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# 'The Basket is in the Roots, That's Where it Begins'

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**T**HE renown of Pomo basketry in the ethnographic literature has been based almost exclusively on form, fineness and evenness of stitch, symmetry, design, and, to a lesser extent, technique. Pomo basketweavers, however, have continually stressed that an essential part of learning the art of basketry is learning the art of root collection. One of the biggest complaints about new weavers, Indian and non-Indian alike, is as follows: 'They don't want to learn how to dig and prepare those roots. They can't call themselves weavers until they learn how to do that.' This paper maintains that the cultivation of basketry roots is a significant factor in the superior reputation of Pomo baskets. According to a celebrated Dry Creek weaver, 'the basket is in the roots, that's where it begins' (Fig. 1). Consequently, we explore here the processes of basket sedge collection (i.e., cultivation) that the Pomo practice.<sup>1</sup> We also include the characteristics and qualities that weavers use in assessing sedge roots and comment on sedge root exchange and value.<sup>2</sup>

## SEDGE IN LITERATURE

The rootstocks of sedge (*Carex* sp.)<sup>3</sup>

provide one of the most important basketry elements used by the Pomo (Hudson 1893:567-568; Chesnut 1902:314). Baskets made from sedge form the basis for much of the Pomo's reputation for excellence in basketry, allowing for a fineness and evenness of stitch that is by some standards without equal anywhere (Hudson 1893:562, 576; Purdy n.d.:19; Curtis 1924:57; Kroeber 1925:144, 147). Samuel Barrett (1908:137) observed:

The fine woody fibers make it possible to dress sewing elements down to a size hardly larger than that of a fine thread, and it is from this material that almost all of the very finest Pomo baskets are chiefly made.

V. K. Chesnut (1902:314) wrote that baskets made from sedge "are known technically as 'root baskets' and are the strongest, most durable, and most costly that are made."

Discrepancies arise in the Pomo ethnographic literature as to the species of *Carex*, or sedge, used as basketry elements. Some authors record only one species (Hudson 1893:567; Purdy n.d.:21), while others record two or more being used (Chesnut 1902:315; Mason 1904:443; Barrett 1908:137; Merrill 1923:236).

As a sewing element sedge roots were first identified by J. W. Hudson (1893:567). He reported only one species, "slough grass" "*kah-hoóm*," and identified it as *Carex mendocinoensis* (1893:567-568).

In Chesnut's (1902:315) work, the first discrepancy, and the apparent cause of all



Fig. 1. 'The basket is in the roots, that's where it begins.'

future problems of identification, arose when "ka-hoóm" was recorded as *Carex barbarae*. Chesnut made no mention of *C. mendocinoensis* or why he recorded "kah hoóm" (now written ka-hom) as *C. barbarae*. The possibility that Chesnut was correcting Hudson's misidentification is supported by the fact that Chesnut (1902:314fn) cited the authority upon which his identifications were based, whereas Hudson did not.

This unresolved confusion was perpetuated by later authors, some of whom recorded only *C. mendocinoensis* as the principal species (Purdy n.d.:21), others recording only *C. barbarae* (Mason 1904:443; Barrett 1908:137), and still others recording both (Merrill 1923:236).

Carl Purdy (n.d.:21), writing in 1901-1902, recorded "ka-hum" or "*Carex mendocinoensis*" as the most important of the basketry elements, apparently having used Hudson's (1893) earlier work.

Barrett (1908:137), without citing the basis of his identification, recorded the use of *C. barbarae*. No mention was made of *C. mendocinoensis*.

Edith Merrill (1923:236, 230) reported that both *C. mendocinoensis* and *C. barbarae* were used by the Pomo as a wrapping element, with *C. barbarae* recorded as one of their "chief materials." Her sources for *C. mendocinoensis* must have been Hudson (1893) and/or Purdy (n.d.), because her study was based solely on published sources (Merrill 1923:216); her source for *C. barbarae* must have been Chesnut (1902) and/or Barrett (1908). It should be noted that she apparently misapplied Hudson's (1893:568) common name "slough grass" to *C. barbarae* (1923:236).

Two additional unidentified species are also discussed in the ethnographic literature. One of these, occurring in the vicinity of Clear Lake, was reported by Barrett (1908:137); the other, *Carex vicaria*, found in Round Valley outside of Pomo territory, was recorded by

Chesnut (1902:315) and is not of concern here.

Because the confusion in the literature between *C. mendocinoensis* and *C. barbarae* cannot be resolved based solely on the literature, and because Barrett's data concerning his unidentified Clear Lake species are insufficient for identification, ethnobotanical fieldwork is needed.

According to the botanical literature (Munz and Keck 1968:1429), *Carex* is the largest genus of flowering plants in California and, with its more than 1000 species, one of the largest in the world. Though hybridization is common, it has been rarely observed or reported in California. Munz and Keck record 144 species in California; of these, 3 are introduced, 15 extend beyond North America, and 21 are endemic to the state.

The discussion of *Carex* in Munz and Keck (1968:1436-1468) reveals interesting data on its extensive distribution in California. Of the 29 plant communities recorded (Munz and Keck 1968:12-18), species of *Carex* occur in all but four.<sup>4</sup> *Carex* grows in all types of soils, alkaline or acidic, barren or fertile, marshy or dry, and occurs from sea level to the timberless Sierran peaks, with *Carex haydeniana* growing at 13,600 feet maximum elevation. Some species are of wide occurrence while others are quite restricted. Of all the species recorded, *Carex rossii* has the widest range, from sea level to 12,400 feet; however, sedge is conspicuously absent in the arid desert regions and the lodgepole pine forests.

## SEDGE TRACTS

Though *Carex* is widespread and common in Pomo territory, not all sites where it occurs are used as sources of basket roots. According to older basketweavers, tracts of sedge were widespread before the turn of the century, and most Pomo tribelets had a local source of roots.

The terms 'tracts' and 'beds' are used here

to reflect a Pomo point of view in that they refer only to those sites known to be used. Basketweavers divide tracts into one of two types: 'river root tracts,' typically growing along the Russian River and its tributaries; and 'coastal root tracts,' growing along water courses closer to the coast. These geographical divisions overlap and refer *not* to individual species of *Carex* but to many species growing in the same general region. For example, coastal sedges are also found along the Russian River as far upstream as Guerneville, Sonoma County. A third type of sedge tract may possibly exist in the Clear Lake region (see Barrett 1908:137); however, our fieldwork to date has not confirmed this.

Within coastal and river root divisions, there are three types of beds: 'sand root' beds; 'dirt root' beds; and heavy clay beds. Sand root beds consist principally of sand, and are the most preferred because they yield the whitest roots, which are used in the finest baskets. Sand root beds occur in both coastal and river tracts though principally in coastal tracts. Dirt root beds consist of a mixture in varying proportions of loosely-compacted sand and soil. It is said that these roots grow faster than those found in sand because of the additional nutrients available in the soil of dirt root beds. Dirt root beds occur along stream and river bands in low bottom land and yield a less-preferred colored root, from off-white to brown. Dirt root and heavy clay beds are most commonly found in the river region. Heavy clay beds consist of highly-compacted soil characterized by the absence of sand and the presence of clay. These beds are recognized but not used because, even with extensive use, they only yield short, kinky roots. Heavy clay beds usually occur above the flood plain and are associated with springs.

In both the coastal and river regions, there are a number of preferred tracts. The earliest record of a preferred tract, a river root tract, located near Hopland, appears in Hudson

(1893:568). Today's most preferred tracts yielding the highly prized river roots occur in Mahilkaune Pomo territory along Dry Creek, Sonoma County. An elderly Dry Creek weaver recalls that these tracts were used at least as early as 1875.<sup>5</sup> The oldest of the basketweavers remember Dry Creek as being the most continuously and most extensively used area in the Russian River basin. Indians from Mendocino, Lake, and Sonoma counties use, when given a choice, the Dry Creek tracts exclusively. Today's most preferred coast root tracts occur along the Navarro River, Mendocino County.

Although there is no record in the ethnographic literature on private ownership of sedge tracts among the Pomo, many basketweavers today establish informal 'claims' on certain beds through extended usage, though they make no attempts to prevent others from using these sites. One Ukiah Pomo weaver stated that 'in the early days' the locations of sedge tracts were kept secret: 'They only tell their relatives.'<sup>6</sup> After being dug, roots were coiled and carefully concealed in the bottom of a burden basket; the women then returned home, pretending their digging sticks were walking sticks. Dry Creek women were apparently unconcerned with concealing the whereabouts of their preferred tracts, and said that people who were 'stingy' with the locations of new tracts would lose their luck in finding roots.

Basketweavers today find themselves excluded from their sedge beds by fences and trespass laws. This reduced access is a sore point among weavers, since they are required to either 'sneak around' to use the few good local tracts or travel great distances to other sites. Such enforced activity constitutes not only a physical hardship and inconvenience for these elderly women, but an economic hardship as well, since the resulting increase in travel expenses reduces profits from the sale of baskets.

In addition to being denied access to collecting tracts, weavers must contend with the continuing problem of tract destruction. The earliest recorded description of the destruction of a sedge bed is that of one near Hopland:

... before the thrifty rancher found the true value of this rich alluvium in hop culture the [Indians] from rancherias far and near would come and gather these preferred roots [Hudson 1893:568].

Tracts continue to be destroyed by gravel mining operations (see Allen 1972:19), flood control, and commercial, agricultural, and industrial development.

### THE COLLECTION PROCESS

Weavers possess intimate knowledge of the different functions of the sedge root systems (Fig. 2). 'Basket sedges' are 'everlasting plants' (perennial), with grass-like triangular stems that reproduce both with flowers and through spreading rhizomes. The mature or "parent plants" have two separate root systems: one consisting of rootlets or 'foundation roots' that grow vertically into the soil, supplying water and minerals; the other comprising rhizomes and yielding 'basketry roots.' These rhizomes or 'runners' grow to form an underground root network that firmly 'anchors the plant,' reducing the erosional effects of the rivers and streams along which it grows. The roots of sedge plants with multiple runners are called 'family roots': the longest root is the husband, the next longest is the wife, and the shorter roots are the children.

The new season's growth are 'spring roots' and are recognized by sharply pointed tips or 'spurs.' The second season's roots are called 'ripe roots,' referring to their maturity for basketry purposes. In later years, if not collected, a rhizome will sprout and come to the surface, eventually growing a mature crown of foliage, foundation roots, and its own

rhizomes. After this original rhizome has established a new plant, it turns black with age and rots away completely in a few years.

### Tract Maintenance

An essential ingredient in the development and maintenance of sedge root tracts is the recognition and modification of environmental conditions vital for yielding the finest roots. It seems reasonable to suggest that in pre-contact times, because sedge root elements were essential in subsistence technology and ceremonial basketry, weavers maintained tracts to insure predictable supplies. In modern times, though the emphasis of basketry is primarily a commercial one, tract maintenance is no less important.

Collectors are faced with a delicate problem: they must obtain an adequate root supply and at the same time insure the tracts' continued viability. To accomplish this, weavers today use a collection strategy regulated through supernatural sanctions and taboos that is compatible with the reproductive mechanisms of sedge. Proscriptions, taboos, and the weavers' specialized knowledge of the requirements of sedge insure not only the survival of the plants but also the supply of roots as well. For example, sexual and menstrual taboos serve in part to regulate the number of days available for collecting, thereby reducing collection pressure on the tracts.

The earliest record of tract maintenance and "primitive agriculture" was presented by Mason (1902:443):

Mr. Coville draws attention to a bit of primitive agriculture ... The Pomo women insist that the toughest and finest roots can be obtained only at certain spots. Unconsciously they have been making this true by means of their digging sticks and clam shells, during all the years loosening the ground and removing weeds.

The removal of rocks, branches, other roots,



Fig. 2. Sedge collecting at a preferred site along Dry Creek, Sonoma County.

and debris from beds results in a loose, homogenous soil that allows free expansion of the roots. Competition from extraneous plants is eliminated by 'weeding them out' (see Mason 1904:443; Allen 1972:19).

In frequently cultivated or 'easy digging' beds, the roots are removed before they have the opportunity to become tangled. In beds cultivated infrequently, obstructions cause roots to grow bent or 'kinky.' These beds are 'kinda hard digging' because they contain roots from several seasons, which usually become tangled. In beds rarely or never cultivated, the soil has a tendency to become compact, and generally contains an abundance of extraneous debris. These beds, characterized as 'rough digging,' yield very short, thick, kinky, and tangled roots. With frequent and continued cultivation, all sand and dirt root beds can in time yield finer sedge roots.

There is no need for the beds to be left fallow to restock the roots, as the plants "will make runners again next spring and [the roots will] be good in the fall" (Theodoratus *et al.* 1975:174). Basketmakers know that if they carefully dig out the older roots, leaving the spring runners behind to mature, that sedge beds can be harvested on a yearly basis without danger of depletion.

When digging, weavers are careful to replant short pieces of roots and accidentally unearthed young plants, and have at times transported these to other locations for the establishment of new tracts (cf. Theodoratus *et al.* 1975:173). Transplantation of other types of plants has been recorded for areas of California (see Bean and Lawton 1973:xxvi); however, its practice is of unknown antiquity among the Pomo.

Basketweavers recognize that improper

digging techniques are detrimental to the beds. According to weavers, there is definitely a right way to dig sedge roots. Because of this, they are reluctant to bring inexperienced individuals to their favored spots. Today, the collection pressure on the preferred beds is very high, as they are few in number and basketry classes are growing in popularity. Basketmakers agree that students must learn the collection process before they are considered weavers; therefore, collecting trips are required as part of the curriculum. Non-preferred beds are used for the training of novices in cultivation and collection in order to preserve preferred areas. By using less preferred beds to train weavers, basketmakers are able to 'thin out' the tangled roots and, in time, to develop these beds into preferred tracts.

In summary, through cultivation of sedge beds, weavers increase the quantity and quality of the roots in addition to extending the size of tracts. As long as sedge beds are cultivated, they supply a predictable and probably indefinite resource.

### Collecting Restrictions

Today sedge gathering is not considered a wholly secular activity; for many weavers it is "spiritual" (Theodoratus *et al.* 1975:179). Highly specific, supernaturally sanctioned "rules" exist in two different stages of the collection process—those in force before leaving for the beds and those in force while collecting. The extent and degree of observance varies with different individuals (Theodoratus *et al.* 1975:179). It seems reasonable to suggest that in earlier times ritual restrictions were more extensive and more widely observed than today.

All weavers except one Ukiah Valley woman, who is also a singing doctor, agree that menstruating women and 'their men' have never been allowed to collect roots, and that violation of this rule results in sickness: 'It's

just like having worms in your body; those worms look just like those short roots.' The Ukiah Valley doctor and weaver does not observe menstrual restrictions: 'This is modern times and I'm a modern Indian. It doesn't affect me. I've my own rules, I'm different that way.'

Menstruating women are said to be more susceptible to rattlesnake bite if they dig for roots: 'Those snakes are attracted by that waste blood, they'll bite that woman.' A Dry Creek weaver has said:

There are restrictions on handling sedge roots because 'the women are afraid of the snakes.' A snake may have crawled over the root while it was in the ground, causing the weaver to become ill and require a doctor [Theodoratus *et al.* 1975:179].

All collectors agreed that in earlier times sexual abstinence was observed before and during root collection. 'If a man sleeps with a woman, his thing will get like those roots; it looks funny, the women won't go around him anymore, that's his punishment,' remarked a Cloverdale Pomo woman. She also commented: 'Those roots will get jealous if they [the collectors] do that [have intercourse], they'll go to somebody else, and you'll have those other people's luck.'

The singing doctor from Ukiah sings as instructed by the 'spirit' before collecting her roots. She also 'prays' for others before they collect to protect them from snakes, especially rattlesnakes.

Other observances are reported for the Dry Creek Pomo:

While digging for sedge, a consultant was asked the Dry Creek name for the plant, and replied: "I'll tell you when we get back home, if I tell you now they will go back on me," meaning she will not have any more luck in locating roots [Theodoratus *et al.* 1975:178].

One Cloverdale woman remarked: 'You shouldn't brag about your roots before you



have 'em, you're going to come home with an empty sack if you do that.' She also stressed the importance of complimenting or 'talking good about the roots.' She considered it proper to exaggerate the length of roots so as not to offend them even though they may be short: 'Sometimes those roots test you, they come up short to see how you're going to talk about them, hear what you're going to say. If you talk good about them they'll come up long.' She also stated that roots dug after dark will turn black, and if collectors eat acorn bread while collecting, the roots will turn 'dark like the bread.' One Upper Lake woman and her family abstained from drinking water while collecting roots.

Another weaver (a Cache Creek sucking doctor) observes the following rules:

She only collects the roots in the morning hours when it is not raining, and eats no food prior to gathering. After she collects the roots, it is washed off in the creek and is washed again when she returns home [Theodoratus *et al.* 1975:179].

Some weavers are said to have more luck in digging the roots than others. Luck is acquired by observing the rules for collecting. Certain individuals also own special songs which bring luck. Angelica is carried by some to 'make 'em lucky for the roots,' as well as to protect them while collecting.

### Collecting Seasons

The season for collecting sedge roots varies between coast and river root tracts. Within river root tracts, the collecting season also varies between sand and dirt root beds. Such variation may also exist within the coastal root tracts, although this is yet undetermined.

The time for collecting river roots was reported by Hudson (1893:568) as follows:

During the summer months and even into the fall, as long as the rising waters would permit [access to the beds] . . .

Chesnut (1902:317) recorded that river roots were collected during the summer and early fall. According to Allen (1972:18), in referring to roots two or more seasons old,<sup>7</sup> sedge is collected "generally in early spring." A Ukiah Pomo weaver, referring to river roots,<sup>8</sup> has commented that "sedge grass roots are at their best in the fall of the year, about October"; however, "it is possible to cut these roots any time of the year . . ." (Newman 1974:7). According to Theodoratus *et al.* (1975:176):

Dry Creek Pomo basketmakers have recently reported that the 'old timers' gathered sedge 'after the first rains in the fall, when the ground loosens up.' The roots at this time of the year are 'seasoned up ripe, it's not too fresh.' In recent years, sedge root has been gathered during all seasons, though winter weather makes collection difficult.

Our discussion with basketmakers regarding the collecting season led to the following conclusions: (1) Sand root beds are best collected from late summer to the first rains in the fall, when the spring growth is mature. (2) Dirt root beds are best dug after the early fall rains when the soil has loosened up: 'The digging's easier then.' Basketmakers also agreed that today, with access to sedge beds limited, 'Anytime is the best time, dig them whenever you get the chance.'

### Collection Method

Root digging is often a family affair, with men, women, children, and old people participating (Fig. 3). Many times 'they'd make a big trip of it, camp a week at a good spot,' with everyone collecting and the men doing the 'heavy work.'

In the early days, a fire-hardened, single-pointed, hardwood digging stick was used to loosen the soil and expose the roots. The earliest description of sedge collection by the Pomo was reported by Hudson in 1893:



Fig. 3. A young weaver learning about sedge plants.

Armed with a clam shell in one hand and a short stick in the other, he takes a bunch of this grass as a starting point, and lays bare its radiating roots. Selecting the best of these, he grasps the root between the first and second toe, and gently lifts it a little, to indicate its hidden course under the sand to the next bunch. This fact ascertained the clam shell scoops out, while the stick carefully loosens all stones or hardened earth in its path, till soon a little trench some three or four inches deep, uncovers the beginning of this *kah hoom* gem. The work is slow and careful, lest the sharp edge of a rock cut or bruise the tender fiber, whilst in the rear like a ship's rudder the guiding foot and protecting toes keep pace [Hudson 1893:568-569].

Older basketmakers are familiar with this collection method, but are unable to contribute additional details.

Tools used in root collection have changed since Hudson's time. The digging stick was first replaced by the crowbar, and later the tire iron. The crowbar was said to be too heavy and cumbersome: 'It tired the men out too soon, it was even harder digging for the women.' The tire iron quickly found widespread acceptance, as it is lighter and more efficient than the crowbar. Allen (1972: 18) noted that a "three-pronged curved fork was used in the old days, and a similar steel fork for digging can be used today." Other basketmakers refer to these as 'grubbing hooks.' They consist of three equally spaced and pointed prongs, attached like a hoe blade, at right angles to a handle (Allen 1972:18). The length of the handle and the overall weight of the 'hook' vary with different individuals. When basketweavers find a hook that's 'right for them,' they tend to favor it above all others. In addition to the grubbing hook, "your hands and fingernails also help a lot in separating a long root from the soil (Allen 1972:18)."

The method of sedge root collection using modern tools has been described as follows:

The space between the prongs allows it to

be drawn easily through the soil and when a root is reached, the tool is so constructed as to minimize damage to either the root or the parent plant. It is used to scratch the soil from around the parent plant to expose where the runners lie. Once a runner is found, it is carefully traced by digging the soil away from either side until the end is reached. The runner is then firmly grasped and pulled directly upwards. The parent stock and the root separate easily [Theodoratus *et al.* 1975: 176].

Though modern tools have replaced those described by Hudson, the techniques as well as the approach to collection remain the same, namely, to obtain sedge roots while insuring the continual productivity of the beds.

Other tools are also used in collection (i.e., cultivation). Spading forks are sometimes used by men to thin out a patch if the roots and plants are particularly dense from lack of cultivation. As a rule, digging tools with flat prongs or blades are avoided, since they tend to cut the roots. Newman (1974:8) recently recorded the use of a "small garden fork" for digging sedge roots. Allen (1972:18) recorded the use of a trowel; however, other basketmakers regard it as awkward and prone to cut the roots.

One of the differences observed between older, experienced basketmakers and those of less experience is the individual's posture while digging. More experienced individuals sit while digging to make their work easier. Less experienced individuals stand bent over while digging: 'I guess they're embarrassed to sit like us old Indians.' Experienced basketmakers associate stooping with 'kinky' roots: 'They'll get kinky roots standing that way.' Other comments were: 'You get too tired standing that way'; 'That's the way white people dig their roots.'

It was observed that those who stand dig by hoeing and chopping rather than by gently digging: 'You can tell when somebody's been

digging who doesn't know how, they chew up the ground and tear up the roots.'

Basketmakers say that men do not have enough patience to 'dig out the roots. When they get tired, they cut them off anywhere. They don't dig them out all the way. They start out good, but you know how those men are.'

A review of Hudson (1893:569-570) revealed a seeming contradiction between the number of root coils collected per day in the 1890s and today. He observed that in a good day's work a man will collect ten roots, and a woman will often double this amount. He recorded that their roots were usually four or five feet in length, depending upon the condition of the soil and the disposition of the collector, and that the "splittings from two roots make a coil convenient to handle" (Hudson 1893:569-570). A good day's work would then yield five to ten coils per day. However, basketmakers today report that 'one good day's digging' in a preferred tract yields 'three or four coils.' This seeming contradiction is resolved by the fact that there is no standardized root count in a coil, and that modern coils are substantially larger than those reported by Hudson.

The structure and efficiency of the grubbing hook appears to have revolutionized root digging. This tool allows greater ease of manipulation and greater soil moving capacities than were ever possible with a digging stick. The three prongs of the cultivator can be compared to having the efficiency of three digging sticks simultaneously, and it would therefore represent a three-fold increase in effectiveness over the digging stick. It seems reasonable to estimate that the cultivator could reduce digging time up to one-third of that required by either digging sticks or tire irons. In other words, a root formerly uncovered with the digging stick in 30 minutes (Hudson 1893:569) could now be uncovered with the cultivator in only 10 minutes. Women who once gathered 20 roots per day (Hudson

1893:569) could now be collecting 60. Men who formerly gathered 10 roots per day (Hudson 1893:569) could now collect 30.

## ROOT QUALITIES

Five interrelated qualities are recognized by basketmakers in assessing sedge roots: length, color, straightness, strength, and pliability. The importance of these qualities varies according to the intended use of the basket, which in turn determines the basketry technique required.

Root length varies, depending upon where the plant occurs. Roots under 15 cm. are generally avoided: 'They're not good for much; too short.' As a rule, the longer the root, the better. Sand beds yield the longest roots; the longest observed during our fieldwork was over 2 m. and was dug in Dry Creek, Sonoma County. Sand roots over 1.75 m. are not uncommon, but the average length is between 60 and 90 cm.

The color of sedge roots varies from white to pale lemon (Hudson 1893:573), to cream-colored (Hudson 1893:569), to tan, to a rich brown. The term 'white roots' refers to roots pure white in color. This term is also applied to the whitest of the cream-colored roots. Though all colors of sedge are used, white is by far the most preferred. Sand beds produce the whitest roots, their color being attributed to the 'white color of the sand.' Dirt roots are a rich brown, reportedly taking on the color of the dark soil. 'Old roots,' regardless of the soil they grow in, are also brownish in color.

A rich brown color is additionally associated with 'under the leaf roots,' which typically occur along stream beds in well-shaded, moist areas under trees. After a sufficient leaf cover has developed, the sedge roots grow above the ground and 'run under the leaves.' The color of under the leaf roots, like dirt roots, is brown. This is attributed to the brown color of the fallen leaves.

Straightness is an important root quality because it affects root strength. Roots growing in beds that contain obstructions in the soil have a tendency to kink or bend: 'The root goes along until it comes to a hard place, then it turns and makes a kink.' It appears that roots seek lines of least resistance and grow straighter in soil that they can easily penetrate. These kinky or bent roots are the least preferred because the kinks must be cut out, yielding a series of lengths rather than a single long root. Additionally, each kink causes a weak spot, which is compounded to the point of breaking when the root is split and cleaned. In addition to their proneness to splitting unevenly, the split sections are narrower at the point of the kink, and the overall section needs to be sized to the width of the kink. Oftentimes the kink can be reduced by 'thinning it out,' i.e., reducing the width and thickness of the overall element. Although the result is a fine, thread-like root, when used as a sewing element the kink causes an uneven stitch that does not lie flat as 'straight roots,' and is therefore avoided in the finer-coiled baskets. In the majority of instances, the bent section of the root is simply cut out, resulting in two shorter pieces. As one weaver commented, 'You only go through all that work if you're hard up for roots.'

Roots that are particularly short and kinky are called 'old-lady roots.' 'When the ladies get old, they get shorter and bent over. That's how these roots get their name.' Kinky roots are more preferred over the old-lady roots because the sections between the kinks are longer.

In general, the more pliable roots are preferred; however, the lack of pliability can to some extent be compensated for by splitting, sizing, and soaking. Coast roots are said to be by far the most pliable of the roots.

Age affects length, strength, pliability, and color. The ideal age for roots is between one and three years. Age as a selective factor in collection usually refers to roots three or more

seasons old, large in circumference, and brown in color. These old roots have specialized uses. Each new season's growth is 'spring roots' and is gathered in the fall. As a rule, approximately 15 cm. near the tip are removed because of softness. Immature spring roots, 'young roots,' are avoided because the inner tissue is too soft and easily broken. As new growth matures in the fall, this soft tissue becomes dense and woody, i.e., 'gets seasoned.'

There is no doubt that basketmakers recognize different types of sedge roots and are aware of the special properties of each. They consider these properties in the weaving technique, in the preparation of the element, and in the subsequent use of the basket (cf. Merrill 1923:228).

Sand roots, because of their color, are used for the fine coiled ceremonial or gift baskets (see Theodoratus *et al.* 1975:171), since these whitest of roots are preferred as background to the black or red designs. White is also the preferred background for twined gift baskets. 'White roots' are used in feather baskets where the inner surface is readily apparent, e.g., in 'sun baskets' and plate form baskets. Because these baskets are used in ceremonial exchanges and as offerings, it is important to use only the finest of roots.

In earlier times, a basketmaker of any repute would strive to have all her baskets made from the whiter sedge roots. When asked why, since with age and use all sedge roots baskets darken, a basketmaker recently told us that the basket will darken evenly all over and will not 'spot,' i.e., not darken unevenly.

Dirt roots, because of their color, are used to repair older baskets whose elements have darkened with age and can be used on either twined or coiled baskets, being especially preferred for the latter. Dirt roots tend not to be used in fine baskets; however, they can be used in baskets where the elements are concealed by feathers. Dirt roots are not used, however, in 'sun baskets' or plate form feather

baskets where the inner surface is readily visible.

Although longer roots have a more generalized use in Pomo basketry, shorter roots are also used. The short, straight sections between the kinks of the old lady roots and kinky roots are used for making miniature baskets; however, longer roots are preferred for these miniatures since 'the baskets go faster' (i.e., they do not require as much weaving time). Shorter roots require continual sizing and replacing of new sewing elements as they become too short: 'For those little ones, longer roots are best; you can go all the way with one or maybe two roots.' Another use of shorter roots is for the white contrast between the black design elements: 'Sometimes you need just a few white stitches—those short ones are good for that.' Shorter roots are also used in repairing coiled baskets.

Old roots, because of their age, are 'thicker' or larger in circumference than other roots. The shortest and thickest of these are called 'chubby roots.' Because old roots are 'wide when you split them,' they yield a wide, strong 'flat root.' Because of their pliability and strength, flat roots are particularly well-suited for use on plain twined work baskets: 'They make a strong weave, a strong basket.' Also, the wide elements obtained from flat roots 'make the weaving go fast.' Old roots become fibrous with age and, for this reason, are only soaked a short time. If oversoaked, they tend to split apart into fibers. Old roots are brown and, like dirt roots, are used to repair old age-darkened baskets.

Coastal roots, due to their pliability, are preferred by some weavers for use in miniature baskets: 'It makes weaving the tiny stitches easy.' Because of flexibility ('you can cinch it up tight'), coastal roots are also preferred for lattice and other twined weaves, i.e., close twining that demands a rigid warp material and a very flexible woof (cf. Merrill 1923:229).

According to weavers, the major drawback

of baskets woven with coast roots is their inability to be used with water for any length of time, since the elements break up into individual fibers. One basketmaker has reported that coast roots were not used for cooking baskets or 'mush baskets.'

River roots, in contrast to coast roots, are known for their dense, tough strands which range in color from white to tan. These tough elements yield very strong and durable twined and coiled baskets. They require comparatively lengthy soaking to soften, but the fibers do not break apart and are therefore suited for most purposes. River roots are more widely available and used than coastal roots and are far more common in modern Pomo baskets.

### EXCHANGE AND VALUE

Although sedge occurs throughout the Pomo and adjacent territories, this did not preclude exchange for roots, though Davis (1966) recorded none. Since certain types of sedge not found locally are preferred for specific basketry techniques, exchange is required. Today, exchange becomes even more important as preferred tracts in local areas become destroyed or access to them is denied, forcing weavers to travel to new beds or to purchase roots.

Hudson (1893) recorded the value of sedge in terms of clam shell disc beads and other basketry roots. It seems reasonable to advance the hypothesis that sedge roots formed a part of the intra- and inter-tribe exchange system of the Pomo.

Since 1893 there has been a gradual increase in the price of sedge coils (Table 1). The period just before and after the turn of the century was a period of intensive selling or trading of baskets by Pomo weavers for money and/or goods. Pomo baskets were in great demand by ethnographers for museum collections, serious collectors, and those who collected because it was stylish for the times (Mason 1904:187-

Table 1

THE VALUES OF SEDGE ROOTS<sup>9</sup>

| Date of Value | Amount of Sedge Roots   | Equivalent Value   | Source             |
|---------------|-------------------------|--|--------------------|
| 1893          | 5 bunches               | 100 clam beads<br>sm. bunch bullrush<br>6 bunches redbud | Hudson (1893:572)  |
| 1899          | 1 bunch                 | 65 clam beads  | Mason (1900:347)   |
| c. 1900       | 1 coil                  | 50 <sup>c</sup>  | Cloverdale Pomo    |
| c. 1920       | 1 coil                  | \$1.00   | Cloverdale Pomo    |
| c. 1940s      | 1 coil                  | \$1.25   | Dry Creek Pomo     |
| 1962          | 1 coil                  | \$5.00   | Cloverdale Pomo    |
| 1970s         | 1/2 of a cleaned root   | 25 <sup>c</sup> to 50 <sup>c</sup>                       | Kashaya Pomo       |
|               | 1/4 coil                | \$5.00   | Cloverdale Pomo    |
|               | 1 coil                  | \$20.00  | Cloverdale Pomo    |
| 1974          | 1 coil                  | \$15.00  | Cloverdale Pomo    |
| 1975          | 1 coil                  | \$20.00  | Cloverdale Pomo    |
|               | 1 coil of "coast roots" | \$35.00  | Cache Creek Pomo   |
| 1976          | 1 coil                  | \$25.00  | Coyote Valley Pomo |
|               | 1 coil                  | \$25.00  | Cloverdale Pomo    |

188). The rise in prices between 1893 and 1920 reflects this interest and, possibly more important, is indicative of the decreasing number of preferred sedge beds. Weavers are forced to go outside of their local areas to purchase or trade for roots. According to weavers, the years before World Wars I and II marked a low point in the sale of baskets and sedge coils. The post-war period brought a renewed interest in the sale and collection of Pomo baskets. According to weavers, this was also the period of extensive land development that contributed to the demise of collecting tracts. Reduction in the number of preferred tracts and the declining number of experienced weavers brought about rising prices for sedge coils and subsequently the baskets themselves. When recently asked about the prospects for the future in terms of sedge root and basket prices, a weaver replied: 'Like the white people say nowadays, prices are going up.'

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## NOTES

1. All information contained within single quotation marks and not cited comes directly from consultants. These quotation marks only appear the first time the word or words are used.
2. We conducted the initial research for this paper as part of a contract (DACW07-75-C-0022) with the U.S. Army Corps of Engineers, San Francisco District, in association with an Environmental Impact Statement for the Warm Springs Dam-Lake Sonoma Project, Sonoma County, California. Other principals involved in the overall research (an ethnographic survey of the Dry Creek Mahilkaune Pomo, see Theodoratus *et al.* 1975) included Dorothea J. Theodoratus and Clinton M. Blount.

Ethnobotanical research for this paper was carried out intermittently from September, 1974, to March 1976, and involved participant observation and interviewing. Pomo basketweavers from Dry Creek, Ukiah, Upper Lake, Cache Creek, Cloverdale, Stewart's Point, Potter Valley, and Coyote Valley were consulted. We acknowledge here their patience, understanding, and wealth of knowledge and offer our sincere appreciation for affording us the opportunity to learn from them. To Dave Fredrickson, for his gentle but firm prodding, without which we would still be in the field, our appreciation. From Shirley Silver, though not a basketweaver, we have also learned much. Without her "nudging," editorial pencil, support, and patience, we would still be at the typewriter. Our appreciation to Sid Stafford, Santa Rosa Junior College, for his fine photographic work.

3. Sedge or *Carex* as used here refers to only those species of sedge whose roots are used as basketry elements by the Pomo.

4. *Carex* is not found in: Shadscale Scrub, Alkali Sink, Lodgepole Forest, and the Joshua Tree Woodland (Munz and Keck 1968:14-16, 18).

5. Information from consultants has been related, where possible, to the modern designations of specific Pomo tribelets. Where the information has not been specified, it may be construed to have general applicability for all of the Pomo tribelets.

6. The phrase 'in the early days' as used by consultants refers to some time before 1890.

7. Personal communication with Elsie Allen (January 27, 1976).

8. Personal communication with Molly Jackson, January 27, 1976.

9. Coils as used here consist of cleaned and split root elements.

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