

# AGAVE AS A TRADE ITEM

by Elaine Holmes

A Bureau of Land Management (BLM) archaeologist, addressing SNRAE (Southern Nevada Rock Art Enthusiasts) September, 1997 mentioned agave as a trade item. Since I have an interest in researching trade routes and wares, my curiosity was piqued, thus I researched and wrote this paper in 1998. Three questions rose immediately to mind: was there documentation of agave use as a trade substance; what was the “shelf life” of the agave product as it traveled the trade routes; and, what was the nutritional value of agave? Trying to track the answers to these three questions led to more than I ever wanted to know about agave.

Research revealed another area to be considered: what were some of agave’s uses other than as a food item? Along with a short history of this amazing plant, an attempt will be made to answer these questions. The most prevalent term for agave in Northwestern Mexico is “mescal” which is of Indian origin. In central Mexico, with the Spanish conquest, it became known as maguey. These two synonyms are used to describe the edible portions of the agave plant.

## History and Range

Agave (Greek for “noble”) is essentially a plant of the lower mountain and foothill areas inhabiting mesa sides, limestone slopes and bajadas and low, cool canyons of the 2000-7000 foot range (Moore 1989). Agave thrived in the southwest from western Texas, through parts of southern New Mexico, almost all of Arizona, parts of southern Nevada and in the southern area of California. Of course Mexico (including Baja) had and still has most of the 136-300 varieties (depending on which expert is quoted).

In Nevada, Castetter et al. (1938) say the species extends from the Sheep Range southwards “...and occurs commonly in the general vicinity of Las Vegas at elevations about 4000 feet and upward. Near the summit of Mountain Springs Pass, north of Olcott Peak in the Charleston Mountains, some of the hillsides are almost covered with the species. It is very abundant in the lower portions of the pinon belt of the southern part of the state, particularly in the Virgin and Mormon mountains.” Agave quids or chews (sometimes called “yants”) were found in ruins such as Gypsum Cave, Nevada. Harrington (Castetter et al. 1938) found quids of the type *agave utahensis* in the upper layers of Gypsum Cave and logically reasoned these had been used as food. Although Harrington thought much of Gypsum Cave was of Basketmaker

culture, he concluded these quids were of more recent deposit. Harrington also found quids in Paiute Cave near Overton, Nevada.

When Spaniards began colonizing more northern regions of their “Nuevo Espanola” they conscripted local laborers and farmers who took along the maguey to sustain them. Both Spaniards and Portuguese carried agave overseas to the Azores, Canary Islands, Africa and Asia. “Agave hosted man in the New World; man transported and hosted agave in the Old World” (Gentry 1982). Agave perhaps had as much to do with fostering agriculture as any other plant. It is believed that agave was cultivated from 5000 B.C. onward.

Professor E. O. Callen (Nabhan 1985), investigating coprolites of O’Campo caves of Northeast Mexico, is credited for documenting human consumption of agave leaf tissue for food dating back to 6200 B.C. He believes agave was as major a food item as prickly pear, meat and mesquite.

Archaeologists Miksicek, Paul and Fish have recently found there was intensive prehistoric reliance on agave in central Arizona (Nabhan 1985). Miksicek and Bohrer sometimes found agave as frequently as corn in plant materials recovered from late Hohokam sites (Nabhan 1985). They conclude such extensive use of agave must have come from “long-distance transport” or local cultivation because no agaves now exist where the remains were found.

Susan Tweit (1992) notes that even a group of people, southern New Mexico’s Mescalero Apache, were named for their diet and trade in mescal. She also states that agave roasting pits are common Southwestern archaeological sites, dating back at least 8000 years.

The use of agave as a food staple cannot be over-emphasized. “Various native Americans survived lean years eating virtually no other food.” (Nobel 1994).

### **Were agave products used as trade items?**

Documentation for this question was exceedingly hard to find but once located the answer was a resounding “yes.” In addition to Miksicek, Bohrer and Tweit previously cited, Castetter (1935) says, “an extensive commerce in this product was formerly carried on, chiefly between the Apache and outlying tribes such as the Hopi and Pueblo Indians of the Rio Grande Valley.”

Castetter et al. (1938) have been the major source of answers.

-- the Hualapai Indians gave Father Garces, traveling in 1776, mescal for food.

- in 1876 Palmer “observed Hualapai pressed the roasted crowns and leaves...into large, thin cakes which they traded to the Hopi for maize.”
- Northeastern Yavapai visited Navajo country with mescal and other articles for trade.
- Western Yavapai traded mescal with the Navajo and also to the Yuma, Mohave and Papago.
- the Mohave did not grow it themselves but secured it by barter with the Western Yavapai and the Chemehuevi.
- the Papago pit roasted but obtained agave by trade.
- the Yuma did not particularly like mescal but during times of food shortage traded with the Western Yavapai for it.
- the Kamia (Imperial Valley) traded it.
- the Dieguenos traded it to the Kamia in the form of dried fibrous cakes.
- of a number of bands of Paiute, the Kaibab perhaps employed it more than any other band.
- agave was rarely indigenous to the territory of the Pueblo and thus seldom utilized. Of these people, however, the Zuni made greatest use of it, mostly obtained by trade with the Western Apache, Havasupai and Walapai (Hualapai).
- the Hopis in more recent times acquired it from the Havasupai.
- mescal played an important part for the nomadic and semi-nomadic tribes (except Navajo). The Walapai made abundant use of it. It constituted the most important food plant for all the Yavapai. The Havasupai utilized it to an extent.
- the only peoples who did not use mescal rather extensively for food were the Pueblos, Navajos, Pima, Papago, Mohave, Yuma, Maricopa and some of the Cocope.

Park Nobel (1994) writes that Paiutes traded agave with local army posts in the 19<sup>th</sup> century.

### **What was the “shelf life” of agave?**

Since agave would have to withstand the rigors of the trade route for perhaps extended periods of time, the tools, preparation and ceremonies involved in treatment should be considered.

Agave was the first important crop to ripen in the spring. Although Southern Apaches could start harvest in November, most sources say March, April, May or June were the gathering times, when the reddish flower stalks began to appear. “Plants not blooming were known as

‘man’ plants, those bearing a flower stalk were designated a ‘woman,’ and the Indians advised against using ‘man’ plants for food since they were bitter and spoiled all mescal with which they were baked” (Castetter et al. 1938). The heads (or “cabezas”) of the mescal were dug, chiefly by men and boys, with chisel-shaped, fire hardened sticks. (The Western Yavapai also had a hook of ash wood to adjust hot stones in the mescal pit). Other tribes utilized stone mescal hatchets and broad flint blades. Whichever implement was used, the plants were dug out of their habitat and transported, either by pack or by stringing them on a pole, back to camp. Mescal at this point looked much like large pineapples.

Agave is basically a starch and merely supplying heat converts starches to sugars (Gentry 1982). Communal roasting pits seemed to be the preferred method of cooking.

A large pit was dug and a fire built in it. After the fire died down, rocks were added to the pit and each family placed its agaves in a section of the pit. More rocks were added and a fire built on top. The pit was left unopened for 24 hours, during which time singing and dancing took place. Prohibitions were also in effect to insure good baking. After the pit was opened, the sweet, dark mass was removed by each family and cooled, pounded, and formed into large, flat cakes for drying and storage (Fowler, C. 1986:67).

Regional variations included extended roasting time; spreading the top of the pit with dirt and inserting thorny branches to deter dogs and wild animals; families marking their own mescals; or, roasting in cobble-lined hornos. Nobel (1994) states roasted agaves are eaten like artichokes—leaves scraped against the teeth to pull off edible parts and the cabezas can be eaten entirely, like artichoke hearts. Castetter (1935) says they have a sweet taste, “like beets or molasses.” And Castetter et al. (193) say agaves have a sweet, smoky taste, somewhat like molasses, with a mild laxative effect. The author was fortunate to be able to attend an agave roasting session in Arizona and thinks it tastes much like a sweet smoked salmon. Since agaves are quite fibrous the indigestible parts were spit out, thus quids.

Scholarly quotes from dry, dusty tomes skip right over the “singing and dancing” that took place and the “prohibitions” in effect. Castetter et al. (1938) were the only researchers found who described some of these ceremonies. Among the Southeastern, Northeastern and Western Yavapai, the Walapai and the Havasupai, these restrictions were in place: a) the fire must be lighted by a boy or girl who had been born in summer; b) sexual intercourse was prohibited during the period; c) no one should scratch his head or body with his fingers. The

Southwestern Yavapai allowed a man, woman or child born in summer, preferably July or August, to light the fire. If a person born in winter lit it the mescal would cook white instead of brown and be undercooked. Mescalero Apache and Pima joined this group in sexual abstinence but modified the no scratching rule by allowing a scratching stick. Default of this scratching taboo, particularly by new mothers or menstruating women, caused the mescal to be bitter, white or underdone. At Zuni, in former times when they prepared their own mescal, crowds gathered, there was much dancing and the pits were opened “amid universal rejoicing. The group spent its time between riotous feasting and serious mastication of the baked product...” (Castetter et al. 1938). The cabezas or hearts were considered a delicacy and were quickly eaten, however the rest of the plant was pounded and dried, again using a variety of techniques depending on the group preparing. The drying might take two to five days and could be accomplished by spreading out the sheets of mescal or making into cakes. These sheets were then rolled for easier transportation. The cakes could be mixed with pinon nuts, juniper berries or ground mesquite pods. The most unique method of preparation referred to a practice at Zuni where the paste formed by the mastication of the plant was spread thinly over mats and dried (Castetter et al. 1938).

Enough digression—on to the shelf life. Agave thus roasted, pounded and dried could be stored “indefinitely” (Gentry 1982). The Southeastern Yavapai, who subsisted wholly on wild products with mescal being their outstanding food, stored it for years (Castetter et al. 1938). To the Western Apache mescal was a favorite food and with the advent of the horse, they carried packs of it wrapped around their bodies or on their saddles while at war or on hunting parties. Thus, they could easily and quickly break off a chunk without dismounting. The preferred method of ingestion of the cakes however, seemed to be as a gruel or paste made with water.

### **What is the nutritional value of agave?**

There was little information available on this subject. Agave is called a vegetable by Castetter et al (1938), and Gentry (1982) states, “pulque supplied such dietary needs as minerals, amino acids, and vitamins.” One could extrapolate this would apply also to mescal. I suggest some archaeologist or ethnobotanist analyze agave for its nutritional components since it was such an important food for so many. Also, while researching agave I came across this interesting aside. Ezzo (1991) states the Southwest Indian had little opportunity for incorporating enough

calcium in his diet. Beans, amaranth, prickly pear, cholla and walnuts provided some. He cites Kahnlein (1981) and Calloway et al. (1974) who state, "...fine grinding of maize using limestone manos and metates can enhance calcium value more than tenfold, while preparing with lime ash can enhance the calcium content more than one hundred-fold." Lime ash? Why would anyone try this? What an incredible way to get calcium! How did they know? My next questions for archaeologists or ethnobotanists then is, since agave was usually roasted in limestone lined pits, would calcium carbonate be released into the agave and make it even more nutritious?

### **What were some of the other uses?**

Agave truly was a plant for all reasons. Food was the major use but the resourceful Native Americans employed mescal in various ways.

The stems could be used for face paint, and fuel for households, signal fires and smoke signaling. The poles were used for harvesting other agaves, prodding or "yant" sticks for herding and for house construction. The seeds were used for necklaces. Leaves had many uses. Among them, thatch for roofs, foamy shampoo, arrow shafts, and the spine at the tip was used for needle and thread. Decoctions from the leaves brought relief from itching and sores and served as fish poisons and insect repellent. Other medical benefits included anti-colics, anti-inflammatories, anti-spasmodics, diuretics, and aids in rheumatism relief (Nobel 1994). Currently, sapogenins from the leaves can be made into steroids such as cortisone from which we derive estrogen and progesterone. The quids were used as wads over gunpowder and the last, but certainly not least, use of agave was for body armor.

Although the Northeastern Yavapai never specifically made armor of mescal slabs, the warriors carried such slabs, which sometimes intercepted enemy arrows, but which they piled in one spot when the fighting began....The Southeastern Yavapai warrior, however, wore over his buckskin coat an armor made of cooked, pounded mescal, molded and dried into two plates, each about two inches thick. These plates were the width of the body and somewhat pliable, one being worn in front, one behind. Although this type of armor suggests influence from ancient central Mexico, where troops wore quilted cotton armor later adopted for Spanish soldiers in the Southwest, it may have been a Yavapai invention suggested by the transporting of pads of dried mescal for food (Castetter et al. 1938).

Was there ever a plant put to more diverse use?

"It is ironic that a plant which most Americans think of only as 'the cactus that produces tequila' has been such a caloric mainstay, a fiber, medicine, and ceremonial element in desert

cultures” (Nablan, 1985). While tequila is a distilled product and distillation came only with the Spanish, the Native Americans were not without a fermented beverage. “Agaves produce two distinct kinds of beverages. The first is drawn as sap from the living plants and consumed fresh as *aquamiel* or fermented as *pulque*” (Gentry, 1982). Fermentation occurs in the mescal plant basins (after the hearts are removed) if the juice is not collected daily and is comparable as an intoxicant to our hard cider (Gentry 1982). Making a fermented beverage from the fresh juice of agave was not pursued in the Southwest (at least not north of central Arizona) as it was and still is, in Mexico. “This may be attributable to the fact that native agaves in the Southwest do not yield an abundance of sap as do the larger Mexican species” (Castetter et al. 1938). I find this hard to believe since many people then, as now, will go to any lengths for an intoxicant.

Pulque is the oldest known American fermented beverage still produced and deserves a further look.

According to Mexican codices...the Aztecs during their migration to the Valley of Mexico, discovered maguey and ‘invented’ pulque between A.D. 1172 and 1291. This can only be considered as meaning they discovered the magueys and pulque for themselves, because the archaeological records show that earlier peoples of this region had been using maguey for thousands of years previously. Although there is no direct archaeological evidence for when agave sap and pulque were first drunk, we can be reasonably sure it was consumed much earlier than the Aztec period, considering the world wide use of plant juices, both fresh and fermented, by relatively simple societies (Gentry 1982).

The Mexicans flavored pulque with herbs, bark and roots and the Aztecs added the roots of an herb *ocpatli* to give it an extra kick. The resulting liquors were used in ceremonies such as rites of human sacrifice (Gentry 1982).

Associated with maguey were several gods but the main one seemingly was *Mayahuel*, the Aztec goddess of pulque. She is identifiable in the codices “by the leaves, by the stylized inflorescence of the maguey, and by foaming pulque in her hair or by pots of pulque in her hand or nearby” (Gentry 1982).

Overlaying and infusing all the specialized activities was the developing priesthood. They became the ruling class who, while they propitiated the gods with pulque, laid out detailed rules governing not only the use of pulque but all activities of their social organization. They possessed pulque with seeming avidity, appropriating its use especially in ceremonies, when inebriation was not only permissible but desirable....The Puritans bedeviled alcohol, the Mexicans deified it, but both practiced rigid moral standards. Peterson (1961) informs us about the Aztecs: ‘Sale of pulque, an intoxicant, was allowed only under certain

restrictions. To the sick, especially privileged, and to people who had passed their fifty-second birthday three cups were allowed daily. But there were festivals where everyone might drink. If a person became drunk illegally, his hair was cut off the first time, on the second occasion his house was demolished and he lost his employment; and the third time brought death to him as an incorrigible offender' (Gentry 1982).

In conclusion, it is my opinion the simple agave does not get enough credit for being the important, versatile plant it is. Such a diverse vehicle aiding ancient survival should receive glowing accolades. It cannot be said better than by Gentry (1982), "As civilization and religion increased, the nurturing agave became a symbol, until with its stimulating juice man made it into a god."

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