikhan'ih, 93
 Tshelkhyéxaltchin, 45, 93
 Tshés'natáa', 86
 Tshé'st'eih, 28
 Tshétáa' pé'ejoo', 31
 Tshétáa'sikhaat, 52
 Tshétc'oc'azee', 50
 Tshétetéeh, 46
 Tshétitéeh, 46
 Tshétláat, 16, 17
 Tshéts'aa', 93
 Tshétshohk'ji', 52, 78
 Tshétxahtipé pite'il, 66
 Tshéyaaxatxaa', 49
 Tshéyaaxatxaa'lipáhiikih, 50
 Tshii'cán'tc'i'ih, 47, 70
 Tshin, 94, 95
 Tshinixceestjii', 94
 Tshin pqahtláat, 17
 Tshin pizes, 16
 Tshifitl'izih, 51, 52
 Tshinyaatchetc'il, 48
 Tshítitáa', 71
 Tshjyaatl'oh, 27
 Tshjyaatl'ohteeih, 44
- Ts'istisiih, 93
 Tsiyanlchi, 93
 Txaahnqak'áh, 28
 Txáa'iiltchóci'ih, 55, 56
 Txaajiintchiin, 48, 72
 Txaa'niiikatit'in, 28
 Txá'iiltchóciits'óoz, 57
 Txakháa'peej, 24
 Txakháa'taxikha', 49
 Txálagwooc, 34
 Txalkháa'sikhaat, 47
 Txaitl'aahtc'oh, 31
 Txaitl'aa'péec, 49
 Txa'niits'éhiits'óoz, 56
 Txatit'ji', 24
 Txátitjin, 95
 Txatit'ji'tooti'ij, 47
 Txatit'ji'tooti'ij'alts'iisih, 79
 Txátláat, 16
 Txátlit, 31
 Txo'iic'f'ih, 44
 Txóltchiin, 63, 73
 Txoo'khaa', 82
 Txootji'xwiit'zoh, 74, 93
 Txótláat, 16
 Txyeel, 24
 Txyeel pit'áa' lánfikih, 31
 Tzilóqá'í pitáa, 29
 Tzilí pilackaan, 59
 Tziínát'oooh, 75
 Tziínát'oohts'óoz, 47
- Waa', 50, 51
 Wolitchii' pikah, 93
 Wolitchii'táa', 42
 Woots'in'azee', 89
 Woots'in'azee', 52
- Xaacte'éetáa', 74
 Xaacte'éé yiltshiih, 49
 Xa'aitshéti'ih, 39
 Xack'áan, 31, 32, 41
- Xalkyic, 95
 Xaitchints'ósih, 31
 Xanfikaih, 28
 Xaspit'áa', 48
 Xastxiin pitshiyéel, 57
 Xatchfitini'ih'azee', 93
 Xaza'aleeh, 67
 Xaza'alee'tshoh, 67
 Xazée'iilwó'iih, 27
 Xazéei il t'áa'ih, 25
 Xazéel'tshee'éh, 79
 Xazéitsho'azee', 46
 Xootch'a', 45
 Xwooc, 64, 65
 Xwoc'atinii'oo'iih, 65
 Xwock'ineecp'ijiih, 65
 Xwoclipáhih, 65
 Xwoclitshoih, 65
 Xwoanánehzahni'ih, 65
 Xwoctxyeelí, 65
 Xwoctxyellipáhiikih, 65
 Xwocpilt'f'ih, 88
 Xwocpilt'f'ih'k'ih, 88
 Xwoctstáhih, 64
 Xwoctc'f'ii'tshoh, 66
 Xwoctch'f'iits'óoz, 66
 Xwocteeltxqohiih, 65
 Xwoctik'oo'iih, 65
 Xwoctineespini'ih, 64
 Xwoctitshahiih, 64, 66
 Xwoctitshahiitshoh, 65
 Xwoctshoh, 65
 Xwoct's'óoz, 65
- Yáxaltshóih, 93
 Yé'ii pitshá'aszi', 33, 34
 Yiiltc'oj'azee', 57
 Yiitjiih, 78
- Zaaxwockiih, 63, 90
 Zee'iilgwó'ih, 25

Scientific Index ¹

- Abies*
douglasii, 23
mucronata, 23
Abronia
 cycloptera, 46
 fragrans, 46
 sp., 46
ACERCEAE, 61
Acer
diffusum, 61
glabrum, 61
negundo, 11, 61
tripartitum, 61
Achillea
lanulosa, 79
millefolium
lanulosa, 73, 79
Actinea richardsoni, 80
Actinella
richardsoni, 79, 80
richardsoni
floribunda, 80
scaposa, 80
Adelia neomexicana, 68
Adenostegia
kingii, 76
ramosa, 76
wrightii, 76
Aegilops hystrix, 27
AGARICACEAE, 16
Agaricus sp., 16
Agastache urticifolia, 72
Agave utahensis, 33, 37
Agrostis cryptandra, 27
ALGAE, 16
ALISMACEAE, 24
Allionia comata, 46
Allium
bisceptrum, 32
cepa, 31
cernuum, 31
deserticola, 31, 50
geyeri, 31
palmeri, 32
recurvatum, 31
reticulatum
deserticola, 31
sativum, 32
 sp., 32
Alnus
incana, 11, 39
virescens, 39
tenuifolia, 11, 20, 24, 39
AMARANTHACEAE, 45
Amaranthus, 9
albus, 45
blitoides, 45, 46
graecizans, 45, 82
palmeri, 46
retroflexus, 46
AMARYLLIDACEAE, 37
Amelanchier
alnifolia, 11, 52
prunifolia, 11, 16, 52
Amorpha
microphyllus, 55
nana, 55
Ampelopsis
quinquefolia, 62
vitacea, 62
Amygdalus persica, 54
ANACARDIACEAE, 60
Anantheris decumbens, 69
ANGIOSPERMAE, 24
Anisolotus wrightii, 56
Antirrhinum linaria, 77
Aphyllon
fasciculatum, 77
multiflorum, 77
Aplopappus lanuginosus, 37, 52, 80
Arabis
communis, 48, 80
holboellii, 48
retrofracta, 48
retrofracta, 48
Arachis hypogaea, 55
Aragallus lambertii, 57
ARALES, 31
Arenaria aculeata, 47
Aristida
adscensionis, 24
oligantha, 24
Armeniaca vulgaris, 54
Aronia alnifolia, 52
Artemisia, 21, 82
filifolia, 81
franserioides, 80, 81
frigida, 81
ludoviciana, 81
spp., 11, 81, 84
tridentata, 47, 80, 81
trifida, 82
trifida, 81, 82, 86
tripartita, 82
wrightii, 82
Arundo
donax, 24, 25
phragmites, 26
ASCLEPIADACEAE, 69
Asclepias
hallii, 69
speciosa, 69
spp., 69
verticillata, 37, 69
Asclepiodora decumbens, 69, 80
ASCOLICHENALES, 16
Aster
canescens, 37, 82
exscapus, 89
integrifolius, 83
multiflorus, 83
 sp., 80, 82
spinosus, 83
Astragalus
allochrous, 55
canadensis
mortoni, 56
geyeri, 56
matthewsii, 56
mortoni, 56, 80
 sp., 55
thompsonae, 56
triflorus, 56
Atriplex
argentea, 43
canescens, 43
confertifolia, 43
expansa, 43
 sp., 43
Avena sativa, 25
Bambusa sp., 25
Bartonia
multiflora, 63
nuda, 63
pumila, 64
BASIDIOMYCETES, 16
Batatas
batatas, 70
edulis, 70
Batidaea arizonica, 55
Batis vermiculata, 44
Bellis integrifolia, 83
BERBERIDACEAE, 48
Berberis
aquifolium, 48
fremontii, 48
repens, 48
Beta vulgaris, 43
BETULACEAE, 39
Betula
fontinalis, 39
occidentalis, 39
utahensis, 39
Bidens
bipinnata, 83
gracilis, 89
 sp., 83
Bigelovia
douglasii, 84
pumila, 84
graveolens, 83
albicaulis, 83
latisquamea, 83
greenii, 83
vaseyi, 84
BORAGINACEAE, 71
Bouteloua
gracilis, 19, 25
hirsuta, 19, 25, 81, 86

1. For convenience of the printer, the genera and valid species appearing in boldface type in the text, appear in roman type in the index, the synonyms appearing in italics.

- hirta*, 25
 spp., 25
Brassica
campestris, 48
 oleracea
 botrytis, 49
 capitata, 49
 rapa, 49
Brickellia grandiflora petiolaris, 83
Bromus ciliatus, 25
CACTACEAE, 64
Calligonum canescens, 43
Calochortus
 aureus, 32
 luteus, 32
 nuttallii, 32
 sp., 11, 32
Camellia thea, 63
CAMPANULACEAE, 79
CAMPANULALES, 79
Campanula, 11
 uniflora, 79
Cantua longiflora, 70
Capnoides montanum, 48
CAPPARIDACEAE, 50
CAPRIFOLIACEAE, 78
Capsicum frutescens, 73
Carduus
 lanceolatus, 85
 neomexicanus, 85
 ochrocentrus, 85
Carnegiea gigantea, 64
Carpinus
 americana, 40
 caroliniana, 40
Carum carui, 67
CARYOPHYLLACEAE, 47
CARYOPHYLLALES, 47
Castilleja, 76 ftm.
Castilleja
 affinis, 76
 minor, 76
 angustifolia, 76
 integra, 76
 lineata, 76
 minor, 45, 76
 parviflora, 76
Castilleja, 76 ftm.
Ceanothus fendleri, 62
Cedrus spp., 17
Celtis
 mississippiensis
 reticulata, 41
 reticulata, 41
Cenchrus tribuloides, 25
Cerastium arvense, 47, 70
Cerasus
 crenulata, 52
 demissa, 54
Ceratonia chilensis, 58
Cercis occidentalis, 56
Cercocarpus
 montanus, 20, 26, 39, 53
 parvifolius, 53
Cereus
 aggregatus, 64
 coccineus, 64
 conoideus, 64
 giganteus, 64
 phoenicicus, 64
 roemeri, 64
Chamaenerion
 angustifolium, 66
 spicatum, 66
Cheilanthes
 feei, 17
 gracilis, 17
 lanuginosus, 17
Cheiranthus asper, 49
CHENOPODIACEAE, 43
CHENOPODIALES, 43
Chenopodium
 album, 43
 leptophyllum, 44
 cornutum, 44
 leptophyllum, 44
 spp., 44, 45
CHLOROPHYCEAE, 16
Chondrosium gracile, 25
Chrysocoma
 graveolens, 84
 nauseosus, 83
Chrysothamnus
 douglasii, 84
 graveolens, 84
 greeni, 83
 latisquameus, 83
 nauseosus
 albicaulis, 45, 83
 graveolens, 83
 pumilus, 84
 spp., 11, 19, 83
 vaseyi, 80, 84
 viscidiflorus, 44, 84
 pumilus, 84
Cirsium
 lanceolatum, 84
 neomexicanum, 74, 85
 ochrocentrum, 80, 85
 spp., 85
Citrullus
 citrullus, 78
 vulgaris, 28, 78
Citrus
 aurantium
 sinensis, 60
 limonia, 59
 limonium, 60
 sinensis, 60
Clematis ligusticifolia, 47
Cleome
 gigantea, 51
 integrifolia, 50
 pinnata, 50
 pungens, 51
 serrulata, 9, 50, 59
 sonorae, 51
 spinosa, 51
Cnicus
 neomexicanus, 85
 ochrocentrus, 85
Coffea arabica, 78
Cogswellia orientalis, 68
Coleosanthus petiolaris, 83
Comandra pallida, 42
COMPOSITAE, 11, 79
 Unidentified, 90
CONIFERAE, 17
CONIFERALES, 17
CONJUGALES, 16
CONVOLULACEAE, 70
Convolvulus arvensis, 70
Cordylanthus
 kingii, 76
 ramosus, 76
 wrightii, 76
Corydalis
 aurea
 occidentalis, 48
 montana, 48
Cowania
 mexicana, 53
 stansburiana, 53, 94, 95
Crinitaria viscidiflora, 84
Cristaria coccinea, 62
Croton texensis, 60
CRUCIFERAE, 48
 Unidentified, 50
Cryptantha crassisejala, 71
Cryptanthus, 71 ftm.
Cucumis
 citrullus, 78
 melo, 28, 78
 cantalupensis, 78
CUCURBITACEAE, 78
Cucurbita
 foetidissima, 79
 maxima, 79
 pepo, 79
 condensa, 79
 perennis, 79
 siceraria, 79
 spp., 28, 29, 75, 78
Cuscuta
 spp., 70
 umbellata, 70
Cymopterus
 alpinus, 67
 fendleri, 67
 glomeratus, 51, 67
 montanus, 68
 purpureus, 67
CYPERACEAE, 81
Dahlia pinnata, 85
Datura
 meteloides, 74
 sp., 74
 stramonium, 74
Daucus
 carota, 67
 pusillus, 67
Delphinium
 bicolor, 47
 menziesii, 47
 nelsonii, 47
 scaposa, 28, 47
DICOTYLEDONAE, 37

- Diotis lanata*, 44
 DIPSACACEAE, 78
Dipsacus sylvestris, 78
Dithyrea wislizeni, 49
Draba montana, 49
Dracocephalum parviflorum, 72
Dugaldea hoopesii, 87

Echinocereus, 11
 aggregatus, 64
 coccineus, 64
 conoideus, 64
 roemeri, 64
 sp., 64
Echinosperrum
 redowskii, 71
 occidentalis, 71
Ephedra
 torreyana, 24
 trifurca, 24
 viridis, 24
Epilobium
 adenocaulon, 66, 80
 angustifolium, 66
 coloratum, 66
 organifolium, 66
 paniculatum
 adenocaulon, 66
 epicatum, 66
 ERICACEAE, 68
 ERICALES, 68
Erigeron, 11
 divergens, 85
 flagellaris, 85
 spp., 85
Eriocoma
 cuspidata, 26
 hymenoides, 26
Eriogonum
 alatum, 42, 57, 67, 80
 fasciculatum, 42
 jamesii, 42, 45
 microthecum, 42
 orthocladon, 42
 racemosum, 42, 80
 rotundifolium, 42
 sp., 42
Eritrichum crassisepala, 71
Erodium cicutarium, 59
Erysimum
 asperum, 49, 80
 officinale, 50
Erythremia grandiflora, 88
Euehroma angustifolia, 76
Eupatorium
 occidentale, 70, 85
 purpureum, 85
 EUPHORBIACEAE, 60
Euphorbia
 montana, 60
 pringlei, 60
Eurotia lanata, 18, 44, 82

Faba vulgaris, 58, 59
 FAGACEAE, 40
 FAGALES, 39
Fendlera rupicola, 51

Ferula multifida, 67
Ficus carica, 41
 FILICALES, 17
 FILICINEAE, 17
Forestiera neomexicana, 26, 67, 68
Fragaria, 11
 bracteata, 53
Frasera
 radiata, 69
 sp., 69
 speciosa, 69
Fraxinus cuspidata, 68
 FUMARIACEAE, 48
 FUNGI, 16

Gaillardia pinnatifida, 86
Gaultheria humifusa, 68
Gaura parviflora, 66, 80
 GENTIANACEAE, 69
 GENTIANALES, 68
Gentiana
 affinis, 69
 sp., 69
 GERANIACEAE, 59
 GERANIALES, 59
Geranium
 cicutarium, 59
 incisum, 59
Gilia
 aggregata
 attenuata, 70
 attenuata, 70
 longiflora, 45, 70, 82
Gleditsia triacanthos, 56
Glycyrrhiza
 glutinosa, 56
 lepidota, 56
Gnaphalium
 chilense, 80, 86
 sprengelii, 86
 GNETACEAE, 24
Gossypium sp., 80, 62
 GRAMINALES, 24
 GRAMINEAE, 24
 Unidentified, 30
Gratiola virginiana, 76
Gutierrezia
 diversifolia, 86
 uthamiae, 86
 linearis, 86
 longifolia, 86
 sarothrae, 19, 22, 26, 81, 82, 86
 tenuis, 86
Gymnolomia multiflora, 86
 GYMNOSPERMAE, 17

Hedeoma
 dentata
 nana, 72
 drummondii, 72
 nana, 72, 83
Hedera quinquefolia, 62
Helenium hoopesii, 87
Helianthus
 annuus, 11, 87
 nuttallii, 87
 sp., 87

Helioeris multiflora, 86
Hendecandras texensis, 60
Heuchera bracteata, 52
Hilaria jamesii, 25
Hordeum jubatum, 25, 73
Hosackia
 microphylla, 55
 nana, 55
 wrightii, 56
Humulus
 lupulus
 neomexicanus, 41
 neomezicanus, 41
 HYDROPHYLLACEAE, 71
 HYMENOMYCETALES, 18
Hymenopappus
 filifolius, 80, 87
 nudatus, 88
Hymenoxys
 floribunda, 80
 metcalfei, 88
 richardsoni
 floribunda, 80

Ipomoea batatas, 70
 IRIDACEAE, 37
Iris
 missouriensis, 37
 spp., 37

 JUGLANDACEAE, 39
 JUGLANDALES, 39
Juglans
 major, 11, 39
 regia, 39
 repurestris
 major, 39
 JUNCACEAE, 31
Juncus sp., 31
Juniperus
 californica
 utahensis, 18, 39
 communis, 19
 monosperma, 11, 19, 20
 occidentalis, 19, 20, 23, 27, 39
 monosperma, 19
 pachyphloea, 20
 scopulorum, 20, 26, 73
 spp., 17, 22, 28, 34, 35, 37, 39,
 53, 58, 68, 81, 94, 95
 utahensis, 18
 virginiana, 20, 23

Kentrophyta montana, 56
Krynitzkia
 crassisepala, 71
 fulvocanescens, 72
 glomerata, 72

 LABIATAE, 72
Lactuca scariola, 88
Lagenaria
 leucantha, 79
 siceraria, 79
 vulgaris, 35, 79

- Lappula
 occidentalis, 71
 redowskii, 71
 occidentalis, 71
 Lathyrus
 decaphyllus, 56
 polymorphus, 56
 LEGUMINOSAE, 55
 Unidentified, 59
 LEMNACEAE, 31
 Lemna minor, 31
 Lepidium montanum, 49
Leptoglottis microphylla, 58
 Leptotaenia
 dissecta
 multifida, 45, 67
 multifida, 67
 Lesquerella
 alpina, 49, 80
 fendleri, 49
 stenophylla, 49
 LICHENES, 16
 LILIACEAE, 31
 LILIALES, 31
 LINACEAE, 59
 Linaria
 linaria, 77
 vulgaris, 77
 Linum
 lewisii, 59
 rigidum, 59
 Lithophragma tenella, 52, 70
 Lithospermum
 angustifolium, 57, 67, 71
 canescens, 71, 80
 incisum, 71, 80
 linearifolium, 71
 multiflorum, 71
 LOASACEAE, 63
 LOBELIACEAE, 79
 Lobelia
 cardinalis, 79
 splendens, 79
 Lomatium orientale, 68
 Lonicera japonica, 76
Lophanthus urticifolius, 72
 LORANTHACEAE, 41
 Lotus wrightii, 56
 Lupinus
 brevicaulis, 56
 lyallii, 57
 sp., 56
 Lycium pallidum, 74
 Lycopersicon
 esculentum
 commune, 74
 vulgare, 74
 lycopersicon, 74
 Lygodesmia
 grandiflora, 88
 rostrata, 45, 88

 Machaeranthera alta, 88
 Matus
 communis, 55
 sylvestris, 55
 MALVACEAE, 62

 MALVALES, 62
 Malvastrum coccineum, 62, 80
 Mammillaria, 11
 sp., 64
 Marrubium vulgare, 73, 83
 Medicago sativa, 57, 58
 Melilotus alba, 57
 Menodora scabra, 68
 Mentha
 arvensis
 glabrata, 73, 83
 canadensis
 glabrata, 73
 sp., 73
 Mentzelia
 albicaulis, 63
 multiflora, 63, 80
 nuda, 63
 pumila, 64, 80
 Mirabilis
 multiflora, 46
 oxybaphoides, 45, 46, 82
 sp., 45, 46
 Monarda
 fistulosa, 73
 menthaefolia, 73
 nuttallii, 73
 pectinata, 73, 83
 punctata, 70, 73
 MONOCOTYLEDONAE, 24
 MORACEAE, 41
Morongia uncinata, 58
 Muhlenbergia
 cuspidata, 25, 36
 pungens, 26
 spp., 25
 MYRTALES, 66

 NAJADALES, 24
Nasturtium
 alpinum, 49
 obtusum, 50
 alpinum, 49
Negundo
 aceroides, 62
 negundo, 62
 Neomammillaria sp., 64
 Nicotiana
 attenuata, 75
 palmeri, 75
 spp., 26, 28, 74
 tabacum, 75
Norta altissima, 50
 NYCTAGINACEAE, 46

Obione confertifolia, 43
Ochocentrus, 85
Odostemon
 fremontii, 48
 repens, 48
 Oenothera
 breviflora, 66
 caespitosa, 66
 marginata, 66, 80
 grandiflora, 67
 hookeri, 67, 80
 marginata, 66
 pinnatifolia, 67, 80
 sp., 66
 tanacetifolia, 67
 OLEACEAE, 68
 ONAGRACEAE, 66
 Opuntia, 11
 arborescens, 65
 camanchica, 65
 missouriensis, 65
 polyacantha, 65
 rutila, 65
 spinosior, 65
 spp., 64
 whipplei
 spinosior, 65
 OPUNTIALES, 64
 Oreocarya
 fulvocanescens, 72
 glomerata, 72
 OROBANCHACEAE, 77
 Orobanche
 fasciculata, 77
 multiflora, 77
 Oryza sativa, 26
 Oryzopsis
 cuspidata, 26
 hymenoides, 26
Oxybaphus nyctagineus pilosus, 46
 Oxytropis
 lambertii, 45, 57
 sp., 45, 57

 PALMACEAE, 31
 PALMALES, 31
 PANDANALES, 24
Panicum capillare, 26
 PAPAVERALES, 48
 PARMELIACEAE, 16
Parmelia molliuscula, 16, 39, 84
Parthenocissus vitacea, 62
Pectis angustifolia, 88
 Penstemon
 ambiguus, 77, 80
 azureus, 77
 glaber, 77
 heterophyllus
 azureus, 77
 laricifolius, 77, 80
 sp., 77
 torreyi, 73, 77
Penstemon, 77 ftn.
Peritonia arevellerum, 93
Peritoma
 serrulatum, 50
 sonorae, 51
Persica vulgaris, 54
 Petalostemon
 candidus, 57, 70
 candidum, 57
Petradoria pumila, 89
 Phacelia
 glandulosa, 71
 integrifolia
 palmeri, 71
 palmeri, 71
 Phaseolus
 limensis, 58
 vulgaris, 28, 58, 75

- Phellopterus montanus, 32, 67, 68
 Philadelphus microphyllus, 52
 Phlox
 caespitosa, 70
 douglasii, 71
 caespitosa, 70
 Phoenix dactylifera, 31
 Phoradendron
 juniperinum, 42
 juniperum, 42
 ligatum, 42
 sp., 41, 87
 Phragmites
 andina, 27
 communis, 26, 61, 87
 phragmites, 26
 Physalis
 lanceolata
 laevigata, 75
 longifolia, 75
 Physaria
 newberryi, 49
 sp., 49, 87
 Picea
 engelmanni, 20
 pungens, 20, 65
 spp., 11, 21, 39, 54, 81
 PINACEAE, 17
 Pinus
 edulis, 11, 18, 21, 23, 37, 40, 58, 68, 84
 flexilis, 11, 23
 ponderosa, 11, 23
 spp., 20, 21, 23, 38, 58, 68, 73
 PIPERACEAE, 37
 PIPERALES, 37
 Piper nigrum, 37
 Pisum sativum, 58
 PLANTAGINACEAE, 77
 PLANTAGINALES, 77
 Plantago
 gnaphaloides, 77
 patagonica
 gnaphaloides, 77
 purshii, 77
 Pleuraphis jamesii, 25
 Poa
 andina, 27
 arida, 27
 POLEMONIACEAE, 70
 POLEMONIALES, 70
 POLYGONACEAE, 42
 POLYGONALES, 42
 POLYPODIACEAE, 17
 POLYPORACEAE, 16
 Polyporus sp., 16
 Populus
 angulata, 37
 angustifolia, 37
 aurea, 38
 fremontii, 38
 nigra
 italica, 38
 spp., 37, 82
 tremuloides, 11, 38
 wislizeni, 11, 38
 PORTULACACEAE, 47
 Portulaca
 oleracea, 47
 retusa, 47
 Potentilla
 gracilis, 53
 pennsylvanica
 strigosa, 54
 strigosa, 53, 80
 sp., 53
 Prosopis
 chilensis, 58
 glandulosa, 58
 juliflora, 58
 glandulosa, 58
 Prunus
 americana, 54
 armeniaca, 54
 demissa, 11, 27, 38, 54, 68, 73
 domestica, 54
 persica, 54
 spp., 54
 virginiana
 demissa, 54
 Pseudocymopterus montanus, 68
 Pseudotsuga
 douglasii, 23
 mucronata, 23
 taxifolia, 11, 21, 23, 36, 38
 Psoralea tenuiflora, 58, 82
 PTERIDOPHYTA, 17
 PUNICACEAE, 66
 Punica granatum, 66
 Purshia tridentata, 54
 Pyrus
 communis, 55
 malus, 55
 Quamoclidon
 multiflorum, 46
 ozybaphoides, 46
 Quercus
 douglasii
 gambelii, 41
 gambelii, 41
 pungens, 35, 41, 54
 spp., 11, 40, 86
 undulata, 41, 73
 brevifolia, 41
 gambelii, 41
 pungens, 41
 Radicula
 alpina, 49
 obtusa, 50, 80, 81
 sp., 49
 RANUNCULACEAE, 47
 RANUNCULALES, 47
 Ranunculus cymbalaria saximon-
 tanus, 48, 76
 Raphanus sativus, 50
 RHAMNACEAE, 62
 RHAMNALES, 62
 Rheum rhaponticum, 43
 Rhus
 aromatica
 trilobata, 60
 canadensis
 trilobata, 60
 radicans, 60
 rydbergii, 60
 toxicodendron, 60
 radicans, 60
 trilobata, 21, 36, 54, 60, 68, 87
 Ribes
 aureum, 52
 inebrians, 52
 Ricinus communis, 60
 Robinia neomexicana, 58
 Rorippa obtusa, 50
 Rosa fendleri, 11, 55
 ROSACEAE, 52
 Unidentified, 55
 ROSALES, 61
 RUBIACEAE, 78
 RUBIALES, 78
 Rubus
 arizonicus, 55
 strigosus, 55
 Rumex
 hymenosepalus, 43, 89
 occidentalis, 43
 RUTACEAE, 59
 Sabina
 monosperma, 19
 occidentalis, 19
 scopulorum, 20
 utahensis, 19
 Saccharum officinarum, 27
 Sagittaria
 arifolia, 24
 cuneata, 24
 SALICACEAE, 37
 SALICALES, 37
 Salix
 babylonica, 38
 exigua, 38
 laevigata, 38, 73
 spp., 11, 22, 38, 86
 Salsola
 kali
 tenuifolia, 44
 tragus, 44
 pestifer, 44
 Salvia lanceolata, 73
 SANTALACEAE, 42
 SANTALALES, 41
 Sanvitalia aberti, 88
 SAPINDALES, 60
 Sarcobatus vermiculatus, 11, 44,
 67, 87
 SAXIFRAGACEAE, 51
 Schmaltzia trilobata, 60
 Schrankia uncinata, 58, 80
 Scirpus
 acutus, 31, 80
 lacustris
 occidentalis, 31
 occidentalis, 31
 SCROPHULARIACEAE, 76
 Senecio douglasii, 45, 88
 Sida malvaeflora, 63
 Sidalcea malvaeflora, 63

- Silene*
douglasii, 47, 82
laciniata, 47
Sisymbrium
altissimum, 50
incisum, 50
officinale, 50, 70
Sisyrinchium mucronatum, 37
Sitanion hystrix, 27
Smyrniolum aureum, 68
SOLANACEAE, 73
Solanum
citruifolium, 75
elaeagnifolium, 37, 75
heterodoxum, 75
jamesii, 75
lycopersicon, 74
triflorum, 75
tuberosum, 75
Solidago, 11
nemoralis, 88
petradoria, 89
pumila, 89
sarothrae, 86
Sonchus
asper, 89
oleraceus
asper, 80, 89
Sophia incisa, 50
Sophora sericea, 58
SPERMATOPHYTA, 17
Sphaeralcea
angustifolia
cuspidata, 63
coccinea, 62
cuspidata, 63
fendleri, 63
lobata, 63
Spinacia oleracea, 46
Spirogyra sp., 16
Sporobolus
cryptandrus, 27
cuspidatus, 25
sp., 30
Stanleya
pinnata, 50, 80
pinnatifida, 50
Stipa hymenoides, 26
Suaeda torreyana, 45
Swertia
radiata, 62, 69, 80
sp., 69, 80
Symphoricarpos
orbiculatus, 11, 78
symphoricarpos, 37
vulgaris, 78
Tagetes micrantha, 89
TAMARICACEAE, 63
Tamarix gallica, 63
Tellima tenella, 52
Teloxys cornuta, 44
TERNSTROEMACEAE, 63
Thalesia fasciculata, 77
Thalictrum, 11
fendleri, 48, 73, 80
THALLOPHYTA, 16
Thaspium montanum, 68
Thea sinensis, 63
Thelesperma
gracile, 89
longipes, 89
subnudum, 89
Thelypodium wrightii, 50
Thlaspi
alpestre, 50, 80
sp., 50
Tigarea tridentata, 55
Townsendia
exscapa, 89
sericea, 89
spp., 89
strigosa, 89
Toxicodendron
radicans, 60
rydbergii, 60
Tribulus terrestris, 59, 82
Trifolium
eriocephalum, 58
involutratum, 58
repens, 58
Triticum
aestivum, 27
sativum, 27
vulgare, 27
TYPHACEAE, 24
Typha latifolia, 24
ULMACEAE, 41
UMBELLALES, 67
UMBELLIFERAE, 67
Unidentified, 68
URTICACEAE, 41
URTICALES, 41
Urtica gracilis, 41
Usnea barbata, 16
USNEACEAE, 16
USTILAGINACEAE, 16
USTILAGINALES, 16
Ustilago zeae, 16
Vaccinium humifusum, 68
Verbena
aubletia, 72
canadensis, 72
drummondii, 72
macdougallii, 72
stricta, 72
VERBENACEAE, 72
Verbesina encelioides exauriculata, 53, 90
Vesicaria
alpina, 49
fendleri, 49
stenophylla, 49
Viburnum sp., 78
Vicia
americana, 59
faba, 59
Viguiera multiflora, 87
Vilfa cuspidata, 25
Viola spp., 63, 70
VIOLACEAE, 63
VIOLALES, 63
VITACEAE, 62
Vitis
arizonica, 62
vinifera, 62
Xanthium
canadense, 90
strumarium
canadense, 90
Ximenesia
encelioides, 90
exauriculata, 90
Xymenopappus, 87 ftn.
Yucca
angustifolia, 33
elata, 33
radiosa, 33
baccata, 11, 32, 33, 61
elata, 11, 33
glauca, 33
radiosa, 33
spp., 17, 18, 21, 26, 30, 33, 34,
37, 40, 61, 65
whipplei, 34
Zea
everta, 30
mays, 24, 30, 34, 36, 44, 66, 76
everta, 30
rugosa, 30
Zinnia grandiflora, 37, 90
Zizia aurea, 68, 74
Zygadenus venenosus, 37
ZYGNEMACEAE, 16
ZYGOPHYLLACEAE, 59

General Index

- Acacia, Three-thorned, 56
 Alamosa, Colorado, 10
 Albaricouque, 54
 Alder, 24, 39
 Black, 20, 39
 Hoary, 39
 Mountain, 39
 River, 39
 Speckled, 39
 Alders, 11
 Alegría, 46
 Alexanders, Golden, 68, 74
 Alfalfa, Cultivated, 57
 Alfilaria, 59
 Algarroba, 58
 Aloe, American, 37
 Altamisa, 81
 Alum Root, 52
 Amaranth
 Family, 45
 Green, 46
 Palmer, 46
 Prostrate, 45
 White, 45
 Amaryllis Family, 37
 Amole, 32, 34
 Añil, 87
 Antelope Horns, 69, 80
 Apple
 Cultivated, 55
 Indian, 74
 Love, 74
 Ooze, 74
 Thorn, 74
 Apricot
 Common, 54
 Cultivated, 54
 Arrowhead, 24
 Arrowwood, 78
 Ash, Flowering, 68
 Asparagus
 Large-flowered Wild, 88
 Wild, 45, 88
 Large-flowered, 88
 Aspen, 11
 American, 38
 Quaking, 38
 Rocky Mountain, 38
 Aster, 37, 80, 82, 89
 Hairy, 82
 Many-flowered, 83
 Purple, 88
 Spiny, 33
 Tansy, 88
 Viscid, 88
 Ball, Bitter, 89
 Balsam, Indian, 67
 Bamboo, Cultivated, 25
 Banana, 34
 Barberry
 Creeping, 48
 Desert, 48
 Family, 48
 Barley, Foxtail, 25
 Bayonet, Spanish, 32, 34
 Bean, 28
 Broad, 59
 Caper, 59
 Castor, 60
 Common, 58
 Cultivated, 58
 Kidney, 58
 Lima, 58
 Beans, 11, 75
 Beard Lichen, 16
 Family, 16
 Beard, Old Man's, 16
 Beard Tongue, 77
 Azure, 77
 Scarlet, 77
 Torrey, 77
 Beaverwood, 41
 Beebalm
 Mintleaf, 73
 Pony, 73
 Beech
 Blue, 40
 Family, 40
 Water, 40
 Beef, 9
 Bee Plant, Blue Colorado, 50
 Beet
 Common, 43
 Garden, 43
 Bee Weed
 Rocky Mountain, 3, 50, 59
 Sonora, 51
 Beggar's Ticks, 83
 Slender, 89
 Bellflower
 Family, 79
 One-flowered, 79
 Bergamot, Wild, 73
 Berro, 49, 50
 Berry
 Lemonade, 60
 Squaw, 60
 Bighorn, 45
 Bindweed, 70
 Field, 70
 Birch
 Black, 40
 Canyon, 40
 Cherry, 40
 Family, 39
 Rocky Mountain, 39
 Streamside, 39
 Sweet, 40
 Water, 40
 Bird Beak, King, 76
 Bird's Beak, 76
 Wright, 76
 Bird's Foot, Small-leaved, 55
 Bitter Ball, 89
 Bladderpod, 80
 Double, 49
 Newberry Double, 49
 Bladder Pod
 Alpine, 49
 Fendler, 49
 Blanca Peak, 10
 Blanket Flower, 86
 Blazing Star, 63, 80
 Desert, 63
 Little, 64
 White-stem, 63
 Blite, Sea, 45
 Bluebell, One-flowered, 79
 Bluegrass, Plains, 27
 Boneset, 85
 Borage Family, 71
 Box Elder, 11, 62
 Boxthorn, 74
 Bracket Fungi Family, 16
 Bracket Fungus, 16
 Bramble, Arizona, 55
 Brand, Donald D., Dr., 5
 Bread Root, 58, 82
 Brickellia, Large-flowered, 83
 Brier, Sensitive, 58, 80
 Broccoli, 49
 Brook Silk, 16
 Broom Rape, 77
 Family, 77
 Many-flowered, 77
 Brownweed, 86
 Brush
 Antelope, 55
 Bitter, 55
 Buck, 53, 55
 Buckthorn Family, 62
 Buckwheat
 California, 42
 Family, 42
 James, 42, 45
 Wild, 42, 80
 Bulrush, 80
 Western, 31
 Burdock, 90
 Burr Nut, 59
 Bush
 Golden, 84
 Indigo, 55
 Polecat, 60
 Quinine, 53
 Skunk, 60
 Squaw, 60
 Butter-and-eggs, 77
 Buttercup, 76
 Rocky Mountain, 48
 Trailing, 48
 Butterfly Weed, 66, 80
 Buttonbur, 90
 Cabbage, 49
 Indian, 33
 Cacahuete, 55
 Cacti, 11, 13
 "Cactus," 35

- Cactus
 Ball, 64
 Barrel, 64
 Crimson, 64
 Candelabrum, 64
 Cane, 64, 65
 Family, 64
 Chandelier, 65
 Fishhook, 64
 Giant, 64
 Hedgehog, 64
 Crimson, 64
 Many-spined, 65
 Pincushion, 64
 Red, 65
 Thorny, 66
 Tree, 65
 Café, 78
 Calabacin, 78
 Calabasa, 78
 Calabash, 78, 79
 Caltrop, 59, 82
 Family, 59
 Camas, Poison, 37
 Camass, Meadow Death, 37
 Campion
 Douglas, 47
 Mexican, 47
 Cañaigra, 43
 Cañaigre, 43
 Cañatillo, 24
 Cancer Root, 77
 Many-flowered, 77
 Candelabra, 65
 Candle, Our Lord's, 34
 Candles, Coyote, 64
 Candytuft
 Alpine, 50
 Holboell, 48
 Wild, 48, 50
 Cane, Sugar, 27
 Cantaloupe, 78
 Cañutillo, 24
 Canyon
 Chaco, National Monument, 9
 Marble, 10
 Caper
 Bean, 59
 Family, 50
 Capulín, 54
 Caraway Seed, 67
 Cardinal Flower, 79
 Carpet Weed, Mountain, 60
 Carrizo, 26
 Carrot
 Cultivated, 67
 Eastern Wild, 68
 Family, 67
 Wild, 67
 Cashew Family, 60
 Castetter, Edward F., Dr., 5
 Castor Bean, 60
 Castor-oil Plant, 60
 Catchfly, 82
 Douglas, 47
 Mexican, 47
 Cat's Claw, 58
 Cattail, 24
 Family, 24
 Flag, 24
 Cauliflower, 49
 Ceanothus, Fendler, 62
 Cebolla, 31
 Cedar, 17, 19
 Red, 20
 Red Mountain, 20
 Rocky Mountain, 20
 Salt, 63
 True, 17
 Cedro, 20
 Celery
 False Mountain, 58
 Fendler Wild, 67
 Purple Wild, 67
 Wild, 82, 50, 67
 Mountain, 67, 68
 Century Plant, 37
 Cereus, Hedgehog, Crimson, 64
 Chaco Canyon National Monument, 5, 9
 Chamisa, 83, 84
 Chamiso hediondo, 81
 Checkerberry, 68
 Cherry, 27
 Ground, 75
 Wild, 54
 Chicharo, 58
 Chickweed
 Field, 47
 Mouse Ear, 47
 Chico, 44
 Chili, 73
 Chinch Weed, 88
 Chokecherry, 11, 38, 68, 73
 Western, 54
 Cholla, 64
 Cane, 66
 Cinquefoil, 53
 Hairy, 54
 Slender, 53
 Ciruela, 54
 Clammy Weed, 50
 Claw Cat's, 58
 Cleome, 50
 Cliff Rose (Cliffrose), 53, 94, 95
 Clotbur, 90
 Clover
 Common White, 58
 Cow, 58
 Pin, 59
 Prairie, 57, 70
 Stinking, 51
 White Sweet, 57
 Woolly-headed, 58
 Cocklebur, Common, 90
 Coffee, 9, 28
 Arabian, 78
 Common, 78
 Col, 49
 Colorado River, 10
 Columbo, American, 69
 Coralberry, 78
 Corn, 9, 11, 24, 27, 28, 29, 30, 36,
 44, 66, 75
 Chipmunk, 19
 Indian, 27, 29
 Pop, 30
 Smut, 16
 Sugar, 30
 Sweet, 30
 Cornmeal, 9, 28
 Corydalis, Mountain, 48
 Cota, 89
 Cotton, 80, 62
 Cultivated, 62
 Wild, 62
 Cottonwood, 11, 37, 82, 94
 Black, 37
 Common, 37
 Mountain, 37
 Narrow-leaved, 37
 Valley, 38
 Coulter and Nelson, 14
 Coyaje, 86
 Coyote Candles, 64
 Cranberry Tree, 78
 Crane's Bill, 59
 Creeper
 Thicket, 62
 Virginia, 62
 Cress
 Water, 49, 50, 80, 81
 Alpine, 49
 Croton, Texas, 60
 Crowfoot
 Desert, 48
 Family, 47
 Crownbeard, 90
 Cudweed, 80
 Sprengel, 86
 Cup
 Painted, 76
 Scarlet, 76
 Currant
 Buffalo, 52
 Flowering, 52
 Golden, 52
 Indian, 78
 Missouri, 52
 Wild, 52
 Dagger, Spanish, 32
 Dahlia, Cultivated, 85
 Daisy, Western Wild, 83
 Date
 Palm, 31
 Wild, 32
 Datil, 32
 Datura, Sacred, 74
 Deer's Tongue, 69
 Deerweed
 Small-leaved, 55
 Wright, 56
 Devil Weed, Mexican, 83
 Ditchbur, 90
 Dock, 43
 Western, 43
 Dodder, 70
 Dodgeweed, 81, 86
 Dragon's Head, Small-flowered, 72
 Dropseed, Sand, 27
 Duck's Meat, 31

- Duckweed, 31
Family, 31
- Elder
Box, 11, 62
Marsh, 78
- Elk, 45
- Elm
Bastard, 41
False, 41
Family, 41
- Engler and Prantl, 14
- Entraña, 65
- Eriogonum, James, 42
- Estafiata, 81
- Estafiate, 81
- Euphorbia
Mountain, 60
Pringle, 60
- Evening Primrose, 66
Family, 66
Hooker, 67
Large-flowered, 67
Pinnate-leaved, 67
Tansy-leaved, 67
White, 66
- Everlasting, Sprengel, 86
- Family
Amaranth, 45
Amaryllis, 37
Barberry, 48
Beard Lichen, 16
Beech, 40
Bellflower, 79
Birch, 39
Borage, 71
Bracket Fungi, 16
Broom Rape, 77
Buckthorn, 62
Buckwheat, 42
Cactus, 64
Caltrop, 59
Caper, 50
Carrot, 67
Cashew, 60
Cattail, 24
Crowfoot, 47
Duckweed, 31
Elm, 41
Evening Primrose, 66
Fern, 17
Figwort, 76
Flax, 59
Four-o'clock, 46
Fumitory, 48
Fungi
Bracket, 16
Gill, 16
Gentian, 69
Geranium, 59
Gill Fungi, 16
Gourd, 78
Grape, 62
Grass, 24
Ground Lichen, 16
Heath, 68
Honeysuckle, 78
- Family (cont.)
Iris, 37
Jointfir, 24
Lichen, Ground, 16
Lily, 31
Loasa, 68
Lobelia, 79
Madder, 78
Mallow, 62
Maple, 61
Milkweed, 69
Mint, 72
Mistletoe, 41
Morning-glory, 70
Mulberry, 41
Mustard, 48
Nettle, 41
Nightshade, 73
Olive, 68
Palm, 31
Pea, 55
Pepper, 37
Phlox, 70
Pigweed, 43
Pine, 17
Pink, 47
Plantain, 77
Water, 24
Pomegranate, 66
Pond Scum, 16
Purslane, 47
Rose, 52
Rue, 59
Rush, 31
Sandalwood, 42
Saxifrage, 51
Sedge, 31
Smut, 16
Spurge, 60
Sunflower, 79
Tamarix, 63
Tea, 63
Teasel, 78
Verbena, 72
Violet, 63
Walnut, 39
Waterleaf, 71
Water Plantain, 24
Willow, 37
- Fat
Sheep, 43
Winter, 44, 82
- Fern
Family, 17
Féé Lip, 17
- Fig
Common, 41
Indian, 65
- Figwort Family, 76
- Filaree, 59
- Fingers
Five, 53, 80
Hairy Five, 54
Slender Five, 53
- Fir, 38
Douglas, 11, 21, 23, 36
Joint, 24
- Red, 23
Yellow, 23
- Fireweed, 66
Narrow-leaf, 66
- Fisher, Reginald, Dr., 5
- Five Fingers, 53, 80
Hairy, 54
Slender, 53
- Flag
Broad, 37
Cattail, 24
Western, 81
Western Blue, 87
- Flagstaff, Arizona, 10
- Flat Top, 42
- Flax
Blue, 59
Family, 59
Lewis, 59
Prairie, 59
Yellow, 59
- Fleabane, 85
Spreading, 85
- Fleur de Lis, 37
- Flour, 9
- Flower
Blanket, 86
Cardinal, 79
de Luce, 37
Star, 62
Stink, 50
- Fogweed, 43
- Forget-me-not
Thick-sepaled, 71
White, 71
- Four-o'clock, 46, 82
Family, 46
Many-flowered, 46
Wild, 45
- Foxtail, 27
- Frijol, 58
- Fumitory Family, 48
- Fungi
Bracket, Family, 16
Gill, Family, 16
- Fungus, Bracket, 16
- Gamot, Mountain, 68
- Garlic, 32
- Gentian, 69
Closed, 69
Family, 69
Green, 69, 80
- Geranium
Family, 59
Wild, 59
- Gilia, 45, 82
Blue-flowered, 70
Scarlet, 70
- Gill Fungi Family, 16
- Glasswort, Starry, 47
- Goat Meat, 9
- Golden Bush, 84
Sticky-flowered, 84
White-stemmed, 83

- Goldenrod, 88
 False, 84
 Sticky-flowered, 84
 Rayless, 80
 Vasey, 84
 Rock, 89
 Sticky-flowered False, 84
 Vasey Rayless, 84
 Golondrina, 60
 Goober, 55
 Gooseberry, Wild, 52
 Goosefoot, 44
 Fine-leaf, 44
 Frémont, 44
 White, 43
 Goosegrass, Slender, 53
 Gourd, 35
 Bottle, 79
 Dipper, 79
 Family, 78
 Wild, 79
 Grama
 Black, 25
 Blue, 25
 Grass, 19, 25, 81, 82, 86
 Hairy, 25
 Grants, New Mexico, 10
 Grape
 Arizona Wild, 62
 Canyon, 62
 Cultivated, 62
 Family, 62
 Oregon, 48
 Grapes, False, 62
 Grass, 94
 Bare, 34
 "Bear," 33
 Blue-eyed, 37
 Cane, 26
 Chipmunk-tail, 20
 Dogtown, 24
 Dropseed, 25
 Family, 24
 Foxtail, 25, 73
 Fringed Brome, 25
 Galleta, 25
 Grama, 19, 25, 81, 82, 86
 Meadow, 27
 Mesquite, 25
 Mountain, 26, 36
 Panic, 26
 Pepper, 49
 Pin, 59
 Poverty, 27
 Prairie Three-awned, 24
 Reed, 26
 Rush, 24, 25, 27
 Sacatón, 27
 Sand Bunch, 26
 Seeds, 9
 Sixweeks Three-awned, 24
 Squirrel-tail, 25
 Sweet, 72
 Whitlow, 49
 Wire, 27
 Witch, 26
- Grasses
 Grama, 25
 Seed-dropping, 13
 "Greasewood," 55
 Greasewood, 11, 45, 67, 87
 Black, 44
 Greens, 9
 Gromwell
 Many-flowered, 71
 Narrow-leaf, 71
 Stoneseed, 71, 80
 Grosella, 52
 Ground Lichen, 16, 39
 Family, 16
 Ground Nut, 55
 Ground Pea, 55
 Groundsel, 45
 Douglas, 88
 Guaco, 50, 51
 Guisante, 58
 Haba, 58
 Hackberry, Western, 41
 Harebell, One-flowered, 79
 Harrington, John P., Dr., 5
 Heath Family, 68
 Heron's Bill, 59
 Hewett, Edgar L., Dr., 5
 Higo, 41
 Hollygrape, Frémont, 48
 Hollyhock, Wild, 63
 Hominy, 28
 Honeysuckle, 76
 Family, 78
 Hongo, 16
 Hop, Wild, 41
 Horehound, Common, 73
 Hornbeam, American, 40
 Horn, Powder, 47
 Horsemint, 70, 73
 Hyssop
 Giant, 72
 Hedge, 76
 Nettle-leaf, 72
 Virginia, 76
 Indian Paint, 71
 Indianwheat, Woolly, 78
 Indigo Bush, 55
 Indigo, False, 55
 Iris
 Family, 37
 Western Wild, 37
 Wild, 37
 Ironwood, 40, 68
 Ivy
 American, 62
 Poison, 60
 Jamestown Weed, 74
 Jimson Weed, 74
 Joe-pye Weed, 85
 Jointfir Family, 24
 Judas Tree, 56
 Juneberry, Prune-leaved, 52
 Juniper, 11, 17, 18, 19, 20, 22, 28,
 29, 34, 35, 37, 39, 53, 58, 68, 81,
 87, 94, 95
- Alligator, 20
 Alligator-bark, 20
 Cheery-stone, 19
 Common, 19, 20
 Desert, 19
 One-seeded, 19
 Red, 20, 73
 Mountain, 20
 Rocky Mountain, 20, 26
 Sierra, 19, 20
 Utah, 19
 Virginia, 20
 Western, 19
 Junipers, 13
 Kalispell, 52
 Lace, Queen Anne's, 67
 Lamb's Quarters, 43
 Narrow-leaved, 44
 Lamb's Tail, 44
 La Plata Mountains, 10
 Larkspur, 47
 Nelson, 47
 Two-color, 47
 Lead Plant, 55
 Leather Root, 58
 Lemita, 60
 Lemon
 Cultivated, 60
 Scent, 88
 Lettuce, Prickly, 88
 Lichen, 17
 Beard, 16
 Family, 16
 Ground, 16, 39, 84
 Family, 16
 Stone, 16
 Lichens, Unidentified, 16
 Liquorice, Wild, 56
 Life Medicine, 12
 Lilies, Mariposa, 11
 Lily
 Butterfly, 32
 Family, 31
 Golden
 Butterfly, 32
 Mariposa, 32
 Sego, 32
 Mariposa, 32
 Nuttall
 Butterfly, 32
 Mariposa, 32
 Sego, 32
 Sand, 63
 Sego, 32
 Yellow
 Butterfly, 32
 Mariposa, 32
 Sego, 32
 Limón, 60
 Limoncillo, 88
 Lina, 70
 Liquorice, Wild, 56
 Little Colorado River, 10
 Loasa Family, 63

- Lobelia
 Cardinal, 79
 Family, 79
 Loco Weed (*Locoweed*), 45, 55, 56, 57, 59
 Lambert, 57
 Matthew, 56
 Thompson, 56
 Locust
 Honey, 56
 New Mexican, 58
 Sweet, 56
 Lotus, Wright, 56
 Louse, Beggar's, 67
 Love Vine, 70
 Lucerne, 57
 Lupine, 56
 Lyll, 56
 Short-stem, 56

 Madder Family, 78
 Maguey, 33, 37
 Mahogany, Mountain, 20, 26, 39, 53
 Maid-of-the-Mist, 48
 Maíz, 27
 Maize, 27
 Mallow
 Copper, 63
 False, 63, 80
 Fendler, 63
 Red, 62, 63
 Scarlet, 62
 Family, 62
 Fendler False, 63
 Globe, 63
 Red False, 62, 63
 Scarlet False, 62
 Man, Old, 83
 Manzana, 55
 "Manzanita," 52
 Maple
 Ash-leaved, 62
 Family, 61
 Rocky Mountain, 61
 Marble Canyon, 10
 Marigold
 Bur, 33
 Slender Bur, 89
 Mariposa
 Golden, 32
 Nuttall, 32
 Yellow, 32
 Mariposa Lily, 32
 Golden, 32
 Nuttall, 32
 Yellow, 32
 Mariposa Tulip, 32
 Golden, 32
 Nuttall, 32
 Yellow, 32
 Matchweed, 86
 McKinney, Lewis T., 5
 Meadow Rue, 73, 80
 Fendler 48, 73
 Meat
 Goat, 9
 Rabbit, 11
 Medicine, Life, 12, 79

 Medick, 57
 Melilot, White, 57
 Menodora
 Rough, 63
 Yellow, 63
 Mescal, 37
 Mesquite, 59
 Honey, 48
 Mezcal, 37
 Mezquite, 58
 Milfoil, Common, 79
 Milk
 Goat's, 9
 Sheep's, 9
 Milkweed, 69
 Family, 69
 Hall, 69
 Showy, 69
 Spider, 69
 Verticillate, 69
 Miller, T. Carroll, 5
 Millett, Indian, 9, 26
 Mint, 73
 Family, 72
 Lemon, 73
 Tule, 73
 Mistletoe, 41, 87
 Family, 41
 Juniper, 42
 Monarda, Lemon, 73
 Monument, Chaco Canyon National, 5, 9
 Monuments, Southwestern National, 5
 Mormon Tea, 24
 Green, 24
 Torrey, 24
 Morning-glory
 Family, 70
 Field, 70
 Moss
 Beard, 16
 Water, 16
 Mostaza, 49
 Mount Taylor, 10
 Mountain Mahogany, 20, 26, 39, 53
 Mountains
 La Plata, 10
 Zuñi, 10
 Mouse Ear Chickweed, 47
 Mouse Ear, Field, 47, 70
 Mugwort, Western, 81
 Muhly, 25
 Plains, 25
 Spiny, 26
 Mulberry Family, 41
 Mushroom, 16
 Muskmelon, 23, 78
 Mustard
 Common Yellow, 48
 Family, 48
 Hedge, 50
 Tansy, 50
 Tumble, 50
 Mutton, 9

 Nabo, 49

 Naranja, 60
 Nasturtium, Alpine, 49
 National Monument, Chaco Canyon, 5, 9
 National Monuments, Southwestern, 5
 Needles, Spanish, 83
 Nettle
 Family, 41
 Slender, 41
 Tree, 41
 White Horse, 75
 New Mexico, University of, 5
 Nightshade, 75
 Family, 73
 Silver-leaved, 75
 Three-flowered, 75
 Nogal, 39
 Nopales, 64
 Nut
 Burr, 59
 Earth, 55
 Ground, 55

 Oak, 11, 40, 41, 80
 Blue, 41
 Evergreen, 41
 Gambel, 41
 Holly, 41
 Live, 41
 Poison, 60
 Scrub, 35, 41, 54, 73
 Wavyleaf, 41
 Oaks, 13
 Oat, Cultivated, 25
 Ocher, Yellow, 21
 Old Man, 88
 Old Man's Beard, 16
 Old Navajo Country, 10
 Olive
 Family, 68
 Russian, 68
 Oneberry, 41
 Onion
 Cultivated, 31
 Desert, 31
 Nodding, 31
 Palmer, 32
 Wild, 31, 32, 50
 Orache, 43
 Silver, 43
 Orange
 Cultivated, 60
 Mock, 52
 Osier, 38
 Otter, 24
 Our Lord's Candle, 34
 Owl's Claws, 87

 Paint, Indian, 71
 Paint Brush
 Indian, 45, 76
 Mexican, 76
 Slender-leaf, 76
 Painted Cup, 76
 Palm
 Date, 31
 Family, 31

- Palma Cristi, 60
 Palmilla, 33
 Ancha, 32
 Palo
 Blanco, 38, 41
 Duro, 41, 53
 Papa, 75
 Parsley, Whisk-broom, 68
 Parsnip
 Golden Meadow, 68
 Indian, 67
 Wild, 45, 67
 Pea
 Cultivated, 58
 Everlasting, 56
 Family, 55
 Garden, 58
 Ground, 55
 Peach, Cultivated, 54
 Peak, Blanca, 10
 Peaks, San Francisco, 10
 Peanut, Cultivated, 55
 Pear
 Cultivated, 55
 Prickly, 64
 Pennycress, 80
 Alpine, 50
 Wright, 50
 Pennyroyal
 American, 72
 Drummond, 72
 Mock, 72
 Penstemon, 77, 80
 Azure, 77
 Red, 73, 77
 Torrey, 77
 Pepper
 Commercial, 37
 Family, 37
 Grass, 49
 Red, 73
 Pera, 55
 Phacelia, 71
 Palmer, 71
 Phlox
 Douglas, 71
 Family, 70
 Pink, 70
 "Phlox, Yellow," 49
 Pigweed, 44, 45
 Family, 43
 Frémont, 44
 Rough, 46
 Spreading, 45
 White, 44
 Pine, 20, 21, 23, 33, 58, 68, 73, 86, 95
 Family, 17
 Joint, 24
 Limber, 11, 23
 Nut, 21
 Oregon, 23
 Ponderosa, 11, 23
 Royal, 23
 Western Yellow, 11, 23
 White, 23
 Pines, 16
- Pink
 Douglas Wild, 47
 Family, 47
 Prairie, 88
 Piñon, 11, 18, 21, 22, 23, 37,
 40, 58, 68, 85, 94, 95
 Two-leaf, 21
 Pino Real, 23
 Pinyon, 21
 Pitchforks, Slender, 89
 Plant
 Century, 37
 Lead, 55
 Prickle, 56
 Spider, 50
 Giant, 51
 Spur, 56
 Plantain
 Family, 77
 Pursh, 77
 Water, Family, 24
 Plum
 American, 54
 August, 54
 Cultivated, 54
 European, 54
 Goose, 54
 Hog, 54
 Red, 54
 River, 54
 Thorn, 54
 Wild, 52, 54
 Yellow, 54
 Plume, Prince's, 50, 80
 Pod, Spectacle, 49
 Poison
 Ivy, 60
 Oak, 60
 Polecat Bush, 60
 Pomegranate, 66
 Family, 66
 Pomme
 Blanche, 58
 de Prairie, 58
 Pond Scum, 16
 Family, 16
 Pop Corn, 30
 Poplar
 Frémont, 38
 Lombardy, 38
 Wislizenus, 38
 Poptillo, 24
 Potato
 Cultivated, 75
 Hogs', 37
 James Wild, 75
 Sweet, 70
 Powder Horn, 47
 Prickle Plant, 56
 Primrose, Evening, 66, 80
 Family, 66
 Hooker, 67
 Large-flowered, 67
 Pinnate-leaved, 67
 Tansy-leaved, 67
 White, 66
 Prince's Plume, 50, 80
- Privet
 Swamp, 68
 Wild, 67, 68
 Psoralea, Few-flowered, 58
 Puceoon, 71
 Puff, Sand, 46
 Fragrant, 46
 Pumpkin, 29, 78, 95
 Field, 79
 Pumpkins, 78
 Punche, 75
 Puncture Vine, 59
 Weed, 59
 Punk, 16
 Purslane
 Common, 47
 Family, 47
 Pussley, 47
- Qahwe, 78
 Queen Anne's Lace, 67
 Quellite, 43, 45, 46
- Rábano, 50
 Rabbit Brush (Rabbitbrush), 11, 45, 83
 Broad-scale, 83
 Douglas, 84
 Greene, 83
 Heavy-scented, 84
 Sticky-flowered, 84
 White-stemmed, 83
 Rabbit Bush (Rabbitbush)
 Heavy-scented, 84
 Sticky-flowered, 84
 White-stemmed, 83
 Rabbit Meat, 11
 Rabbit Thorn, 74
 Rabbitweed, 19
 Radish
 Cultivated, 50
 Wild, 50
 Ragwort, Douglas, 88
 Ramsted, 77
 Rape, 48
 Raspberry
 American, 55
 Arizona Red, 55
 Wild Red, 55
 Rattlepod, 55, 56
 Many-colored, 55
 Rattleweed
 Many-colored, 55
 Matthew, 56
 Red Bud, Western, 56
 Red-stem, 59
 Reed, 61, 87
 Cane, 24, 25
 Common, 26
 Giant, 24, 25
 Rhubarb, 43
 Wild, 43
 Ribgrass, Pursh, 78
 Rice
 Cultivated, 26
 Indian, 26
 Mountain, 26
 Rio Grande, 10

- River
 Colorado, 10
 Little Colorado, 10
 San Juan, 10
 Robinson and Fernald, 14
 Rockcress, 79, 80
 Common, 48
 Holboell, 48
 Rocket, Prairie, 49
 Rollingweed, White, 45
 Root
 Alum, 52
 Bread, 58, 82
 Leather, 58
 Rose
 Cliff, 53, 94
 Family, 52
 Fendler, 55
 Wild, 11, 55
 Rosewood, Cliff, 53
 Rubber Plant
 Colorado, 80
 Many-flowered, 80
 Metcalfe, 88
 Narrow-leaf, 79, 80
 South American, 87
 Rue
 Family, 59
 Meadow, 73, 80
 Fendler, 48
 Rush
 Bog, 81
 Family, 31
 Western Club, 31
 Rutabaga, 48
 Rye, Wild, 25, 27
 Sabina, 19
 Sage, 73
 Green, 18
 Lance-leaf, 73
 Sweet, 44
 White, 18, 44
 Winter, 44
 Sagebrush, 11, 47, 81, 84, 86
 Arctic, 81
 Basin, 81
 Big, 81
 Black, 81
 Blue, 81
 Fringed, 81
 Mountain, 81
 Rocky Mountain, 81
 Silver, 81
 Stinking, 81
 Three-lobed, 82
 Three-toothed, 81
 Wright, 82
 Sagebrushes, 80, 81
 Saguaro, 64
 Sahuaro, 64
 Salal, 68
 Sally, Blooming, 66
 Saltbush, 43
 Fourwing, 43
 Spiny, 43
 Saltwort, 44
 Sandalwood Family, 42
 Sandbur, Dune, 25
 Sandía, 78
 Sand Puff, 46
 Fragrant, 46
 Sand Verbena, 46
 Fragrant, 46
 Sandwort, 47
 San Francisco Peaks, 10
 San Juan River, 10
 Savin, Virginia, 20
 Saxifrage Family, 51
 Scale, Shad, 11, 43
 Scareweed, 86
 Scarlet Cup, 76
 School of American Research, 5, 9
 Scorpion Weed, 71
 Scum, Pond, 16
 Family, 16
 Sea Blite, 45
 Sedge Family, 31
 Seepweed, 45
 Senecio, Creek, 88
 Serviceberries, 11
 Serviceberry, 16
 Alder-leaved, 52
 Prune-leaved, 52
 Western, 52
 Shad Blow, 52
 Shad Scale, 11, 43
 Sheepbur, 90
 Sheep Fat, 43
 Sheepweed, 86
 Shoe-strings, 55
 Shrub, High Water, 76
 Silk, Brook, 16
 Silkweed, 87
 Verticillate, 69
 Skeleton Weed, 88
 Skunk Bush, 60
 Skunk Weed, 51
 Skyrocket, 70
 Sloe, 54
 Smithsonian Institution, 5
 Smut
 Corn, 16
 Family, 16
 Snakeroot, White, 85
 Snakeweed, 19, 82, 86
 Sneezeweed, 79
 Orange, 87
 Snowballs, 78
 Snowberry, 11, 78
 Soaproot, 34
 Narrow-leaved, 33
 Soapweed, 32, 34
 Narrow-leaved, 33
 Sophora, Silky, 58
 Sorrel, 43
 Spanish
 Bayonet, 32, 34
 Dagger, 32
 Needles, 83
 Spectacle Pod, 49
 Spider Plant, 50
 Giant, 51
 Spinach, 9, 46
 Spruce, 11, 21, 39, 54, 81, 95
 Colorado Blue, 20, 21, 65
 Douglas, 23
 Engelmann, 20
 False, 23
 Silver, 20
 Spruces, 13
 Spurge
 Family, 60
 Mountain, 60
 Pringle, 60
 Spur Plant, 56
 Squash, 11, 28, 75, 78, 95
 Autumn, 79
 Summer, 79
 Wild, 79
 Winter, 79
 Squaw Berry, 60
 Squaw Bush, 60, 68
 Squaw Weed, Douglas, 88
 Squirreltail, 27
 Stagberry, 78
 Star
 Flower, 52
 Woodland, 52, 70
 Starwort, Hairy, 82
 Stick-leaf, 64
 Stickseed, Western, 71
 Stick-tights, 83
 Stink Flower, 50
 Sonora, 51
 Stinkweed, 50
 Stone Lichen, 16
 Stork's Bill, 59
 Stramonium, 74
 Strawberry, Wood, 53
 Sugarberry, 41
 Sugar Cane, 27
 Sumac, 21, 36, 54, 61, 87
 Aromatic, 60, 61
 Fragrant, 60
 Ill-scented, 60
 Three-leaved, 60
 Three-lobed, 60
 Sunflower, 40, 87
 Coarse, 53
 Common, 87
 Family, 79
 Nuttall, 87
 Slender, 87
 Wild, 87
 Sunflowers, 11
 Syringa, 52
 Tamarisk, 63
 Tamarix Family, 63
 Tare, American, 59
 Tea, 9, 92
 Brigham, 24
 Brigham Young, 24
 Commercial, 63
 Desert, 24
 Family, 63
 Green Mormon, 24
 Mexican, 24
 Mormon, 24
 Navajo, 52, 89

- Tea (cont.)
 New Jersey, 62
 Squaw, 24
 Teamster's, 24
 Torrey Mormon, 24
 Teaberry, 68
 Teasel
 Family, 78
 Wild, 78
 Té de los Navajoses, 89
 Té silvestre, 89
 Thistle, 85
 Bull, 85
 New Mexico, 74, 85
 Plumed, 80, 85
 Prickly Sow, 89
 Russian, 44
 Sow, 80
 Spiny-leaved, 89
 Yellow, 85
 Yellow-spined, 85
 Thorn Apple, 74
 Thorn, Rabbit, 74
 Thoroughwort, 70
 Purple, 85
 Western, 85
 Ticks
 Beggar's, 83
 Slender Beggar's, 89
 Ticksseed, 83
 Toadflax
 Bastard, 42
 Common, 77
 Toadstool, 16
 Tobacco, 26, 28, 59, 75, 92
 Coyote, 75
 Cultivated, 75
 Mountain, 75
 Palmer Wild, 75
 Wild, 74, 75
 Tobaccos, 13
 Tolguacha, 74
 Toloache, 74
 Toluache, 74
 Tomato, 75
 del Campo, 75
 Tomatillo, 74
 Tomato
 Cultivated, 74
 Ground, 75
 James Wild, 75
 Strawberry, 75
 Wild, 75
 James, 75
 Traveler's Joy, 47
 Tree, Judas, 56
 Trefoil, Wright Birdsfoot, 56
 Trigo, 27
 Trompillo, 75
 Trumpet
 Scarlet, 70
 Weed, 85
 Tule
 Common, 81
 Western, 81
- Tulip
 Butterfly, 82
 Golden Butterfly, 32
 Golden Mariposa, 32
 Mariposa, 32
 Nuttall Butterfly, 32
 Nuttall Mariposa, 32
 Yellow Butterfly, 32
 Yellow Mariposa, 32
 Tumbleweed, 44, 82
 White, 45
 Tunas, 64 and ftn.
 Turnip, 49
 Indian, 58
 Turnips, Swedish, 49
 Twinpod, 49
 Newberry, 49
 Umbrella Wort, Hairy, 46
 Uña de Gato, 58
 University of New Mexico, 5
 Uva, 62
 Velas de Coyotes, 64, 65
 Velvet Weed, 66
 Venison, 9, 11
 Verbena
 Canada, 72
 Family, 72
 Fragrant Sand, 46
 Hoary, 72
 Lemon, 72
 MacDougal, 72
 Sand, 46
 Fragrant, 46
 Upright, 72
 Verdolaga, 47
 Vervain
 Canada, 72
 Hoary, 72
 MacDougal, 72
 Upright, 72
 Vetch
 American, 59
 Milk, 80
 Morton Milk, 56
 Vetchling, 56
 Vine
 Love, 70
 Matrimony, 74
 Puncture, 59
 Violet, 63, 70
 Family, 63
 Virginia Creeper, 62
 Virgin's Bower, Western, 47
 Wallflower
 False, 49
 Western, 49, 80
 Wild, 49
 Walnut, 11, 39, 94
 English, 39
 Family, 39
 Native, 39
 Persian, 39
 Water Cress, 49, 50, 80, 81
 Alpine, 49
 Waterleaf, 71
 Family, 71
 Watermelon, 28, 78
 Water Moss, 16
 Waxberry, 78
 Weed
 Butterfly, 66, 80
 Chinch, 88
 Clammy, 50
 Devil, Mexican, 83
 Douglas Squaw, 88
 Jamestown, 74
 Jimson, 74
 Joe-pye, 85
 Loco, 45, 59
 Mexican Devil, 83
 Nigger, 63
 Puncture, 59
 Rattlesnake, 67
 Scorpion, 71
 Skeleton, 88
 Skunk, 51
 Trumpet, 85
 Velvet, 66
 Wheat, Cultivated, 27
 Willow, 11, 22, 38, 39, 86, 94
 Family, 37
 Grey, 38
 Herb, 66, 80
 Great, 66
 Narrow-leaf, 66
 Red, 38, 73
 Sandbar, 38
 Weeping, 38
 Winter Fat, 44, 82
 Wintergreen
 Aromatic, 68
 Creeping, 68
 Wolfberry, 78
 Woodbine, 62
 Woodland Star, 52, 70
 Wormwood
 Silvery, 81
 Three-lobed, 82
 Wright, 82
 Yarrow, 73, 79
 Common, 79
 Yellowweed, 86
 Yerba
 de Chivato, 47
 de la Víbora, 67
 del Negro, 63
 Yucca, 11, 17, 18, 21, 26, 30, 32, 33,
 34, 35, 36, 37, 40, 61, 65
 Broad-leafed, 32
 Mesa, 33
 Mountain, 32
 Narrow-leaved, 33
 Thick-leafed, 32
 Wide-leafed, 32
 Zinnia, 37
 Large-flowered, 90
 Zones
 Transition, 10
 Upper Sonoran, 10
 Zufi Mountains, 10