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ETHNOBOTANY OF THE TEWA INDIANS

BY

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AND

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THE SCHOOL OF AMERICAN ARCHAEOLOGY

Santa Fe, N. Mex, November 1, 1912.

DEAR SIR: I herewith transmit the manuscript and illustrations of a paper entitled "Ethnobotany of the Tewa Indians," by Wilfred W. Robbins, John P. Harrington, and Barbara Freire-Marreco. I am authorized by the managing committee of the School of American Archeology to offer this work for publication by the Bureau of American Ethnology as a part of the results of the cooperative work of our respective institutions during 1910 and 1911.

I am, very truly, yours,

EDGAR L. HEWETT,

Director.

Mr. F. W. HODGE,

Ethnologist-in-Charge,

Bureau of American Ethnology,

Washington, D. C.

LETTER OF SUBMITTAL

SMITHSONIAN INSTITUTION,
BUREAU OF AMERICAN ETHNOLOGY,

November 8, 1912.

SIR: I have the honor to submit a paper on the "Ethnobotany of the Tewa Indians," by Wilfred W. Robbins, John P. Harrington, and Barbara Freire-Marreco, which forms a part of the results of the ethnological and archeological research in the upper Rio Grande Valley of New Mexico, undertaken jointly by the Bureau of American Ethnology and the School of American Archaeology in 1910 and 1911. It is recommended that the paper be published as a bulletin of this bureau.

Very respectfully,

F. W. HODGE,
Ethnologist-in-Charge.

Honorable CHARLES D. WALCOTT,
Secretary, Smithsonian Institution.

PHONETIC KEY

1. Orinasal vowels, pronounced with mouth and nose passages open: α (Eng. *father*, but orinasal), $\alphã$ (French *pas*, but orinasal), o (moderately close *o*, orinasal), u (Eng. *rule*, but orinasal), α (Eng. *man*, but orinasal), e (moderately close *e*, orinasal), i (Eng. *routine*, but orinasal).

2. Oral vowels, pronounced with mouth passage open and nose passage closed by the velum: a (Eng. *father*), o (moderately close *o*), u (Eng. *rule*), e (moderately close *e*), i (Eng. *routine*).

Very short vowels following the glottid (') are written superior. Thus, $k'a'^a$, wild rose. A slight aspiration is heard after a vowel followed by $qw, k, kw, k', s, f, t, t', ts, tf, p, p'$. Thus, $\dot{i}o'tu$, kernel of a nut, written $\dot{i}otu$ in this memoir.

3. Laryngeal consonants: h (Eng. *house*), ' (glottid or glottal clusive, produced by closing and suddenly opening the glottis).

4. Velar consonants: w (Eng. *water*), qw (Span. *juez*; Ger. *ach* labialized), k (unaspirated, Span. *carro*), kw (unaspirated, Span. *cual*), \hat{k} (glottalized), k' (aspirated, Eng. *cookhouse*), g (levis, Span. *abogado*), g (preposively nasal, Eng. *finger*), η (nasal, Eng. *singer*), ηw (nasal labialized, Eng. *Langworthy*; variant of Tewa *w*).

In absolute auslaut and before h and ' , η is somewhat palatal. Before palatal consonants η is assimilated to \tilde{n} or n , before frontal consonants to n , before labial consonants to m .

5. Palatal consonants: j (Ger. *ja*), \tilde{n} (Span. *mañana*).

In the Hano dialect a $t\prime$ or palatal t occurs.

6. Frontal consonants: s (Eng. *sin*), f (Eng. *ship*; f' is the capital of f), t (unaspirated, Span. *te*), \hat{t} (glottalized), t' (aspirated, Eng. *sweathouse*), ts (consonant diphthong, Ger. *zehn*, but not followed by an aspiration), $t\prime$ (consonant diphthong, Eng. *chew*, but not followed by an aspiration), $\hat{t}s$ (glottalized), $\hat{t}\prime$ (glottalized), d (levis \hat{d} , more *r*-like than in Span. *abogado*), d (preposively nasal, Eng. *cinder*), n (nasal, Eng. *now*).

The sound of l occurs in Rio Grande Tewa only in words of foreign origin and in the San Ildefonso word *polamimi*, butterfly; but it is common in Hano Tewa.

7. Labial consonants: p (unaspirated, Span. *padre*), \hat{p} (glottalized), p' (aspirated, Eng. *scalphouse*), b (levis, Span. *abogado*), b (preposively nasal, Eng. *lambent*), m (nasal, Eng. *man*).

ETHNOBOTANY OF THE TEWA INDIANS

By WILFRED W. ROBBINS, JOHN P. HARRINGTON, and BARBARA FREIRE-MARRECO¹

INTRODUCTION

SCOPE OF ETHNOBOTANY

ETHNOBOTANY is virtually a new field of research, a field which, if investigated thoroughly and systematically, will yield results of great value to the ethnologist and incidentally also to the botanist. Ethnobotany is a science, consequently scientific methods of study and investigation must be adopted and adhered to as strictly as in any of the older divisions of scientific work. It is a comparatively easy matter for one to collect plants, to procure their names from the Indians, then to send the plants to a botanist for determination, and ultimately to formulate a list of plants and their accompanying Indian names, with some notes regarding their medicinal and other uses. Ethnobotanical investigation deserves to be taken more seriously: it should yield more information than this; it should strike deeper into the thoughts and life of the people studied. If we are to learn more of primitive peoples, we must attempt to gain from them their conceptions not of a part but of the entire environment. Ethnobotany is a special line of ethnologic investigation, the results of which must receive consideration in our ultimate analysis.

Ethnobotanical research is concerned with several important questions: (a) What are primitive ideas and conceptions of plant life? (b) What are the effects of a given plant environment on the lives, customs, religion, thoughts, and everyday practical affairs of the

¹ The earlier, larger, and more systematic part of this memoir is the work of the two authors first named on the title-page, Mr. Wilfred W. Robbins and Mr. John P. Harrington. Their methods of investigation and collaboration are explained in the Introduction.

When the memoir, in its original scope and form, was in type, it was thought advisable to enlarge it by including notes on some of the economic, industrial, and medicinal uses of the plants, made by the third author, Miss Barbara Freire-Marreco, in the course of work supported by the Research Fellowship fund of Somerville College, Oxford, England, and by the late Miss Mary Ewart's trustees, as well as many additional plant-names. It was thought well also to add, for the sake of comparison, information gained from the Tewa colony settled since the end of the seventeenth century among the Hopi at Hano, Arizona, although the winter season had made it difficult to learn much of the plant environment. Mr. Harrington is not responsible for the form of the Tewa words recorded at Hano, nor Mr. Robbins for the tentative identifications of the plants obtained or described there; Mr. Harrington and Mr. Robbins are alone responsible for the views expressed in pages 1 to 75; and Miss Freire-Marreco for those contained in pages 76 to 118.

people studied ? (c) What use do they make of the plants about them for food, for medicine, for material culture, for ceremonial purposes ? (d) What is the extent of their knowledge of the parts, functions, and activities of plants? (e) Into what categories are plant names and words that deal with plants grouped in the language of the people studied, and what can be learned concerning the working of the folk-mind by the study of these names?

Ethnobotany will become a more important subject when its study has progressed to a point where results can be studied comparatively. The ethnobotany of one tribe should be compared with similar studies of other tribes. And in such comparative work there arises the necessity for a standard in the quality of and in the manner of conducting the several investigations. Conceptions of plant life differ among different peoples: a particular plant here does not react in the same way upon one people as it does upon another; it has a different name and probably a different usage; while different ideas are held concerning it. Furthermore, we encounter different vegetal environments as we pass from tribe to tribe. Attempt should ultimately be made to investigate the causes and extent of these variations.

ETHNOBOTANICAL FIELD WORK

The method of conducting ethnobotanical researches is of considerable importance, and the value of results obtained may be judged in great measure by the methods pursued in obtaining them. A prime necessity is a good native informant; indeed it is better to have several informants, preferably older men or women. The reasons for selecting the older persons as informants are obvious: they have greater knowledge concerning aboriginal things than have younger persons; they are less inclined to regard the work lightly and to attempt to give wrong and misleading answers; they are steadier, and above all they are able to give, as a result of their maturer years and greater experience, more trustworthy information. The writers found a distinct advantage in taking with them into the field several old Indians: time was saved; questions were answered more readily; furthermore, they frequently discussed the point in question among themselves, thus arriving at conclusions and bringing out facts that one individual could not. It is also true that several Indians together usually feel less restraint in answering freely such questions as are asked than would one in the presence of one or more questioners. As a means of checking the accuracy of information obtained it is also well to work with different individuals or groups of individuals separately, and to compare the results. Questions asked should not suggest the answers. Questioning should be systematic, yet so conducted as not to weary or offend the informants. It is well to intersperse the questioning with jokes and light conversation. The Indian language should be used as

largely as possible in asking the questions and in recording the information. The reasons for this are that the Indian words are largely not susceptible of exact translation, and the use of a foreign language is apt to modify and render un-Indian the conceptions of the informants.

In the present work the writers took with them into the field three old Indians, one of whom could speak fairly good English. The services of this individual were of considerable value; it is very desirable that the services of such an informant be enlisted if possible. Although not absolutely essential, it is probably true that the best ethnobotanical work can be done by the close cooperation of a botanist with an ethnologist and linguist experienced in the methods of recording Indian languages, the scientific recording of which is by no means an easy task. With their informants the two should go into the field together. It is essential that investigation be done in the field with growing plant life; showing fragments of plants picked up here and there, or even herbarium specimens, to the informants is far less satisfactory. The botanist will relieve his co-worker of collecting and preserving the plant material; the latter can thus better concentrate his efforts on obtaining the ethnologic information. Furthermore, it is natural that questions of botanical interest will occur to the botanist that would not occur to the linguist. Once in the field, the Indians are shown growing plants and are questioned fully about each, the smaller as well as the larger and more conspicuous forms. The nature of the questions will depend somewhat on the plant. In the present work the questions were framed so as to elicit the following facts about each plant: Indian name; etymology of name; uses of various parts, and methods of preparing them for use; names of the parts of plants, even the most inconspicuous; descriptive terms applied to this or that shape of leaf, kind of bark, stem, etc., and the extension of these terms in describing non-botanical phenomena; native ideas of the relation of the use of the different structures to the plant itself; and the lore connected with the plant.

It is needless to say that field notes should be made complete in the field; it is unsafe to depend on one's memory and attempt to record certain information after reaching camp. It is well not to hasten from plant to plant: the informants should be given abundant time to think over and discuss points among themselves.

It is often of advantage to photograph some of the more striking and important plants, showing their habitat and general appearance. Drawings of plants may be used to supplement photographs. In addition, native representations of plants can often be obtained, notably in the form of designs of pottery, basketry, from glyphs, etc. An attempt should be made to identify these, as they are important in indicating the Indian conception of various plants.

COLLECTION AND PREPARATION OF BOTANICAL SPECIMENS

In any case, even if the plant be well known, specimens should be collected. These, prepared in the manner to be discussed, make valuable specimens for the ethnological museum. In view of the fact that many individuals doing ethnobotanical work may not be familiar with the proper methods of pressing and handling plants, the following suggestions are made rather explicit and detailed. The necessity for this is suggested by the experience of the writers, who have known such collections to consist of a few dried, shriveled, and undeterminable fragments of plants.

A portable plant-press is recommended for use in collecting. The collector will supply himself with sheets of thin, cheap paper (news-papers will serve the purpose), cut to the size of the press; these are used to separate the specimens as collected. The specimens should be large, including, if possible, underground parts, flowers, and fruit. As collected the specimens are temporarily placed between the sheets of paper in the plant-press. Special driers made for pressing plants are highly desirable; these are of soft, felt-like material and are very durable; two hundred will be sufficient for collections of ordinary size. The material collected should either be numbered (the numbers referring to data in the field book) or the related data should be included with each specimen. In addition to the information obtained from the Indians, each plant should bear the following data: locality collected, date collected, name of collector. The specimens brought from the field are immediately put into driers; if not pressed while fresh the plants will lose their color and will mold. Each plant is placed between two sheets of paper and two or more driers. The stack of plants, papers, and driers is weighted down with a heavy stone, and all is kept in a dry place. Driers should be changed at least once every 24 hours; the wet driers are placed in a sunny place to dry; plants should dry within four or five days.

Whenever possible, information about plants should be obtained from the Indian from the growing plant, as he is thus accustomed to see and know it or to gather it for use. It is sometimes important that the plant be examined by the informant in its natural environment, since it has been learned by experience that plants removed from the places in which they grew tend to confuse the informant and are identified by him only with considerable difficulty and uncertainty.

Probably the best way to exhibit ethnobotanical specimens in the museum is in such mounts as the "Riker specimen mounts," by which the material may be displayed in an attractive, instructive, and permanent form. These mounts, made in various sizes, are provided with glass covers; the specimens are arranged on a

ground of raw cotton and held in place by pressure of the glass front. They are particularly useful in that they admit of grouping, under a glass cover in one frame, specimens that are to be associated in the mind of the observer. In each mount should be placed the plant specimen, with portions of products, if any, made from it, and all other material of ethnological interest. This method of exhibiting ethnobotanical specimens is recommended as being the most attractive and instructive, at the same time eliminating the danger of destruction of the exhibited material.

Another method of exhibiting ethnobotanical specimens is to mount them on heavy paper; such paper is specially prepared for the purpose. Each specimen is fastened to a sheet of the mounting paper by narrow strips of gummed paper; gummed Chinese linen paper may be obtained in sheets or in strips cut in varying lengths and widths. A label bearing the data desired is then pasted at one corner of the sheet, when the specimen is ready for exhibition. The content of the label is a matter of some consequence. It should include the scientific name of the plant, the common name, the Indian name with etymology, the locality and the date collected, the name of the collector, and brief mention of special points of interest connected with it.

The ethnologist who is collecting his own material should take pains to collect large specimens with all the parts present if possible in order that the botanist to whom they are sent may readily identify them. The writers have known instances in which plants submitted for classification could not be identified because of insufficient material, or because, if named the designations were followed by question marks. Although primarily an ethnological subject, ethnobotany does not exclude the necessity for accuracy as regards the botanical part of the work.

PREVIOUS ETHNOBOTANICAL STUDIES

Ethnobotany has received attention from a number of ethnologists; and valuable data have been accumulated. It is desirable that this material be assembled, so that the present state of ethnobotany may be better ascertained; and furthermore, that problems and methods of research may be outlined and work in this field be conducted systematically and with a definite purpose in view.

Harshberger¹ in a paper published in 1890 discussed the purposes of ethnobotany and pointed out the importance of the subject in general. He made the interesting suggestion that ethnobotanical gardens, in which should be grown only aboriginal plants, be established in connection with museums. Havard² has written two

¹ Harshberger, J. W., Purposes of Ethno-botany, *Botan. Gazette*, XXI, pp. 146-54, 1896.

² Havard, V., The Food Plants of the North American Indians, *Bull. Torrey Botan. Club*, XXII, no. 3, pp. 93-123, 1895. Drink Plants of the North American Indians, *ibid.*, XXIII, no. 2, pp. 33-46, 1896.

articles giving valuable accounts of the most important food and drink plants of the North American Indians. Barrows¹ has discussed the ethnobotany of the Coahuilla Indians of southern California, including much information on the general ethnology of the tribe. Chamberlin² gives lists of the plant names of the Ute and the Gosiute Indians, including in many instances etymology and uses to which the plants were put. Plants known to have been utilized by the Luiseños of southern California are listed by Sparkman,³ with their Luiseño, botanical, and English names.

Attention is drawn also to the papers by Powers,⁴ Coville,⁵ Fewkes,⁶ Hough,⁷ Matthews,⁸ Stevenson,⁹ and others.

1 Barrows, David Prescott, *The Ethno-botany of the Coahuilla Indians of Southern California*, pp. 1-82, Chicago, 1900.

2 Chamberlin, Ralph V., Some Plant Names of the Ute Indians, *Amer. Anthr.*, n. s., XI, no. 1, 1909. Ethnobotany of the Gosiute Indians, *Memoirs Amer. Anthr. Assoc. II*, pt. 5, pp. 331-405, 1911.

3 Sparkman, Philip Stedman, The Culture of the Luiseño Indians, *Univ. Calif. Pub., Amer. Archeol. and Ethn.*, VIII, pp. 187-234, 1908.

4 Powers, Stephen, Aboriginal Botany, *Proc. Calif. Acad. Sci.*, v, pp. 373-379, 1873-75.

5 Coville, F. V. Plants Used by the Klamath Indians of Oregon, *Contr. U. S. Nat. Herb.*, V, pp. 87-108, 1897.

6 Fewkes, J. Walter, A Contribution to Ethnobotany, *Amer. Anthr.*, IX, no. 1, pp. 14-21, 1896.

7 Hough, Walter, The Hopi in Relation to their Plant Environment, *ibid.*, X, no. 2, pp. 33-44, 1897.

8 Matthews, Washington, Navajo Names for Plants, *Amer. Nat.*, XX, pp. 767-77, 1886.

9 Stevenson, Matilda Coxe, Ethnobotany of the Zuñi Indians, *Thirtieth Ann. Rep., Bureau of American Ethnology*, pp. 31-102, 1915.

TEWA CONCEPTS OF PLANT LIFE

FUNCTIONS OF PLANT PARTS

We speak of the functions of certain plant parts; for example, we say the leaf makes food for the plant, the bark has a protective function, the colored petals of a flower attract insects. What are the Indians' ideas of the functions of the parts of plants? It seems that the majority of their ideas arise directly from their observation of life phenomena; they do not arise as the result of thought and deliberation; there is little evidence of philosophizing or of inquiry into the reasons for the existence of things and conditions. They say that the leaves make the plant grow; when the leaves fall off the plant stops growing. The tree in the winter condition is not considered to be dead; they say it does not grow then because it has no leaves; the tree stays just the way it is in the fall until leaves come again. This idea arises purely from their observation of seasonal vegetative events; they have not thought out nor wondered how and why it is that the leaves cause resumption of growth. The leaves fall from the tree because they get ripe like fruit. If you ask them why a cottonwood sheds its leaves and a pine tree does not, they have no answer. They observe the fact, but so far as could be ascertained they have not thought about the reason therefor. We find no folklore connected with the great majority of phenomena relating to plant life. The roots of a tree are the parts upon which the plant sits. The word for root, *pu*, is the same as that for haunches, buttocks; base, bottom, or foot of inanimate objects. They have not observed that roots take up water, but they say the "roots have to get wet or the plant dies." The bark is considered to be a protection to the tree; the word for bark, also for skin, is *k'owà*; the bark is the skin of the tree. Spines, thorns, prickles are not thought to have any protective function. The Tewa appear to have a very vague idea of sex in plants. To corn pollen, which is used so much by them in their religious ceremonies and which is produced by the plant in such great abundance, was ascribed no use; the informants had not observed that it falls on the corn silk and that its presence there is necessary for the development of the ear of corn. It is merely something finely divided and yellow, and holy when used in certain ways. A Tewa once made the statement, however, that one can not get a field of purely white corn because the wind always mixes the colors (see p. 84), but his idea was perhaps vague. The little plant is thought

to be within the seed; the informant said "the plant is in the seed, but you can not see it." They say that when you put the seed into the ground and pour water on it, and it "gets a good shock," it grows up. "Bees go to the flowers to get honey; after a while they get their young from [by the help of] the flower."

CLASSIFICATION OF PLANTS

Although the Tewa distinguish plants from animals and again from minerals, and also recognize more or less consciously such classes as trees, shrubs, small flowering plants, vines, grasses, fungi, mosses, etc., much as Europeans do, the classificatory words in the Tewa language are very few as compared with a language such as English.

There is not even a word meaning 'plant' unless it be *p'e*, which signifies primarily a 'stiff long object,' and is variously applied to stick, pole, stake, stalk, trunk, timber, log, stave, staff, plank, board, lumber, wood, plant. Yet the morphology of the language shows how consistently plants are recognized as not being animals or minerals. All nouns denoting plants and most nouns denoting parts of plants have vegetal gender,¹ a fact shown by a peculiar form of adjectives and verbs construed with such nouns. Thus *p'e p'i'iŋ*, 'red stick' (*p'e*, stick; *p'i*, red), has vegetal gender: sing. *p'e p'i'iŋ*, dual *p'e p'i'iŋ*, 3+ plu. *p'e p'i'i'i*; *tse p'i'i'i*, 'red dog' (*tse*, dog; *p'i*, red), has animal gender: sing. *tse p'i'i'i*, dual *tse p'i'iŋ*, 3+ plu. *tse p'i'iŋ*; *ku p'i'i'i*, 'red stone' (*ku*, stone; *p'i*, red), has mineral gender: sing. *ku p'i'i'i*, dual *ku p'i'iŋ*, 3+ plu. *ku p'i'i'i*.

'*Akoŋ*, 'field', 'open country', prepounded to the names of plants in some cases distinguishes the wild from the cultivated variety; thus: '*akonsi*, 'wild onion' ('*akoŋ*, 'field'; *si*, 'onion'). Plants are distinguished also as mountain plants, valley plants, good plants, bad plants, etc. Edible wild plants are sometimes grouped as *tsáŋwæ'i'i*, 'green things' (*tsáŋwæ* blue, green).

There is no general word meaning 'tree' unless it be *p'e*, 'stiff long object,' 'stick,' 'lumber,' 'plant,' referred to above. English 'tree' or Spanish *arbol* is sometimes rendered by *te*, *Populus wislizeni*, *ŋwæŋ*, *Pinus brachyptera*, or some other name of a large 'tree' species; cf. *he*, 'fruit tree,' below.

There is no word meaning 'shrub' or 'bush' unless it be this same word *p'e*. The diminutive postpound 'e may be added to a tree name to show that the plant is dwarfed or young. Thus: *hy*, *Juniperus monosperma*, *hy'e*, dwarfed or young plant, bush, shrub of *Juniperus monosperma*,

¹ *Piŋ*, 'mountain,' and some other nouns which do not denote plants or parts of plants also have this gender.

Be, meaning originally 'roundish fruit,' as that of the chokecherry or wild rose, has become applied to all kinds of introduced fruits and also to the plants which bear them. Thus *be* means fruit tree, as apple, peach, plum, or orange tree. Fruit tree may also be called *bep'e* (*be*, roundish fruit, fruit, fruit tree; *p'e* stick, plant).

To, meaning originally piñon nut, i. e. nut of the *tō*, 'piñon tree,' has become extended in application to all kinds of nuts except coconuts. Nut tree might be called *top'e* (*tō*, piñon nut, nut; *p'e*, stick, plant), but there would rarely be occasion to use so general and inclusive a term.

e'næbì, 'rubbish,' 'litter,' 'lint,' 'weed,' 'herbaceous plant,' is very common, its application not being restricted to useless plants. It is the nearest equivalent of Spanish *yerba*. Cf. French *chenille* which originally meant only 'rubbish' and now usually means 'caterpillar'.

Pobì, 'flower,' like the English word 'flower,' in the case of smaller plants of which the flowers are a conspicuous part often loosely denotes the entire plant. Several of the Tewa specific plant names contain *pobì* with the meaning 'flower plant'.

There is no word meaning 'vegetable' in the sense of German *Gemüse*.

'*Apæ*, 'vine', exactly covers the meanings of the English 'vine'.

Ta 'grass,' 'hay'.

Te is said to signify almost any kind of fungus.

K'ovà, 'tegument', 'skin', is applied to any skinlike vegetal growth, as many kinds of moss and lichen.

DISCRIMINATION

Small differences in plants are observed by the Tewa. It is remarkable how closely distinctions are made by them. For instance, they have a name for every one of the coniferous trees of the region; in these cases differences are not conspicuous. The ordinary individual among the whites does not distinguish the various coniferous trees, but, as a rule, calls them all pines. It is clear that the majority of white people are less observant and in many cases know far less about plant life than does the Indian, who is forced to acquire knowledge in this field by reason of his more direct dependence on plants.

PLANT NAMES OF THE TEWA

CHARACTER OF PLANT NAMES

A majority of the Tewa names of plants are descriptive, having reference to some striking characteristic of the plant, to its use, its habitat, etc. The same is true to a great extent of common English names of plants; for instance, ground ivy, monkey flower, pine drops, crane's bill, monkshood, jack-in-the-pulpit, etc. Just as among English common names of plants we find some the reason for the original application of which is not understood, so we find similar cases among the Indians. Why do we call a certain tree dogwood? And why do the Tewa call a certain plant 'coyote plant'? As a result of the descriptive character of plant names by far the larger proportion of them are compound. Following is a list of such names.

NON-COMPOUNDED TEWA PLANT NAMES

It will be seen from the following list that the plants which have non-compounded and distinctive names are the most common, conspicuous, and widely used ones of the region. The etymology of these words is unknown to the Tewa, the words being merely phonetic symbols employed to designate the various plants. There are comparatively few of these unetymologizable names. Many other plant names are formed by compounding them.

UNETYMOLOGIZABLE PLANT NAMES OF NATIVE ORIGIN

' <i>Aḅè</i> , chokecherry	<i>P'u</i> , large rabbit-brush
' <i>Awa</i> , cattail	<i>Qwæ</i> , mountain mahogany
' <i>Awi</i> , Galium, bedstraw	<i>Qwá</i> , guaco
<i>Hu</i> , one-seeded juniper	<i>Sa</i> , tobacco
<i>Jáη</i> , willow	<i>Sagobe</i> , potato-like plant
<i>Jo</i> , chandelier cactus	<i>Sæ</i> , Opuntia
<i>Kojaje</i> , Span. <i>yerba de víbora</i>	<i>Sek'æη</i> , cotton
<i>Kwæ</i> , oak	<i>Si</i> , onion
<i>Kuη</i> , skunk-bush	<i>Su</i> , amaranth
<i>K'a'a</i> , rose	<i>Ta</i> , grass
<i>K'uη</i> , corn	<i>Te</i> , valley cottonwood
<i>Náná</i> , aspen	<i>Te</i> , fungus
<i>Nwæη</i> , rock pine (pl 1)	<i>Tu</i> , bean
' <i>Oḁa</i> , globe mallow.	<i>Tō</i> , Rocky Mountain sage
<i>Po</i> , squash, pumpkin	<i>Tō</i> , piñon pine (pl. 1)
<i>Po</i> , Phragmites, "carrizo"	<i>Tse</i> , Douglas spruce
<i>Puḥu</i> , four-o'clock	<i>Tf'uη</i> , alder
<i>P'a</i> , <i>Yucca baccata</i> , Span. "datil"	<i>Wæjoka</i> , ragweed

It appears that about thirty Spanish plant names of etymology unknown to the Tewa and for which there are no common Tewa equivalents have been taken into the everyday language, and are used precisely as are the thirty-six native plant names listed above. In addition to these there are many other Spanish designations of plants with which the Tewa are familiar.

PLANT NAMES OF SPANISH ORIGIN THAT HAVE NO COMMON EQUIVALENTS OF TEWA ORIGIN

' <i>Almendrà</i> , almendra, almond	<i>Malbà</i> , malva, mallow
' <i>Alp'alp'à</i> , alfalfa	<i>Moià</i> , mora, mulberry, blackberry
' <i>Añi'i</i> , añil, sunflower	<i>Motasà</i> , mostaza, mustard
' <i>Apiù</i> , apio, celery	<i>Nawanhà</i> , naranja, orange
<i>Aspatagù</i> , esparrago, asparagus	' <i>Qngù</i> , hongo, mushroom
<i>Bananà</i> , banana, banana	<i>Peià</i> , pera, pear
<i>Benundì</i> , melón, melon	<i>Poñi'i</i> , poñil, Fallugia
<i>Beiù</i> , berro, cress	<i>Sandìa</i> , sandía, watermelon
' <i>Igù</i> , higo, fig	<i>Selesi</i> , "celeri," celery
<i>Kakàwatè</i> , cacahuete, peanut	<i>Setesà</i> , cereza, cherry
<i>Kañà</i> , caña, cane	<i>Te</i> , te, tea
<i>Kap'e</i> , cafe, coffee	<i>Tomatè</i> , tomate, tomato
<i>Kokò</i> , coco, coconut	<i>Tsigù</i> , chico
<i>Kolè</i> , col, cabbage	<i>Tsiñdì</i> , chile, pepper
<i>Let f'ugà</i> , lechuga, lettuce	' <i>Ulè</i> , hule, rubber
<i>Limoy</i> , limón, lemon	

PARTS AND PROPERTIES OF PLANTS

Tewa names designating parts of plants do not correspond closely with those used in English. A part which may be designated in English by a single term is frequently called by various terms in Tewa according to the species. Thus: Eng. 'bark', Tewa *k'owà*, said of most trees, but *qwiðè*, said of the one-seeded juniper; Eng. 'stalk,' Tewa *p'e*, said of many plants, but *k'w'u*, 'corn stalk.' Again, the opposite is frequently true. Thus Tewa *ka* is applied to leaves, petals of flowers, and needles of coniferous trees.

Another interesting feature is the extension of application of a word originally used to denote one conception only, to include related conceptions. Thus the Tewa called the piñon tree *îò*, while *îo* is used for the piñon nut, the seed of the piñon tree, and original etymological connection between *îò* and *îo* seems certain after an examination of cognate words in other Tanoan languages. The Tewa of the present day, however, apply *îo* also to the seeds of some other coniferous trees, thus: *ɣwænto*, 'seed of the rock pine' (*ɣwæɣ*, rock pine; *îo*, piñon nut, nut), and even to any kind of introduced nut, peanuts, the kind of introduced nuts with which the Tewa are most familiar, being regularly called *îo*.

It is commonly supposed that the vocabularies of Indian languages are meager and that to translate scientific works into them would be almost impossible. Quite the opposite is true, at least as regards Tewa, the vocabulary of which is rich and capable of expressing abstract thought. Indeed, it would be possible to translate a treatise on botany into Tewa, although the translation would be somewhat clumsy.

FLOWERS, THEIR PARTS AND FUNCTIONS

Poðì, 'flower', 'flowering plant.' This word applies to any flowers.

The name of the species is often prepounded, thus: *k'a'a poðì*, 'wild rose flower' (*k'a'a*, wild rose; *poðì*, flower). *Poðì* is evidently cognate with the second syllable of Isleta *naxax*, 'flower,' etc.

The winged fruit of *tejeli*, 'box-elder' (see fig. 1), is also called *poðì*. The relation of the wing to the seed is similar to that of the petals to the seed of a flower. The true flower of the box-elder is also called *poðì*.

Poðì is very commonly used meaning 'flowering plant,' as English 'flower.' (Compare Tennyson's "Flower in the crannied

Pobì is not, however, applied to inflorescence, as of corn, yucca, etc., although the entire inflorescence is sometimes called in English the flower of the plant. See below under the heading Inflorescence.

Figurative uses of *pobì* are pretty. Young men use the expression *nabì pobì*, 'my sweetheart,' literally 'my flower.' *Pobì* is found in many compounded personal names of women, in which it appears as both a prepounded and a postpounded element. The other adjoined member of such names is frequently omitted in conversation, the woman or girl being called merely *Pobì*, 'flower.' A white cumulus cloud is called 'ok'uwà *pobìtsæ'i'i*, 'white flower cloud' ('ok'uwà, cloud; *pobì*, flower; *tsæ*, white). Eagle down is called *tsepobì*, 'eagle flower' (*tse*, eagle; *pobì*, flower).

Pobìka, 'petal,' literally 'flower leaf' (*pobì*, flower; *ka*, leaf); cf. German *Blumenblatt*. *Ka* alone is also used, meaning 'petal.' Petals are called 'flower leaves' in many languages because of their leaf-like appearance. Many of the descriptive terms applied to leaves (see below) might also be applied to petals.

Pobìteŋ, 'stamen,' literally 'flower tube' (*pobì*, flower; *teŋ*, tube, stalk bearing inflorescence). If the stamens resemble corn-silk they may be called *sæ*; see below. Pistil is usually also called *pobìteŋ*, not being distinguished from the stamens. If the difference between stamens and pistil is noticeable in that the latter lacks an anther, the pistil may be called *pobìtem bewèpi'iŋ*, 'tube without a knob on the end' (*pobì*, flower; *teŋ*, tube; *bewè*, knob, small roundish thing; *pi*, negative); see *pobìtembewè'e*, below. The functional difference between stamen and pistil was not understood by the Tewa informants. The diminutive *teŋ'e* may well be substituted for *teŋ*.

Pobìtembewè'e, 'anther,' 'stigma,' literally 'flower-tube knob' (*pobì*, flower; *teŋ*, tube; *bewè*, small roundish thing; 'e, diminutive). The functional difference between anther and stigma was not known to the informants.

Sæ (Hano Tewa, *sælxæ*), 'corn-silk', 'stamens and pistil resembling corn-silk'. The silk of corn consists of the styles which are attached to the grains (seeds) of corn (see fig. 6). Instead of *sæ* one also hears *sæpobì*, literally 'corn-silk flower' (*sæ*, corn-silk; *pobì*, flower), and *sæf uŋ* (*sæ*, corn-silk; *f uŋ*, to fly?), both having exactly the same meaning and usage as *sæ*.

Kĩtu, 'pollen,' literally 'inflorescence kernel' (*kĩŋ*, inflorescence; *tu*, kernel, distinguished by some speakers at least from *tu*, flesh, meat, by its tone). *Kĩtu* is applied to the pollen of any kind of flower or inflorescence, the etymology being merely dormant in the minds of the speakers. The fructifying action of pollen was not known to any of the informants. One may hear also *kĩtu tsèj'i'iŋ*, 'yellow pollen' (*kĩtu*, pollen; *tsè*, yellow).

Poḍik'æŋ, 'pollen', literally 'flower meal' (*poḍi*, flower; *k'æŋ*, meal, flour). This term appears to be less used than *kātu*. As in the case of *kātu* one also hears *poḍik'æŋ tsej'i'iy*, 'yellow pollen, (*poḍik'æŋ*, pollen; *tse*, yellow).

Poḍi'ǎŋ, 'flower cover', 'calyx', 'sepals' (*poḍi*, flower; 'ǎŋ, covering).

Poḍipu, 'flower stem' (*poḍi*, flower; *pu*, base, buttocks, root, stem). Cf. *kapu*, leaf stem, *ḥepu*, fruit stem, etc. ; see below.

A flower bud is called 'op'u or *poḍi'op'u*. 'Op'u is used of any bud or young sprout, whether of flower, leaf, or stem. Of a flower bud which has not yet burst or opened the Tewa say: *nǎpoḍi'ǎmmu*, 'the flower is enveloped or covered' (*nǎ*, it; *poḍi*, flower; 'ǎŋ, to envelop or cover; *mu* to be), or *winǎpoḍipǎmp'i*, 'the flower has not yet burst' (*wi*, negative; *nǎ*, it; *poḍi*, flower; *pǎŋ*, to burst; *pi*, negative), or *nǎpoḍi-wamu*, 'the flower is an egg,' 'the flower is in the bud' (*nǎ*, it; *poḍi*, flower; *wa*, egg; *mu*, to be). See also *wa*, under Fruits, below: When the flower bud has opened, one may say: *nǎpoḍipǎŋ*, 'the flower has burst' (*nǎ*, it; *poḍi*, flower; *pǎŋ*, to burst). The Tewa informants volunteered the information that the pollen falls or is shed: *nǎkātut'ǎnnæ*, 'the pollen falls or is shed' (*nǎ*, it; *kātu*, pollen; *t'ǎnnæ*, to fall or be shed), or *nǎkātujemu*, 'the pollen falls' (*nǎ*, it; *kātu*, pollen; *jemu*, to fall). When the petals start to wither, one may say: *nǎpoḍisind'e'e*, 'the flower is withering' (*nǎ*, it; *poḍi*, flower; *siŋ*, to wither; *ḍe'e*, progressive). When the petals are withered and already dry, one may say: *nǎpoḍi(ka)ta*, 'the flower is dry or the flower petals are dry' (*nǎ*, it, they; *poḍi*, flower; *ka*, leaf, petal; *ta*, to be dry). Of dropping petals, one may say: *nǎpoḍikat'ǎnnæ*, 'the petals are falling or being shed' (*nǎ*, it, they; *poḍika*, petal; *t'ǎnnæ*, to fall, to be shed), or *nǎpoḍikajemu*, 'the petals are falling' (*nǎ*, it, they; *poḍika*, petal; *jemu*, to fall). After the petals are shed, one might say of the flower: *nǎpoḍitfu*, 'the flower is dead' (*nǎ*, it; *poḍi*, flower; *tfu*, to be dead).

INFLORESCENCE

Kǎŋ, 'inflorescence,' 'tassel.' *Kǎŋ* refers to any group of flowers on a stem. Thus: *k'uŋkǎŋ*, 'tassel of corn' (*k'uŋ*, corn; *kǎŋ*, inflorescence) (see fig. 6); *takǎŋ*, 'inflorescence of grass' (*ta*, grass; *kǎŋ*, inflorescence) (see fig. 5); *wæjokakǎŋ*, 'inflorescence of common ragweed' (*wæjoka*, common ragweed; *kǎŋ*, inflorescence). In case the flowers are not scattered along the stalk but have their bases surrounded by a common involucre, one would hardly apply *kǎŋ*, but would describe such a group as: 'iwègà *nǎpoḍimmu*, 'the flowers are together' ('iwègà, together in one place; *nǎ*, they; *poḍi*, flower; *mu*, to be), or *nǎpoḍiqwisa*, 'the flowers are tied together' (*nǎ*, they; *poḍi*, flower; *qwi*, to tie; *sa*, to lie, to be, said of 3+).

Tey, 'tube,' 'stamen,' 'pistil,' 'stalk bearing inflorescence'. *Tey* is said of hollow cylindrical objects. Thus: *k'uy(kǎ)tey*, 'stalk of corn tassel' (*k'uy*, corn plant; *kǎ*, inflorescence; *tey*, tube, stalk bearing inflorescence); *p'a(kǎ)tey*, 'stalk bearing inflorescence of 'Yucca baccata' (*p'a*, Yucca baccata; *kǎ*, inflorescence; *tey*, tube, stalk bearing inflorescence).

Kala, 'cluster' (Hano). Thus: *te'kala*, 'clustered catkins of the cottonwood tree.' The same term would be applied to a cluster of grapes.

Tjaka, 'bunch' (Hano). Thus: *tenjotjaka*, bunch of white fir foliage.

SEEDS AND FRUITS, THEIR PARTS AND FUNCTIONS

Pe, 'seed,' 'fruit,' 'crop.' This is the adjective *pe*, 'ripe,' 'mature,' used as a noun; for adjectival use of *pe* see below.

Pe is applied to any seed or fruit produced by any plant, also to crops in the sense of seeds or fruits collectively. Rarely it refers to 'crops,' meaning matured whole plants or any part or parts of matured plants. Thus: *tǎ'tǎ'pe*, 'seed, fruit, or berry of wheat,' 'wheat crop,' not including or excluding stalks, leaves, or roots (*tǎ'tǎ*, wheat; *pe*, seed, fruit, crop). *Pe* may be used instead of *tǎ'ŋ*, *to*, *k'e*, *k'a*, *be*, *pegè*, *k'owè*, and the names of introduced nuts and fruits; see below. *Pe* tends especially to supplant *k'a* and *pegè*.

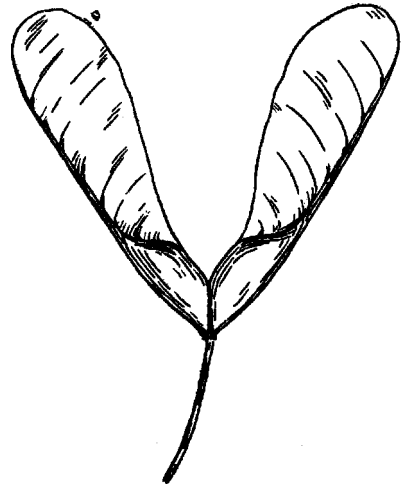


FIG. 1.- Fruit of box-elder.

Thus: *hy'pe*, 'berry of one-seeded juniper,' instead of *hy'pegè* (*hy*, one-seeded juniper; *pe*, seed, fruit, crop); *kwæ'pe*, 'acorn,' instead of *kwæ'k'a* (*kwæ*, oak tree; *pe*, seed, fruit, crop). In the case of fruits to which none of the other words applies very well, *pe* is regularly applied. Thus: *'a'ðè'pe*, 'fruit of the chokecherry' (*'a'ðè*, chokecherry; *pe*, seed, fruit, crop); *sæ'pe*, 'prickly-pear or Opuntia' (*sæ*, Opuntia; *pe*, seed, fruit, crop). *Pe* is used as a second member of compounds, such as *p'e'pe*, *k'a'pe*, *be'pe*, etc.; see below. See also *pe*, 'immature kernel of corn either on the cob or cut off the cob,' listed below, which may be the same word.

P'e'pe, 'seed,' 'fruit,' 'crop' (*p'e*, stick, plant; *pe*, seed, fruit, crop). This is an equivalent of the non-compounded *pe*.

Tǎ'ŋ, 'seed.' This word is applied to any seed. It may be, but usually is not, applied instead of *to* or *k'a*; see below. Introduced nuts may be called *tǎ'ŋ*, just as we would call them seeds, but the common name for them is *to*.

To, 'piñon nut,' 'nut.' As stated above, an examination of cognate words in other Tanoan languages leads us to believe that *to* is etymologically related to *tō*, 'piñon tree,' and that the original signification of *to* is 'piñon nut.' The present application of *to* to the seeds of the rock pine and to introduced nuts is probably a more recent extension of the use of the word. Thus: *ɣwæntō*, 'seed or nut of the rock pine' (*ɣwæɣ* rock pine; *to*, piñon nut, nut); for names of introduced nuts see under names of plants, below.

Bewè, 'small roundish object,' 'cone of coniferous tree.' *Bewè* is said to be used of the cones of coniferous trees only in the compounds *tām̄bewè*, 'cone with seeds in it' (*tāɣ* seed; *bewè*, small roundish object, cone), and *tōbewè*, 'cone with nuts in it' (*to*, piñon nut, nut; *bewè*, small roundish object, cone). Like *bujū* (see below) *bewè* refers of course to the shape. An empty cone may be distinguished by postjoining *k'owà*, 'skin,' 'husk,' or by using *k'owà* alone; also by saying *wĩtām̄m̄yipi*, 'it has no seeds' (*wĩ*, negative; *nǎ*, it; *tāɣ*, seed; *m̄y*, to have; *pi*, negative).

Bujū, 'small roundish object,' 'cone of coniferous tree.' Cf. *bewè*, above, the usage of which this word exactly parallels.

K'e (Hano Tewa *k'ili*), 'grain of corn,' 'small bud of cottonwood flower.' The commonest compounds are said to be: *k'ɣɣk'e*, 'grain of corn' (*k'ɣɣ*, corn plant; *k'e*, grain, in this sense), and *tek'e*, 'flower bud of valley cottonwood' (*te*, valley cottonwood; *k'e*, grain, bud, in bud, in this sense).

K'owè, 'ear of corn husked or not husked.' The word has this one meaning only.

K'a, 'acorn', 'fruit of the skunk-bush.' This word appears to be used of these two fruits only. The commonest compounds are said to be *kwǣk'a*, 'acorn' (*kwǣ*, oak tree; *k'a*, acorn, fruit of the skunk-bush), and *k̄ɣk'a*, 'fruit of the skunk-bush' (*k̄ɣ*, skunk-bush; *k'a*, acorn, fruit of the skunk-bush).

K'āp̄e, 'acorn', 'fruit of the skunk-bush' (*k'a*, acorn, fruit of the skunk-bush; *p̄e*, seed, fruit, crop). The use of the word is similar to that of *k'a*, above.

Be, 'roundish fruit', 'apple', 'any kind of introduced fruit.' Thus: *k'a'ābe*, 'fruit of the wild or introduced rose' (*k'a'ā*, rose; *be*, apple, introduced fruit) is heard as well as *k'a'āp̄e* (*k'a'ā*, rose; *p̄e*, seed, fruit, crop). *Be* evidently refers to roundish shape and is connected with *beḡv̄*, 'small and roundish like a ball,' *b̄uḡv̄*, 'large and roundish like a ball,' etc.

Ŋwæbɛʼe, ŋwæbuʼu, ‘prickly, roundish seed-pod’ (*ŋwæ*, thorn, pricker; *bɛʼe, buʼu*, roundish thing). Of smaller pods *ŋwæbɛʼe* would be used, of larger ones *ŋwæbuʼu*. It happened that the informants applied these compounds only to the seeds of the *Datura meteloides*, using the compound *sɔpʼeŋwæbɛʼe*, ‘prickly, roundish seed pod of *Datura meteloides*’ (*ŋwæ*, thorn, pricker; *bɛʼe*, small thing roundish like a ball). *Bɛʼe* or *buʼu* could hardly be used alone with this meaning.

Bɛpɛ, ‘apple,’ ‘any kind of introduced fruit’ (*bɛ*, apples, introduced fruit; *pɛ*, seed, fruit, crop). Use and meaning are quite identical with those of non-compounded *bɛ*. *Bɛpɛ* is used meaning ‘fruit crop,’ but *bɛ* is also used with this meaning.

Pegɛ, ‘berry.’ This word was applied by the informants to the fruit of the one-seeded juniper, *hɔpɛgɛ* (*hɔ*, one-seeded juniper; *pegɛ*, berry) being a common compound. The informants stated that they had heard *pegɛ* applied also to the fruit of the chokecherry and of the introduced currant. As nearly as the writers can understand, the meaning of *pegɛ* is ‘tough, leathery berry.’

Pegɛpɛ, ‘berry’ (*pegɛ*, berry; *pɛ*, seed, fruit, crop). Use and meaning are identical with those of *pegɛ*, above.

Wa, ‘egg,’ ‘green pod of milkweed.’ Compare also the expression: *nɔpɔbɔwamɔ* ‘the flower is an egg,’ meaning ‘the flower is young or in the bud’ (*nɔ*, it; *pɔbɔ*, flower; *wa*, egg; *mɔ*, to be), listed under Flower, above.

The Tewa names denoting all kinds of introduced fruits and nuts should also be classed here, since these names apply both to the plant and to the fruit. They will be found below. All these names admit of being postpounded with *pɛ*, ‘seed,’ ‘fruit,’ ‘crop.’

Mɔʼnɛŋ, ‘bunch or cluster of anything,’ ‘bunch or cluster of fruit.’ Thus: *ʼuɔɔmɔʼnɛŋ*, ‘bunch of grapes’ (*uɔɔ*, grapes; *mɔʼnɛŋ*, bunch, cluster).

Mɔ, ‘bag,’ ‘sack,’ ‘pod.’ *Mɔ* often refers both to pod and contents. Thus: *tumɔ*, ‘bean-pod or bean’ (*tu*, bean plant, bean; *mɔ*, pod). Apparently it may be applied also to the round fruit of the squash. Thus, in a war song used at Hano: *ʼiʼa ʼyɔbɔ ʼɛbɔ pɔkɔmele nan dɔmpomɔ pɔti*, ‘your son’s skull I have made into a squash-bag’ (*ʼiʼa*, demonstrative, ‘he’; *ʼyɔ*, you I.; *bɔ*, possessive; *ʼe*, son, child; *bɔ*, possessive; *pɔkɔmele*, ‘head-ball’; *nay*, unprefixd pronoun 1st sing.; *dɔŋ*, emphatic form of inseparable pronoun *dɔ*, ‘I—it’; *pomɔ*, ‘squash-bag’; *pɔti* < *pa*, ‘make,’ ‘do,’ verbal form expressing antecedent circumstance).

'*Oku*, 'down,' 'fluff.'

Pobì, 'flower,' 'fruit of the box-elder,' 'fluff of cottonwood seeds.' Thus: *tejevipobì*, 'box-elder seed' of flower-like appearance (*tejevi*, box-elder; *pobì*, flower); *teúipobì*, 'cottonwood fluff' (*teú*, cottonwood seed-pod; *pobì*, flower). The latter is called also *teú'oku* ('*oku*, down).

Pu, 'base,' 'buttocks,' 'root,' 'stem.' *Pu* is used of the stem of fruit. Thus: *ɓepu*, 'stem of fruit' (*ɓe*, apple, introduced fruit; *pu*, base, stem-); *tãmpu*, 'stem of a seed' (*tãŋ*, seed; *pu*, base, stem). But cf. *k'apu* below.

fa, 'ear-wax,' 'the rough surface of tanned deerskin,' 'the bloom on the surface of fruits and plants.' Thus: '*uɓàfa*, 'the bloom or fine bluish dust on the surface of a grape' (*uɓà*, grape; *fa*, ear-wax, bloom).

Teú, 'unripe or ripe seed-pod of the female cottonwood of any species.' When these burst, white fluff comes forth from them which is called *teúipobì* (*pobì*, flower) or *teú'oku* ('*oku*, down).

Tu, 'kernel of a seed.' commonly used compounds are *tãntu*, 'kernel of a seed' (*tãŋ*, seed; *tu*, kernel), and *totu*, 'kernel of a nut' (*to*, piñon nut, nut; *tu*, kernel). *Tu*, 'kernel,' has a level tone; *tu*, 'flesh,' has a circumflex tone.

K'æŋ, 'meal,' 'flour,' 'ground-up seeds.'

K'owà, 'skin,' 'tegument,' 'shell,' 'husk,' 'bark.' Thus: *tok'owà*, 'nut shell' (*to*, piñon nut, nut; *k'owà*, skin, shell); *k'owèk'owà*, 'husk of ear of corn' (*k'owè*, ear of corn; *k'owà*, skin, husk).

K'apu, 'handle' of anything, 'stem of an ear of corn.' With reference to plants the term appears to be used only of the stem of an ear of corn, being equivalent to *k'owèk'apu*, 'stem of an ear of corn' (*k'owè*, ear of corn; *k'apu*, handle, stem of corn ear). The second syllable of *k'apu* appears to be *pu*, base. Stem of ear of corn would hardly be called *k'owèpu*.

Tæbi, 'core,' of apple, pear, etc; 'pith.' See page 24.

Kũŋ, 'wing,' 'corn-cob.' For 'corn-cob' the frequent compound is *k'owèkũŋ*, 'corn-cob' (*k'owè*, ear of corn; *kũŋ*, wing of bird or other flying creature, cob). *Kũŋ* occurs also as second member of *p'ekũŋ*, 'bone' (*p'e*, stick, long hard thing; *kũŋ*, wing, cob). Whether *kũŋ* may be said of skeleton-like parts of other plants was not ascertained.

Of a flower going to seed the Tewa say: *nãpobìtãmpuwàmæŋ*, 'the flower goes to seed' (*nã*, it; *pobì*, flower; *tãŋ*, seed; *puwà*, to become; *mæŋ*, to go). The ordinary adjective denoting ripeness is *ɓe*. Thus: *to ɓe'iŋ*, 'ripe piñon nut' (*to*, piñon nut; *ɓe*, ripe); *to ɓepi'iŋ*, 'un-

ripe piñon nut' (*tə*, piñon nut; *pe*, ripe; *pi*, negative). Of all fruits which are green when unripe *tsəŋwæ*, 'green,' may be used. Thus: *bə tsəŋwæ'iy*, 'green apple' (*bə*, apple; *tsəŋwæ*, green). Of gourds, squashes, pumpkins, muskmelons, watermelons, and perhaps of some other fruits, *ke*, 'hard,' is used of ripeness, while 'owa, 'soft' is applied to unripe condition. Thus: *sandia ke'iy*, 'hard, ripe watermelon' (*sandia*, watermelon < Span. *sandía*; *ke*, hard); *sandia'owa'iy*, 'soft, unripe watermelon' (*sandia*, watermelon < Span. *sandía*; 'owa, soft). But of other fruits *ke*, 'hard,' is used of unripeness and 'owa, 'soft,' of ripeness or mellowness, just as in English. Thus: *bə ke'iy*, 'hard, unripe apple' (*bə*, apple; *ke*, hard); *bə'owa'iy*, 'soft, mellow apple' (*bə*, apple; 'owa, soft). The adjectives given above may of course also be used predicatively. Thus: *nəpemu*, 'it, is ripe' (*nə*, it; *pe*, ripe; *mu*, to be); *winəpemu pi*, 'it is not ripe' (*wi*, negative; *nə*, it; *pe*, ripe; *mu*, to be; *pi*, negative).

LEAVES, THEIR PARTS AND FUNCTIONS

LEAVES IN GENERAL

Ka (Hano Tewa, *kala*), 'leaf.' Thus: *k'uyka*, 'corn leaf' (*k'uy*, corn; *ka*, leaf).

Kap'a, 'leaf surface' (*ka*, leaf; *p'a*, large, thin, flat,; and roundish).

Kakinyè, 'leaf edge' (*ka*, leaf; *kinyè*, edge).

Katsi, 'leaf point' (*ka*, leaf; *tsi*, point).

Ka'okwə, "leaf vein", 'leaf fiber' (*ka*, leaf; 'okwə, vein, artery).

Kaפו, 'leaf juice', literally 'leaf water' (*ka*, leaf; *פו*, water).

Kapu, 'leaf stem' (*ka*, leaf; *pu*, base, stem).

Of leaves falling the Tewa say: *nəkat'ənnæ*, 'the leaves fall' (*nə*, it, they; *ka*, leaf; *t'ənnæ*, to fall); or *nəkajemu*, 'the leaves fall' (*nə*, it, they; *ka*, leaf; *jemu*, to fall).

SIZE AND SHAPE OF LEAVES

Ka he'iy, 'big leaf' (*ka*, leaf; *he*, big). *Kajo* (*ka*, leaf; *jo*, augmentative) may not, be used meaning 'big leaf.'

Ka hiñæ'iy, 'little' leaf' (*ka*, leaf; *hiñæ*, little).

Ka'e, 'little leaf' (*ka*, leaf; 'e diminutive).

Ka hejè'iy, 'long leaf' (*ka*, leaf; *hejè*, long).

Ka hiñæ'iy, 'short leaf' (*ka*, leaf; *hiñæ*, short). Same as 'little leaf,' above.

Ka p'agè'iy, 'big flat leaf' (*ka*, leaf; *p'agè*, large, thin, flat, and roundish).

Ka p'igì'iy, 'little flat leaf' (*ka*, leaf; *p'igì*, small, thin, flat, and roundish).

Ka p'agì'iy, 'broad flat leaf' (*ka*, leaf; *p'agì*, large, thin, flat, and roundish). Cf. 'big flat leaf,' above.

Ka segì'iy, 'slender leaf' (*ka*, leaf; *segì*, slender). This term is applied to the needles of coniferous trees and to other slender leaves.

Ka t'agì'iy, 'big round leaf' (*ka*, leaf; *t'agì*, large, thin, and round).

Ka t'igì'iy, 'little round leaf' (*ka*, leaf; *t'igì*, small, thin, and round).

Piyka, 'heart-shaped leaf' (*piy*, heart; *ka*, leaf).

Ka k'a'iy, 'thick leaf' (*ka*, leaf; *k'a*, thick).

Ka kap'i'iy, 'thin leaf' (*ka*, leaf; *k'a*, thick; *pi*, negative)

COMPOUND LEAVES

Ka wijèka'iy, 'bifoliolate leaf' (*ka*, leaf; *wijè*, two; *ka*, leaf).

Ka pojèka'iy, 'trifoliolate leaf' (*ka*, leaf; *pojè*, three; *ka*, leaf).

Ka jonùka'iy, 'quadrifoliolate leaf' (*ka*, leaf; *jonù*, four; *ka*, leaf).

If a single leaf has a deeply serrated edge it is not considered to be a multifoliolate leaf, but is called *ka sæhwè'iy*, 'zigzag-edged leaf' (*ka*, leaf; *sæhwè*, zigzagged).

SURFACE OF LEAVES

Ka 'ǎñæ'iy, 'smooth leaf,' 'glabrous leaf' (*k'a*, leaf; *'ǎñæ*, smooth).

Ka 'otsa'iy, 'shiny, smooth leaf,' 'glaucous leaf' (*ka*, leaf; *'otsa*, shiny).

Ka k'o'iy, 'rough leaf' (*ka*, leaf; *k'o*, rough).

Ka t'uk'w'iy, 'ridged leaf' (*ka*, leaf; *t'uk'w*, backbone, vertebral column).

Ka hegè'iy, 'grooved leaf' (*ka*, leaf; *hegè*, arroyito, gulch, groove).

Ka 'okwǎ'iy, 'veined leaf' (*ka*, leaf; *'okwǎ*, vein, artery).

Ka p'o'iy, 'hairy leaf,' 'pubescent leaf,' 'puberulent leaf,' 'woolly leaf' (*ka*, leaf; *p'o*, hairy).

Ka p'okosq'ondv'iy, 'coarse-haired leaf,' 'hispid leaf' (*ka*, leaf; *p'o*, hair; *kosq'ondv*, coarse).

Ka 'ok'u'iy, 'downy leaf,' 'fluffy leaf' (*ka*, leaf; *'ok'u*, downy, down, fluffy, fluff).

Ka jundv'iy, 'prickly leaf' (*ka*, leaf; *jundv*, to pierce)

Ka hwæ'iy, 'thorny leaf' (*ka*, leaf; *hwæ*, thorny).

Ka tsibè'iy, 'sticky leaf' (*ka*, leaf; *tsibè*, sticky).

These adjectives have also predicative forms of course. Thus: *nǎp'omu*, 'it is hairy' (*nǎ*, it; *p'o*, hairy; *mu*, to be); *nǎtsiḏèto*, 'it is sticky' (*nǎ*, it; *tsiḏè*, sticky; *to*, to make).

MARGIN OF LEAVES

Ka kɪŋgè, 'edge of a leaf' (*ka*, leaf; *kɪŋgè*, edge).

Ka kɪŋgè'ǎñæ'ìŋ, 'smooth-edged leaf' (*ka*, leaf; *kɪŋgè*, edge; 'ǎñæ, smooth).

Ka kɪŋgèsæŋwà'ìŋ, 'zigzag-edged leaf' (*ka*, leaf; *kɪŋgè*, edge; *sæŋwà*, zigzagged).

Ka kɪŋgèŋwà'ìŋ, 'tooth-edged leaf,' 'dentate leaf' (*ka*, leaf; *kɪŋgè*, edge; *ŋwà*, toothed).

Ka kɪŋgèsiḏè'ìŋ, 'torn-edged leaf' (*ka*, leaf; *kɪŋgè*, edge; *siḏè*, torn crosswise to the grain or fiber).

TENDRIL

'*Aqwi*, 'tendrils.' The etymology of this word is uncertain. The syllable *qwi* clearly means fiber; see below. 'A may be the verb meaning 'to grow' or may be the same as the first syllable of 'ap'æ, 'vine' or, it is connected perhaps with Hano Tewa 'awo, 'tendrils,' 'to spread' (said of plant). A slender tendril is called 'aqwi seg'ìŋ, 'slender tendril' ('aqwi, tendril; *seg'ì*, slender). A curled tendril is called 'aqwiḥe'e, 'tendrils curl' ('aqwi, tendril; *ḥe'e*, small roundish thing). Tendrils are said to be *mǎŋŋwag'è*, 'like hands' (*mǎŋ*, hand; *ŋwag'è*, like).

STALK, TRUNK, STUMP, STEM, BRANCH, TWIG, JOINT

P'e, 'stick,' 'stalk,' 'pole,' 'trunk,' 'log,' 'wood,' 'plant.' *P'e* refers to almost any long stiff object. It is the only Tewa word meaning 'plant' in general, but is rarely used with this meaning. The staff of authority of the Pueblo governors is called *p'e*, or sometimes *tujop'e*, 'governor's stick' (*tujō*, governor; *p'e*, stick). For *p'e* meaning 'wood' see page 23.

'*Uuto*, 'walking stick.' Walking sticks were made of various kinds of wood and were used mostly by old or crippled people. Perhaps this word hardly belongs here. Cf. 'uup'e, below.

'*Uup'e*, 'prayer stick.' Cf. 'uuto, above.

Pugè, 'lower part,' 'base or trunk of a tree' (*pu*, base, buttocks; *gè*, locative). When the trunk of a tree is referred to, one usually names the kind of tree, postpounding *pugè*. Thus: *tepugè*, 'lower part or trunk of a cottonwood tree' (*te*, *Populus wislizeni*; *pugè*, lower part, trunk).

K'u'u, 'cornstalk.' This word refers only to the stalk of the corn plant. *K'u'u* in some irregular way may be connected etymologically with *k'u*, 'corn plant.'

Tey, 'tube,' 'hollow stalk.' *Tey* refers to such a stalk as that of the yucca. Thus: *p'atey*, 'inflorescence stalk of *Yucca baccata*' (*p'a*, *Yucca baccata*; *tey*, tube, hollow stalk). See under Inflorescence, page 15.

Pube, 'stump.' This word refers to the stump of any tree or plant. Its etymology is not understood by the Indians. The first syllable appears to be *pu*, 'base,' 'buttocks.'

Pu, 'base,' 'stem.' This is the word which means also 'buttocks' and 'root.' It is applied to the stem of a flower, leaf, or fruit as Germans might apply *Stiel*. Thus: *poðipu*, 'flower stem' (*poði*, flower; *pu*, base, stem).

K'apu, 'stem of an ear of corn.' This word means also 'handle' (of anything). Applied to plants it seems to be used only of the stem of *k'owè*, 'ear of corn.' See page 18.

Wajè, 'bough,' 'branch.' *Wajè* is applied to boughs and branches of all plants, especially to those of trees. Thus: *hewajè*, 'branch of a fruit tree' (*he*, apple, fruit; *wajè*, bough, branch).

Wajèk'o, 'bough,' 'branch,' literally 'bough arm,' 'branch arm' (*wajè*, bough, branch; *k'o*, arm). The meaning and usage seem to be identical with those of the uncompounded *wajè*. Thus: *tewajèk'o*, 'branch of a valley cottonwood tree' (*te*, *Populus wislizeni*; *wajèk'o*, bough, branch).

Wajè'e or *wajèk'o'e*, 'twig,' 'twiglet' (*wajè* or *wajèk'o*, bough, branch; 'e, diminutive).

Qwe, 'joint,' 'node,' 'internode.' *Qwe* is used as ambiguously as is English 'joint,' referring both to the nodes of a stem and to the sections of stem between the nodes. The word seems to refer more properly to the nodes, *qwejawè*, 'between the joints' (*qwe*, node, internode; *jawè*, between) being applicable to internodes. A joint of a stovepipe is, however, regularly called *qwe*.

'Op'u, 'bud.' *'Op'u* refers to buds of stalks, stems, twigs, etc., as well as to those of flowers and leaves. Thus: *wajè'op'u*, 'bud of a branch' (*wajè*, bough, branch; *'op'u*, bud).

K'e (Hano Tewa, *k'ili*), 'grain,' 'kernel,' 'bud of grain-like shape.' This is applied particularly to the red buds of the cottonwood of any species which are seen on the trees early in the spring. These are eaten, especially by the children.

ROOT

Pu, 'base,' 'buttocks,' 'stem,' 'root.' Thus: *k'umpu*, 'corn root' (*k'uŋ*, corn plant; *pu*, root). Rootlet is called *pu'e*, 'little root' (*pu*, root; 'e, diminutive).

LEAF-SHEATH

K'u'yk'owà, 'leaf-sheath of corn' (*k'u'y*, cornstalk; *k'owà*, tegument, skin, bark).

Tap'ek'owà, 'leaf-sheath of a stalk of grass' (*ta*, grass; *p'e*, stalk; *k'owà*, tegument, skin, bark).

K'owà, 'tegument,' either alone or postpounded, would undoubtedly be the term applied to any leaf-sheath.

WOOD, PITH

P'e, 'stick,' 'stalk,' 'stem,' 'pole,' 'trunk,' 'log,' 'lumber,' 'wood,' 'plant.' *P'e* is used of wood as *palo* and *madera* are used in Spanish, but Spanish *leña* in the sense of 'firewood' is translated *sq*. *P'e* is never used meaning 'firewood.' (Hodge gives as "Firewood or Timber" clan, San Juan and Santa Clara *Pë-tóá*, San Ildefonso *Petdóá*, Hano *Pè-tówa* (*towà*, people).¹ The rendering of *p'e* in these clan names as "firewood" is incorrect according to the writers' Indian informants.)

P'e is common as the first element of compounds, where it must be rendered by 'wood' or 'wooden' in English. Thus: *p'ekutsandà*, 'wooden spoon' (*p'e*, stick, wood; *kutsandà*, spoon <Spanish *cuchara*).

Green wood is called *p'e'otf w'iy* (*p'e*, stick, wood; 'otf, fresh, green, wet); dry or seasoned wood is called *p'e'ta'iy* (*p'e*, stick, wood; 'ta, dry).

Sq, 'firewood.' This usually consists of dead, fallen, or drifted wood, picked up or torn off; but the same word is applied to trees felled for firewood. See *p'e*.

A Tewa of Santa Clara told the following story: Long ago people had no fire and were trying to find it—who knows how they cooked! Perhaps they ate berries. They made four holes in a row in a slab of *ŋwæŋ* and then they twirled a stick in the holes and out of one of the holes came fire.

A few billets of firewood, carried by means of a cord on a man's shoulder and thrown down beside a woman's door, is considered an

¹F. W. Hodge, Pueblo Indian Clans, *Amer. Anthr.*, IX, p. 350, Oct., 1896.

appropriate present. When a woman is about to be confined, her husband's father often brings her firewood.

Pope, 'driftwood.' This is gathered and used as firewood. Considerable quantities of driftwood are to be found along the Rio Grande.

Tæðì, 'pith,' 'core' of fruit. See page 18. This word is the adjective *tæðì* 'soft,' used as a noun. It refers to the soft, light, spongy tissue found in the stems of some plants. Thus: *k'w'utæðì*, 'pith of the cornstalk' (*k'w'w*, cornstalk; *tæðì*, pith).

FIBER

qwi, 'fiber.' Thus: *p'aqwi*, 'yucca fiber' (*p'a*, Yucca baccata; *qwi*, fiber). We possibly have this word also in '*aqwi*, 'Tendrìl,' and *qwiðè*, 'shreddy bark.' See page 21.

Pǽǽ, 'string.' This word usually applies to fiber already made into string, but might be said of any kind of fiber.

JUICE

Po, 'water,' 'juice.' This word covers all the meanings of English 'water,' 'juice.' Thus: *k'w'wþo*, 'juice of a cornstalk' (*k'w'w*, cornstalk; *þo*, water); *teþo*, 'sap of a valley cottonwood tree' (*te*, Populus wislizeni; *þo*, water, juice).

'Aþo, 'sweet juice,' 'syrup' ('*a*, sweetness; *þo*, water).

Melasà, 'sweet juice,' 'syrup' (< Spanish *melaza*).

GUM

Kwæ, 'gum.' The gum of various plants was chewed. Gum was also much used for sticking things together. Thus: *ɳwæɳkwæ*, 'gum or pitch of the rock pine' (*ɳwæɳ*, rock pine; *kwæ*, gum). Chewing-gum is called merely *kwæ*.

BARK

K'owà, 'tegument,' 'skin,' 'bark.' This is the commonest and most inclusive word meaning 'bark.' Thus: *tek'owà*, 'valley cottonwood bark' (*te*, Populus wislizeni; *k'owà*, tegument, bark). The general name for 'moss' is *kuk'owà*, 'rock skin' (*k'u*, rock; *k'owà*, tegument, bark).

¹ In the seventeenth century women went to fetch firewood; see Benavides, Memorial (pp. 32,76): "Nacion Taos . . . una vieja hechizera, la qual, á título de ir por leña al campo, sacó á otras quatro mugeres buenas Christianas." At Santa Clara, after peace had been made with the Apaches de Navajo in September, 1629, "Salian hasta las viejas por leña por aquella parte." The acquisition of donkeys, and subsequently of horses and wagons, with iron tools, by the men, has removed wood-getting from the women's sphere of labor. Occasionally an old widow, or a woman whose husband is an invalid, may be seen chopping wood or gathering fallen branches.

'*Ok'owà*, 'bark' ('*o*, unexplained; *k'owà*, tegument, bark). This word has been heard only at San Juan Pueblo, where *k'owà* is also in use. Thus: *te'ok'owà*, 'cottonwood bark' (*te*, *Populus wislizeni*; '*ok'owà*, bark).

Qwiðè (Hano Tewa, *qwi*), 'shreddy bark' (*qwi*, fiber; *ðè*?). So far as could be learned, *qwiðè* is said of the bark of the one-seeded juniper only. This is very shreddy and is a favorite substance for kindling fires. Thus: *huqwiðè* (Hano Tewa, *huqwi*), 'bark of the one-seeded juniper' (*hu*, one-seeded juniper; *qwiðè*, shreddy bark). *Huk'owà*, 'bark of the one-seeded juniper' (*hu*, one-seeded juniper; *k'owà*, tegument, bark) may also be used.¹

HAIR, SPINE, THORN

P'o, 'hair.' This word is said of any kind of hair on animals or plants. The down of birds is called thus. The diminutive form is *p'o'e*, 'little hair' (*p'o*, hair; '*e*, diminutive).

Ķe, 'sharp-pointed thing.' This is the adjective *Ķe*, 'sharp-pointed', used as a noun. Thus: *p'aĶe*, 'sharp point at the end of a yucca leaf' (*p'a*, *Yucca baccata*; *Ķe*, sharp-pointed thing).

Ŷwæ, 'spine', 'thorn.' This word is applied to cactus spines and all kinds of thorns. Thus: *joŶwæ*, 'spine of the long cactus' (*jo*, long cactus; *Ŷwæ*, spine); *k'a'aŶwæ*, 'rose thorn' (*k'a'a*, rose; *Ŷwæ*, spine).

'*Agusà*, 'needle' (< Span. *aguja*). This word may be used of cactus spines: *jo'agusà*, 'spine of the long cactus' (*jo*, long cactus; '*agusà*, needle).

One might mention here also verbs, as *nĶke*, 'it is sharp' (*nĶ*, it; *Ķe*, to be sharp); *dijun*, 'it pricks me' (*di*, it me; *jun*, to pierce, to prick).

¹ Is Gatschet's "Keres *uáka*, Rinde" (in *Zwölf Sprachen aus dem Südwesten Nordamerikas*, p. 61, Weimar, 1876), a misprint for Rind or Rinder? The Cochiti call cattle *wákg*; the Tewa of Hano, *wakà* (< Span. *vaca*, cow).

GROWTH OF PLANTS

'A, 'to grow.' Thus: *nǎ'a*, 'it grows' (*nǎ*, it; 'a, to grow); *nǎ'a-ǎŋŋǎ*, 'it grows slowly' (*nǎ*, it; 'a, to grow; 'ǎŋŋǎ, slow); s&x-@&, 'it grows fast' (*nǎ*, it; 'a, to grow; 'ǎñu, fast). Hano Tewa, 'awǎ, 'spread wide,' applied to tendrils of vines, squashes, etc., and apparently to trees of spreading foliage. Thus: 'awǎ *tsaŋwæ*, 'spread-wide greenness,' a female personal name given by the White Fir clan at Hano.

Pi, 'to come up,' 'to grow up.' Thus: *nǎpi*, 'it comes up' (*nǎ*, it; *pi*, to come up). This is said of a plant sprouting and growing up out of the ground.

Pa, 'to burst,' 'to crack.' This is said of a plant unfolding or opening. Thus: *sanǎpapo'*, 'the tobacco bursts open or unfolds' (*sa*, tobacco; *nǎ*, it; *pá*, to burst; *po'*, to become).

Of leaves (or flowers) opening and spreading wide the Tewa say *ǎǎǎikalawasi*, *ǎǎǎipǎǎwasi* 'the 3+ leaves open themselves,' 'the 3+ flowers open themselves' (*ǎǎǎi*, prefixed reflexive pronoun third person 3+ plural; *ka*, leaf; *pǎǎ*, flower; *wasi*, to spread open). Thus, in a war-song sung at Hano: 'iweŋŋ 'alijowa *ǎmæ pegan ǎǎǎikalawasi*, 'thence the sunflowers, bursting open on every side, spread wide their leaves' ('iweŋŋ, Hano dialectic emphatic form of 'iweŋŋ, thence; 'alijowa, Hano name for 'sunflower' ? species; *ǎmæ*, in all directions; *pegan*, bursting; *ǎǎǎi*, prefixed reflexive pronoun third person 3+ plural; *kala*, Hano dialectic form of *ka*, leaf; *wasi*, to spread open). The same expression is used figuratively of clouds, thus: 'ok'wwa *ǎmæ ǎǎǎipǎǎwasi*, 'the clouds in all directions open their flowers' ('ok'wwa, clouds; *ǎmæ*, in every direction; *ǎǎǎi*, prefixed reflexive pronoun third person 3+ plural; *pǎǎ*, flower; *wasi*, to spread open).

HABITS OF GROWTH

Nwiŋ, 'to stand.' Thus: *nǎwŋŋ*, 'it stands' (*nǎ*, it; *wŋŋ*, to stand).

'Aŋwŋŋ, 'to grow in a standing position' ('a, to grow; *wŋŋ*, to stand). Thus: *nǎ'aŋwŋŋ*, 'it grows in a standing position' (*nǎ*, it; 'a, to grow; *wŋŋ*, to stand).

Ko, 'to lie.' Thus: *nǎko*, 'it lies' (*nǎ*, it; *ko*, to lie).

'Ako, 'to grow in a lying position' ('a, to grow; *ko*, to lie). Thus: *nǎ'ako*, 'it grows in a lying position' (*nǎ*, it; 'a, to grow; *ko*, to lie).

Mæŋ, 'to go.' Thus: *nǎmæŋ*, 'it sends out growth' (*nǎ*, it; *mæŋ*, to go).

'*Amæŋ*, 'to grow sending out growth' ('*a*, to grow; *mæŋ*, to go). Thus: *nǎ'amæŋ*, 'it grows sending out growth' (*nǎ*, it; '*a*, to grow; *mæŋ*, to go).

Jiⁱ, 'to go about.' Thus: *nǎjiⁱ*, 'it grows all about' (*nǎ*, it; *jiⁱ*, to go about).

'*Ajiⁱ*, 'to grow spreading about' ('*a*, to grow; *jiⁱ*, to go about).

P'i^l, 'interlaced.' Thus: *nǎp'i^lmy*, 'it is interlaced' (*nǎ*, it; *p'i^l*, interlaced; *my*, to be). This is said of vines which grow through other plants.

DENSE GROWTH, FOREST, GROVE

Ka, 'thick', 'dense', 'dense growth', 'forest'. This word is used as an adjective and as a noun. Thus: *toka'iy*, 'a sagebrush plant of dense growth' (*to*, sagebrush plant; *ka*, thick, dense); *toka* 'sagebrush thicket,' 'place where the sagebrush is thick' (*to*, sagebrush; *ka*, dense growth, forest). *Ka* is used alone meaning forest, just as the Mexicans use *monte* and *bosque*. With names of geographical features postjoined, *ka* may be translated 'wooded' or 'where there is much vegetal growth.' Thus: *toka'akonv*, 'a plain or valley where the sagebrush grows thick' (*to*, sagebrush; *ka*, thick, thick growth; '*akonv*, plain, valley); *kabugè*, 'a low place where there is much vegetal growth' (*ka*, thick, thick growth; *bugè*, low roundish place).

Boi^l, *bi^l*, 'thing roundish like a ball, 'pile,' 'clung.' *Boi^l* is said of large, *bi^l* of small size. Thus: *teboi^l*, 'grove of cottonwood trees' (*te*, *Populus wislizeni*; *boi^l*, grove). Often *ka*, 'thick' is prejoined to *boi^l*. Thus: *kaboil*, 'a clump or grove of thick vegetal growth' (*ka*, thick, - thick growth; *boi^l*, clump, grove).

CONDITION OF PLANTS

Wowà, 'to be alive.' Thus: *nǎwowà*, 'it is alive' (*nǎ*, it; *wowà*, to be alive).

Tfu, 'to be dead.' Thus: *nǎtfu*, 'it is dead' (*nǎ*, it; *tfu*, dead).

Ke (Hano Tewa, *kale*), 'to be strong,' 'to thrive.' Thus: *nǎke*, 'it is strong,' 'it thrives' (*nǎ*, it; *ke*, to be strong, to thrive). The expression opposite in meaning would be *winǎkepi*, 'it is weak' (*wi*, negative; *nǎ*, it; *ke*, to be strong; *pi*, negative).

He, 'to be sick.' Thus: *nǎhe*, 'it is sick' (*nǎ*, it; *he*, to be sick). The expression opposite in meaning would be *winǎhepi*, 'it is well' (*wi*, negative; *nǎ*, it; *he*, to be sick; *pi*, negative).

WORMS, GALL-BALLS

Puḃæ, 'worm.' This applies to all kinds of worms. Thus: *k'umpuḃæ*, 'corn worm' (*k'um*, corn; *puḃæ*, worm).

Puḃæñæŋ, 'cobweb-like nest of worms as seen in apple trees' (*puḃæ*, worm; *ñæŋ*, nest). These are carefully destroyed.

Puḃæbe, 'gall-ball,' literally 'worm-ball' (*puḃæ*, worm; *be*, small thing roundish like a ball). *Be* is used alone in the same sense. Thus in Hano Tewa: *p'umele*, 'rabbit&brush ball' (*p'um*, rabbit-brush; *mele*, Hano dialectic form of *be*, ball).

'*Obobo*, 'red swelling on willow leaf.' This word can not be analyzed. It is also the Tewa name of *Dorotea Pino* of San Ildefonso.

Of a worm-eaten plant one may say: *nǎpuḃækomu*, 'it is worm-eaten' (*nǎ*, it; *puḃæ*, worm; *ko*, eaten; *mu*, to be).

CHEMICALLY CHANGED VEGETAL MATTER

P'a'u, 'charcoal.'

At Santa Clara charcoal is taken in hot water as a remedy for cough and sore throat; the hot water is poured on and the mixture stirred and allowed to settle. The water is then drunk.

For laryngitis piñon charcoal *top'a'u* (*to*, piñon nut; *p'a'u*, charcoal) is wrapped in a wet cloth, which is then tied about the throat as a compress.

Charcoal in water is taken for biliousness.

Kup'a'u, 'coal,' literally 'stone charcoal' (*ku*, stone; *p'a'u*, charcoal).

Kup'a'ukwæ, 'bitumen,' literally 'stone charcoal gum' (*ku*, stone; *p'a'u*, charcoal; *kwæ*, gum). A Santa Clara informant, when he happened to see some coal tar at Santa Fe, gave the name as *pokænu*, but this name is usually applied to mica.

Ny, ‘ashes.’

Ashes are stirred into the dough for making *buwa* (waferbread, Spanish *guallabe*) and *buwa kawa* (corn tortillas), in order to turn it blue. At Hano the ashes of a wild plant, *ʔaʔæŋ* (*Atriplex canescens*) are preferred, but at the end of the winter, when the supply runs short, the ashes of sheep’s dung are substituted.

Ashes of corncobs are boiled with white corn in order to make it swell. Fray Juan de Escalona in his private report from San Gabriel (Chamita), 1st October, 1601, refers probably to a similar practice; he says that the Indians, having been robbed of their corn, are eating wild seeds mixed with charcoal.¹

At Santa Clara warm ashes are rubbed on to relieve pain in the shins, attributed to cold. *Nyפו*, ‘ash water’ (*ny*, ashes; *פו*, water) is given to children as a medicine.

At Santa Clara and at San Ildefonso, when children have measles ashes are dusted over the eruption with a cloth to sooth the irritation. Hence the malady is called *nykewe* (*ny*, ashes; *kewe*, —).

At the time of the Spanish advent ashes were mixed with adobe for building material.

Torquemada’s informant mentions the use of ashes in signaling: “They [the Pueblo Indians] know of their enemies’ approach from far off, and in order that the neighboring pueblos may come to their aid, the women go up to the top of their houses and throw ashes into the air, and behind this make a smothered fire so that by giving a thicker smoke it may be better seen by the other pueblos whose help they desire, and the women, striking their hands on their open mouths, raise a great cry which sounds loud and far off . . .”

Castaña de Sosa, in 1590, described the throwing of ashes, perhaps in token of defiance: “The lieutenant went back to the pueblo to parley with them again, and they would not; on the contrary an Indian woman came out on a balcony of the said houses, which are as much as four or five stories high, and threw a small amount of ashes at him, and at this they set up a great clamor, and he withdrew.”²

1 Torquemada, *Monarchia Indiana*, lib. v, p. 672.

2 *Doc. de Indias*, xv, p. 229.

COLOR OF PLANTS

LIGHT, DARKNESS, COLOR, PAINTING, LINES, SPOTS

Ki, 'to be light.' Thus: *năkină*, 'it is light' (*nă*, it; *ki*, to be light; *nă*, present). This verb seems to refer only to daylight.

T'e (Hano Tewa, *t'ele*), 'to shine.' Thus: *năt'enă*, 'it shines' (*nă*, it; *t'e*, to shine; *nă*, present). This verb is used of the sun: *năt'ant'e*, 'the sun shines' (*nă*, he; *t'an*, sun; *t'e*, to shine).

Ko, 'a light.' This noun is used of the light of a candle, lamp, lantern, fire, firefly, glowworm, etc. Of the light shining one may say: *năkot'e*, 'the light shines' (*nă*, it; *ko*, a light; *t'e*, to shine); or *năkoke*, 'the light is bright' (*nă*, it; *ko*, a light; *ke*, to be strong).

Pa'aw or *pa'agè*, 'sunny place,' 'sunny side of a pueblo' (*pa'a*, ? akin to Jemez *pe*, 'sun'; *à*, *gè*, locative).

K'uŋ, 'to be dark.' Thus: *năk'uŋnă*, 'it is dark' (*nă*, it; *k'uŋ*, to be dark; *nă*, present). *K'uŋ* is used as an adjective in the form *k'uŋw* (*k'u*, to be dark). Thus: *p'ok'uŋw'i*, 'dark hole' (*p'o*, hole; *k'uŋw*, dark).

'Ok'æŋ, 'shade,' 'shadow.'

Kænnugè or *kæniŋgè*, 'shady place,' 'shady side of a pueblo' (*kæŋ*, cf. *'ok'æŋ*, above; *nugè*, *'iŋgè*, at the side).

'Otsa, 'glittering.' Thus: *k'u'otsa'i*, 'glittering stone' (*k'u*, stone; *'otsa*, glittering).

'Otsapi, 'dull,' 'glossy' (*'otsa*, glittering; *p'i*, negative). The usage of this term with the meaning 'glossy' is curious. Thus: a *'otsapi'iŋ*, 'glossy cloth' (*'a*, cloth; *'otsa*, glossy).

There is no word meaning 'color.' One asks: *haw'ăŋ'ub'i kaĉajù* *'ummu*, 'how is your horse?', meaning 'what color is your horse?' (*haw'ăŋ*, how; *'ub'i*, of you 1; *kaĉajù*, horse; *'uŋ*, it with reference to you 1; *mu*, to be). If this is not definite enough one might follow the question with *ha p'i'i* *ha tsæ'i*, 'is it red or is it white?' (*ha*, or; *p'i*, red; *ha*, or; *tsæ*, white).

Tă'ăŋ (Hano Tewa, *t'a*), 'painted,' 'painting.' Thus: *năt'ămmu*, 'it is painted' (*nă*, it; *tă'ăŋ*, painted; *mu*, to be); *toba tă'ăŋđi i*, 'painted cliff' (*toba*, cliff; *tă'ăŋ*, painted).

T'u, 'spotted.' The attributive form is *t'uw* (*t'u*, spotted). Thus: *năt'umu*, 'it is spotted' (*nă*, it; *t'u*, spotted; *mu*, to be); *tse t'uw'i*, 'spotted dog' (*tse*, dog; *t'uw*, spotted).

Pindù (Hano Tewa, *pintù*), 'spotted' (< New Mexican Span. *pinto*). Meaning and use are the same as those of *t'u*. Thus: *tse pindù'i'i*, 'spotted dog' (*tse*, dog; *pindù*, spotted).

Qwaì, *qwiì* (Hano Tewa, *kwælxæ*), 'line,' *qwaì* referring to a broad line and *qwiì* to a narrow line.

COLOR ADJECTIVES

Tsæ, 'white,' 'whiteness.' Thus: *nǎtsæmu*, 'it is white' (*nǎ*, it; *tsæ*, white; *mu*, to be); *poðì tsæ'iy*, 'white flower' (*poðì*, flower; *tsæ*, white).

P'ey, 'black,' 'blackness.' Thus: *nǎp'emmu*, 'it is black' (*nǎ*, it; *p'ey*, black; *mu*, to be); *poðì p'en'iy*, 'black flower' (*poðì*, flower; *p'ey*, black).

Pi (Hano Tewa, *p'ili*), 'red,' 'redness.' Thus: *nǎp'immu*, 'it is red' (*nǎ*, it; *pi*, red; *mu*, to be); *poðì pi'iy*, 'red flower' (*poðì*, flower; *pi*, red).

Tse, 'yellow,' 'yellowness.' The attributive forms are *tsèr'i*, *tsèj'i'iy*. Thus: *nǎtsemu*, 'it is yellow' (*nǎ*, it; *tse*, yellow; *mu*, to be); *poðì tsèj'i'iy*, 'yellow flower' (*poðì*, flower; *tsèj'i*, yellow).

Tsǎnwæ, 'blue,' 'blueness,' 'green,' 'greenness.' In *tsǎnwæ*, 'hot,' the second syllable is lower than the first. *Tsǎnwæ* is applied to the sky, vegetation, unripe fruit, blue or green stones, turquoise, etc. Thus: *nǎtsǎnwæmu*, 'it is blue or green' (*nǎ*, it; *tsǎnwæ*, blue or green; *mu*, to be); *poðì tsǎnwæ'iy*, 'blue or green flower' (*poðì*, flower; *tsǎnwæ*, blue or green).

Posiwì, 'watery green,' 'watery greenness' (*po*, water; *si*,[?] to stink; *wì*, unexplained. Cf. *Posi*, Ojo Caliente). *Posiwì* is applied to water of greenish appearance, as that of the mineral spring at Ojo Caliente, Taos county, New Mexico; also to cloth and paint of similar color. Thus: *nǎposiwìmu*, 'it is watery green' (*nǎ*, it; *posiwì*, watery green; *mu*, to be); *po posiwì'i'i*, 'greenish water' (*po*, water; *posiwì*, watery green).

'A, 'brown,' 'brownness.' The attributive form is *'awì*. Thus: *nǎ'āmu*, 'it is brown' (*nǎ*, it; *'ā*, brown; *mu*, to be); *poðì 'āwì'iy*, 'brown flower' (*poðì*, flower; *'āwì*, brown).

Ho, 'gray,' 'grayness.' The attributive form is *howì*. Thus: *nǎhomu*, 'it is gray' (*nǎ*, it; *ho*, gray; *mu*, to be); *poðì howì'iy*, 'gray flower' (*poðì*, flower; *howì*, gray).

Hano Tewa *'okju*, 'glimmering,' 'grayish;' *'okjutse*, 'grayish yellowness,' was used, for instance, in referring to the fir tree.

Tsæto, 'buff,' 'buffness.' The attributive form is the same. Thus: *nǎtsæto'mu* 'it is buff' (*nǎ*, it; *tsæto*, buff; *mu*, to be); *poðì tsæto'iy*, 'buff flower' (*poðì*, flower; *tsæto*, buff).

Kǎ 'buff-brown,' 'buff-brown color.' The attributive form is the same. Thus: *nǎkǎmɥ*, 'it is buff-brown' (*nǎ*, it; *kǎ*, buff-brown; *mɥ*, to be); *pōḍi kǎ'iy* 'buff-brown flower' (*pōḍi*, flower; *kǎ*, buff-brown).

Tsæge, 'many-colored,' 'all-colored,' 'variegated,' 'state of having many all, or variegated colors,' 'iridescent,' 'iridescence.' The colors may be distributed in separate patches, or blent. "When we look at a crow feather and its color seems to be changing all the time, black, green, and red, we say: *nǎtsægemɥ*, 'it is iridescent' " (*nǎ*, it; *tsæge*, many-colored, iridescent; *mɥ*, to be). Thus: *pōḍi tsæge'iy*, 'many-colored flower' (*pōḍi*, flower; *tsæge*, many-colored). The Tewa name of Gregorita Vigil of San Ildefonso is *Tsægepōḍi*, 'flowers of many-coloredness' (*tsæge*, many-coloredness; *pōḍi*, flower). There is a clan at San Ildefonso called *K'uy tsæge'iy towà*, 'Many-colored Corn clan' (*k'uy*, corn; *tsæge*, many-colored; *towà*, person, people).

Tæmægi, 'of many kinds,' 'state of being of many kinds,' 'many-colored,' 'many-coloredness.' Meaning and usage are the same as those of *tsæge*, except that *tæmægi* never refers to iridescence and often does not refer to color. Thus: *nǎtæmægimɥ*, 'it is of many kinds' (*nǎ*, it; *tæmægi*, of many kinds; *mɥ*, to be); *pōḍi tæmægi'iy*, 'flower of many kinds of color' (*pōḍi*, flower; *tæmægi*, of many kinds).

COLOR-ADJECTIVE COMPOUNDS

Almost any two color adjectives may be compounded to denote an intermediate color. Thus: *tsǎŋwæho*, 'bluish gray' (*tsǎŋwæ*, blue, green; *ho*, gray); *tsetsǎŋwæ*, 'yellowish blue' (*tse*, yellow; *tsǎŋwæ*, blue), said of the color of the middle of a tufted-eared squirrel's back. 'Light' is usually rendered by postpounding *t̄sæ*, 'white'; 'dark' by postpounding *p'ey*, 'black.' Thus: *t̄sæt̄sæ*, 'light yellow' (*tse*, yellow; *t̄sæ*, white); *p̄ip'e'y*, 'dark red' (*p̄i*, red; *p'ey*, black). But certain color adjectives are never compounded with certain others. Thus: *p̄it̄sæ* (*p̄i*, red; *t̄sæ*, white) is never used, a compound of irregular meaning signifying 'light red.' This compound is *p̄i'ǎ*, 'light red,' 'pink,' literally 'red brown' (*p̄i*, red; 'ǎ, brown). *P̄i'ǎ* is applied to pink corn and even to objects of a buff-yellow color. *T̄sæ'ǎ* (*t̄sæ*, white; 'ǎ, brown) is said of whitish corn. It may be that 'ǎ in *p̄i'ǎ* and *t̄sæ'ǎ* has merely a weakening force like *ish* 'in Eng. 'reddish,' 'whitish.' 'ǎ seems not to be postpounded to other color adjectives.

Hano Tewa, *t'ulugi, t'ulu*, 'many-colored' Thus, in the war song:
k'ulum pōḍi pojo pōḍi Sek'æ pōḍi kwæ lu pōḍi p'ili'a t'ulugi.

1 Corn flower, squash flower, cotton flower, *kwælu* flower, red-gray (and) many-colored. The fur of a rabbit is described as *t'ulu'i*.

COLOR-ADJECTIVE MODIFIERS

Jo, augmentative postpound, 'very,' 'intensely.' Thus: *ḥiʒo*, very red (*ḥi*, red; *jo*, augmentative); *náḥiʒomɥ*, 'it is very red' (*ná*, it; *ḥi*, red; *jo*, augmentative; *mɥ*, to be); *poḏḏi ḥiʒo'íŋ*, 'intensely red flower' (*poḏḏi*, flower; *ḥi*, red; *jo* augmentative). *Jo* can not be postjoined to any color adjective the attributive form of which ends in *wì*. Thus it can not be added to *k'ɥ, t'ɥ, á, ho*. *T'ɥjo* is the name of the "Black Mesa" north of San Ildefonso pueblo, but has no other meaning.

Ḳowidi, 'very.' This precedes the color adjective as a separate word. Thus: *Ḳowidi náḥimɥ*, 'it is very red' (*Ḳowidi*, very; *ná*, it; *ḥi*, red; *mɥ*, to be); *poḏḏi Ḳowidi ḥi'íŋ*, 'very red flower' (*poḏḏi*, flower; *Ḳowidi*, very; *ḥi*, red).

Hæwaqḏ, 'very.' This precedes the color adjective as a separate word. Thus: *hæwaqḏ náḥimɥ*, 'it is very red' (*hæwaqḏ*, very; *ná*, it; *ḥi*, red; *mɥ*, to be); *poḏḏi hæwaqḏ ḥi'íŋ*, 'very red flower' (*poḏḏi*, flower; *hæwaqḏ*, very; *ḥi*, red).

Piwonŋ, 'very,' 'too.' This precedes the color adjective as a separate word. Thus: *piwonŋ náḥimɥ*, 'it is very red' (*piwonŋ*, very; *ná*, it; *ḥi*, red; *mɥ*, to be); *poḏḏi piwonŋ ḥi'íŋ*, 'very red flower' (*poḏḏi*, flower; *piwonŋ*, very; *ḥi*, red).

Hano Tewa, *'imo*, 'very.' Thus: *'imo nátsáŋwæmɥ*, 'it is very blue or green' (*'imo*, augmentative; *ná*, it; *tsáŋwæ*, blue, green; *mɥ*, to be); *'imo ná't'amɥ*, 'it is highly decorated,' 'it is variegated' (*'imo*, augmentative; *ná*, it; *t'a*, variegated; *mɥ*, to be).

He, 'somewhat,' 'slightly,' 'a little.' This precedes the color adjective as a separate word. Thus: *he náḥimɥ*, 'it is somewhat red' (*he*, somewhat; *ná*, it; *ḥi*, red; *mɥ*, to be); *poḏḏi he ḥi'íŋ*, 'somewhat red flower' (*poḏḏi*, flower; *he*, somewhat; *ḥi*, red).

OTHER QUALITIES OF PLANTS

SIZE

Sojo, 'large.' Thus: *nǎso'jomu*, 'it is large' (*nǎ*, it; *so'jo*, large; *mu*, to be). The attributive forms are irregular: *so'jo*, an., min. sing.; *so'ɔŋ*, *so'ɔniŋ*, veg. sing., an., veg., min. dual, an. 3+ plu.; *so'ɔndi'i*, veg., min. 3+ plu.

Hehæñun, 'large.' Thus: *nǎhehæñumu*, 'it is large' (*nǎ*, it; *hehæñu*, large; *mu*, to be). The attributive forms are irregular: *hehæñu'i*, an., min. sing.; *he'ehæ'niŋ*, veg. sing., an., veg., min. dual, an. 3+ plu.; *hehæ'ndi'i*, veg., min. 3+ plu.

He, 'large.' Thus: *nǎhemu*, 'it is large' (*nǎ*, it; *he*, large; *mu*, to be). The attributive forms are irregular: *he'i*, an., min. sing.; *he'enŋ*, veg. sing., an., veg., min. dual, an. 3+ plu.; *he'edi'i*, veg., min. 3+ plu.

Jo, augmentative postpound. This is used very irregularly only with certain adjectives and nouns. It seems to be the last syllable of an., min. sing. *so'jo*, 'large.'

Tfæ, 'small.' Thus: *nǎtfæmu*, 'it is small' (*nǎ*, it; *tfæ*, small; *mu*, to be). This word is used only in the singular: *tfæ'i*, an., min., sing.; *tfæ'iŋ*, veg. sing. The dual and 3+ plu. forms are supplied by *hiñæ*, *tajevi*, etc.; see below.

Hiñæ, 'small' Thus: *nǎhiñæmu*, 'it is small' (*nǎ*, it; *hiñæ*, small; *mu*, to be). The attributive forms are irregular. Thus: *hiñæ'i*, an., min. sing.; *hi'inŋ*, veg. sing., an., veg., min. dual, an. 3+ plu.; *hi'indi'i*, veg., min. 3+ plu.

Tajevi, 'small' Thus: *nǎtajevimu*, 'it is small' (*nǎ*, it; *tajevi*, small; *mu*, to be). The attributive forms are irregular: *tajevi'i*, an., min. sing.; *tajendi'iŋ*, veg. sing., an., veg., min. dual, an. 3+ plu.; *tajendi'indi'i*, veg., min. 3+ plu.

'*E*, diminutive postpound. This may be added to any noun. Thus: '*agojo'e*, 'little star' (*agojo*, star; '*e*, diminutive). It does not alter the gender of the noun. The accent of '*e* in the sing. is falling; in the dual and 3+ plu., circumflex.

- Tsfǎ*, 'to taste,' intransitive. Thus: *hǎn nǎtsfǎ*, 'how does it taste?' (*hǎn*, how; *nǎ*, it; *tsfǎ*, to taste); *hiwɔn nǎtsfǎ*, 'it tastes good' (*hiwɔn*, good; *nǎ*, it; *tsfǎ*, to taste) ; *hǎnwǎbo^o winǎtsfǎpi*, 'it has no taste' (*hǎnwǎbo^o*, nothing; *wi*, negative; *nǎ*, it; *tsfǎ*, to taste; *pi*, negative).
- 'ǎ*, 'to be sweet', 'sweet', 'sweetness.' Thus: *nǎ'ǎ*, 'it is sweet' (*nǎ*, it; *'ǎ*, to be sweet); *ka 'ǎ'ǎ*, 'sweet leaf' (*ka*, ' leaf; *'ǎ*, sweet); *'ǎkǎkinǎtsfǎ*, 'it tastes insipid' (*'ǎ*, sweet; *kǎkǎ*, like; *nǎ*, it; *tsfǎ*, to taste).
- Tsiŋ*, 'to be sticky.' This is also said of taste, Thus: *nǎtsiŋ*, 'it is sticky' (*nǎ*, it; *tsiŋ*, to be sticky).
- 'Ojohē*, 'to be sour,' 'sour,' 'sourness.' Thus: *nǎ'ojohē*, 'it is sour' (*nǎ*, it; *'ojohē*, to be sour); *bē'ojohē'ǎ*, 'sour apple' (*bē*, apple; *'ojohē*, sour).
- 'Oje*, 'to be sour,' 'sour,' 'sourness.' Thus: *nǎ'oje*, 'it is sour' (*nǎ*, it; *'oje*, to be sour); *bē'oje'ǎ*, 'sour apple' (*bē*, apple; *'oje*, sour).
- P'ahǎŋ*, 'to be burnt.' This is also said of taste. Thus: *nǎp'ahǎŋ*, 'it is burnt,' 'it has a burnt taste' (*nǎ*, it; *p'ahǎŋ*, to be burnt; Ger. *angebannt sein*).
- 'I'ǎ*, 'to be bitter,' 'bitter,' 'bitterness.' Thus: *nǎ'ǎ*, 'it is bitter' (*nǎ*, it; *'ǎ*, to be bitter); *ka 'ǎ'ǎ*, 'bitter leaf' (*ka*, leaf; *'ǎ*, bitter).
- Sǎ*, 'to be hot or burning to the taste, like chile pepper,' 'hot or burning to the taste,' 'hot or burning taste,' 'substance which has a hot or burning taste.' Thus: *nǎsǎ*, 'it tastes burning, like chile,' (*nǎ*, it; *sǎ*, to be hot or burning to the taste); *ka sǎ'ǎ*, 'leaf with hot or burning taste' (*ka*, leaf; *sǎ*, hot or burning to the taste).
- Suwà*, 'to be warm,' 'warm,' warmth.' Thus: *nǎsuwà*, 'it is warm,' 'it has a warm taste' (*nǎ*, it; *suwà*, to be warm); *ka suwà'ǎ*, 'warm leaf' (*ka*, leaf; *suwà*, warm).
- Tsǎŋwǎ*, 'to be hot,' 'hot,' 'heat.' Thus: *nǎtsǎŋwǎ*, 'it is hot,' 'it has a hot taste' (*nǎ*, it; *tsǎŋwǎ*, hot); *ka tsǎŋwǎ'ǎ*, 'hot leaf' (*ka*, leaf; *tsǎŋwǎ*, hot).
- 'Okawì*, 'to be cool,' 'cool,' 'coolness,' 'to be cold,' 'cold,' 'coldness.' Thus: *nǎ'okawì*, 'it is cool or cold,' 'it tastes cool or cold' (*nǎ*, it; *'okawì*, to be cool or cold); *ka 'okawì'ǎ*, 'cool or cold leaf' (*ka*, leaf; *'okawì*, cool or cold). This word is never applied to the weather.

'*Asæ*, 'to taste salty, or alkaline' ('*ǎ*, alkali; *sæ*, to taste hot, like chile). '*ǎ* also appears as the first syllable of '*ǎñæ*, 'salt' ('*ǎ*, alkali; *ñæ*, as in *kunæ*, turquoise). Thus: *nǎ'asæ*, 'it tastes salty or alkaline' (*nǎ*, it; '*ǎ*, alkali; *sæ*, to taste hot, likechile).

A prickling or puckering taste seems to be expressed by '*sojohæ*, '*oje* or *sæ*. Of a nauseating taste one says merely, *ǎihewo'*, 'it makes me sick' (*ǎi*, it me; *hæ*, to be sick; *wo'*, causative).

ODOR

Sy, 'to smell,' intransitive. Thus: *hǎn nǎsy*, 'how does it smell?' (*hǎn*, how; *nǎ*, it; *sy*, to smell) ; *hǎnwæbo'* *winǎ sypi*, 'it has no odor' (*hǎnwæbo'*, nothing; *wi*, negative; *nǎ*, it; *sy*, to smell; *pi*, negative). This verb appears in all terms denoting kinds of odor. Thus: *nǎsyke*, 'it smells strong' (*nǎ*, it; *sy*, to smell; *ke*, to be strong); *hæa'aŋ nǎsy*, 'it smells faintly' (*hæa'aŋ*, slight; *nǎ*, it; *sy*, to smell); *nǎ'ǎsy*, 'it smells sweet' (*nǎ*, it; '*ǎ*, sweet; *sy*, to smell); *nǎsisi*, 'it stinks' (*nǎ*, it; *si*, giving the meaning to stink; *sy*, to smell).

Nouns with the postfix *wagè*, 'like,' are very common with *sy*, 'to smell.' Thus: *sawagè nǎsy*, 'it smells like tobacco' (*sa*, tobacco; *wagè*, like; *nǎ*, it; *sy*, to smell).

FEELING

ǎñæ, 'to be smooth,' 'smooth,' 'smoothness.' Thus: *nǎ'ǎñæ*, 'it is smooth' (*nǎ*, it; '*ǎñæ*, to be smooth); *ka 'ǎñæ'iŋ*, 'smooth leaf' (*ka*, leaf; '*ǎñæ*, smooth).

Ko, 'to be rough,' 'rough,' 'roughness.' Thus: *nǎko*, 'it is rough' (*nǎ*, it; *ko*, to be rough); '*o ko'vi*, 'rough metate' (*o*, metate; *ko*, rough).

Pæ, 'cracked,' 'cracked surface.' Thus: *nǎpamy*, 'it is cracked or chapped' (*nǎ*, it; *pæ*, cracked; *my*, to be); *ka pæ'iŋ*, 'cracked leaf' (*ka*, leaf; *pæ'iŋ*, cracked).

Tsi, 'to be sticky.' Thus: *nǎtsi*, 'it is sticky' (*nǎ*, it; *tsi*, to be sticky).

Tsiðè, 'sticky,' 'stickiness.' Thus: *nǎtsiðèto*, 'it is sticky' (*nǎ*, it; *tsiðè*, sticky; *to*, causative); *ka tsiðè'iŋ* 'sticky leaf' (*ka*, leaf; *tsiðè*, sticky).

P'o, 'hairy,' 'hair.' Thus: *nǎp'omy*, 'it is hairy' (*nǎ*, it; *p'o*, hairy; *my*, to be).

Nwæ, 'thorny,' 'thorn.' Thus: *nǎnwæmy*, 'it is thorny' (*nǎ*, it; *nwæ*, thorny; *my*, to be).

Jyŋ, 'to pierce.' Thus: *nǎjyŋ*, 'it pierces' (*nǎ*, it; *jyŋ*, to pierce); *nǎjyŋto*, 'it is prickly' (*nǎ*, it; *jyŋ*, to pierce; *to*, causative).

Sǎŋhe, 'to hurt' (*sǎŋ*, giving the meaning to hurt, to pain, intransitive; *he*, to be sick). Thus: *nǎ sǎŋhe*, 'it hurts' (*nǎ*, it; *sǎŋhe*, to hurt).

Suwà, 'to be warm,' 'warm,' 'warmth.' Thus: *nǎ suwà*, 'it is warm' (*nǎ*, it; *suwà*, to be warm).

Tsǎŋwæ, 'to be hot,' 'hot,' 'heat.' Thus: *nǎ tsǎŋwæ*, 'it is hot' (*nǎ*, it; *tsǎŋwæ*, to be hot); *ka tsǎŋwæ'ìŋ*, 'hot leaf' (*ka*, leaf; *tsǎŋwæ*, hot).

'*Okaù* (Hano Tewa, '*okaù*) 'to be cold,' 'cold,' 'coldness.' Thus: *nǎ'okaù*, 'it is cold' (*nǎ*, it; '*okaù*, to be cold); *ka 'okaù'ìŋ*, 'cold leaf' (*ka*, leaf; '*okaù*, cold). *Tsǎŋwæ* and *suwà* may be used of things hot to the touch; the same expressions, also *nǎ'í*, 'it is cold,' are applied to the weather; '*okaù* cannot properly-be used with reference to the weather.

Ke (Hano Tewa, *kele*), 'hard,' 'hardness.' Thus: *nǎkemy*, 'it is hard' (*nǎ*, it; *ke*, hard; *my*, to be).

Tæðì, 'to be soft,' 'soft,' 'softness.' Thus: *nǎtæðì*, 'it is soft' (*nǎ*, it; *tæðì*, to be soft); *ka tæðì'ìŋ*, 'soft leaf' (*ka*, leaf; *tæðì*, soft).

K'a (Hano Tewa, *k'ala*), 'to be heavy,' 'heavy,' 'weight.' Thus: *nǎk'a*, 'it is heavy' (*nǎ*, it; *k'a*, to be heavy); *ka k'a'ìŋ*, 'heavy leaf' (*ka*, leaf; *k'a*, heavy). Light, opposite of heavy, is expressed by the negative *winǎk'api*, 'it is light' (*wi*, negative; *nǎ*, it; *k'a*, to be heavy; *pi*, negative); *ka k'api'ìŋ*, 'light leaf' (*ka*, leaf; *k'a*, heavy; *pi*, negative).

WETNESS AND DRYNESS

Po, 'water.' Thus: *nǎponǎ*, 'it is wet' (*nǎ*, it; *po*, water; *nǎ*, to be present, to have); *nǎpomy*, 'it is wet' (*nǎ*, it; *po*, water; *my*, to be).

'*Omy*, 'moisture.' Thus: *nǎ'omyǎ*, 'it is moist' (*nǎ*, it; '*omy*, moisture; *nǎ*, to be present, to have).

Pose (Hano Tewa, *posele*), 'dew' (*po*, water; *se*, unexplained). Thus: *nǎposenǎ*, 'it is dewy,' said either of an object or of the weather (*nǎ*, it; *pose*, dew; *nǎ*, to be present, to have).

Ta, 'to be dry,' 'dry,' 'dryness.' Thus: *nǎ'ta*, 'it is dry' (*nǎ*, it; *ta*, to be dry); *nǎ'tanǎ*, 'it is dry' (*nǎ*, it; *ta*, dryness; *nǎ*, to be present, to have).