Piman Indian Historic Agave Cultivation

Henry F. Dobyns
Newberry Library
Chicago, Illinois

Abstract
The lands occupied by northern Piman Indians yet display remains of old ways of life, the hallmark being ruins of massive "casa grande" style architectural complexes within puddled adobe walled compounds. Vestiges of "rockpile" fields occur on desert bajadas that seem to have little potential for traditional hispanic or anglo agriculture.

Evidence has accumulated that critical population pressures once exerted heavy demands on the food supply in this region, with resultant internecine strife and competition, the massive walled architectural complexes functioning as defensible storehouses for food that was harvested from the resource area controlled or exploitable by the inhabitants. The rockpile fields were used for agricultural production of the sweet foodplant Agave, using an innovative technology that made use of agriculturally marginal land (see Desert Plants Volume 7, pp. 107–112, 100).

The European encounter of Pimans occurred to the south long before it occurred to the north, at a time when ways of life were rapidly changing. A rare glimpse of southern Piman life about 1613 by Rev. Andrés Pérez de Ribas presents an historic picture of Agave cultivation by people living in houses with massive puddled adobe walls. This Piman way of life at that time in the southern region is altogether consistent with the vestiges of what seems to have been the same lifestyle in the north.

Old World diseases brought a general collapse of Native American populations; the pressures that generated casa grande style architecture, earth defensive walls, and Agave cultivation in Piman territory diminished, a terminal date for the complex more likely to have been after A.D. 1613 than the traditional date of "Classic Hohokam" demise about A.D. 1450. Introduction of Old World cultivars high in sugar (melons, peaches, apricots, quinces, pears, apples, sugar cane) also reduced Piman demand for sweet pulp of Agave. Watermelons were already substituting as a functional equivalent of Agave by 1698 among northern Pimans.

Both the casa grande style ruins and the rockpile fields were abandoned by the time European civilization reached the northern Pimans. Both have been classified as "Hohokam" by archaeologists, using the plural of the Piman language word meaning "all used up" or "defunct."

Introduction
Remains of Agave plants roasted in valley or nearby mountain bajada slope locations have recently been archaeologically recovered. Processing areas are associated with rock piles that would have conserved soil moisture for Agave plants cultivated on otherwise unirrigated desert slopes [Fish et al 1985:107]. Transplanting local wild species or growing cultivars imported from farther south have been attributed to prehistoric early Classic Period Hohokam "between about A.D. 1150 and 1300" [Fish et al 1985:110]. This attribution is based upon an "apparent absence of agave as a cultivated staple among peoples of the Sonoran Desert" [Fish et al 1985: 107]. The present analysis cites historic documentary evidence that Piman
Indians historically cultivated *Agave* within the Sonoran Desert, and presents an alternative chronology for the remains excavated in southern Arizona.

**Historic Evidence**

Documentation of Piman Indian historic cultivation of *Agave* appears in the work *Triunfos de nuestra santa Fe entre gentes las más bárbaras y fieras del Nuevo Orbe conseguidos por los soldados de la Milicia de la Compañía de JESÚS en las Misiones de la Provincia de Nueva España* written by Rev. Andrés Pérez de Ribas and published at Madrid in 1645. *The Triumphs of Our Holy Faith among the Most Barbarous and Fiercest Peoples of the New World* achieved by the soldiers of the militia of the Society of Jesus in the Missions in the Province of New Spain is basically a Jesuit mission promotional work. It is cast loosely in the form of a history or chronicle, but the author furnished readers with few chronological guides. For present purposes, the most important characteristic of the work is its autobiographical content. The Rev. Andrés Pérez de Ribas relied necessarily upon Jesuit and civil documents to obtain information for writing about missionaries, missions, and events with which he lacked personal experience. Pérez was, however, an active participant in Jesuit missionary efforts on the early seventeenth century Sinaloan frontier. Pérez himself led the Jesuit pioneers who entered Yaqui country in 1617 at Yaqui invitation. Thus, Pérez’s account of the Yaqui missions is largely autobiographical.

Both before and after his Yaqui mission began, Rev. Andrés Pérez de Ribas visited the southern Piman Indians living immediately to the north of Yaqui territory. During the 1617–1619 interval between the entry of Jesuit missionaries among Yaquis and their entry among southern Pimans, the latter group sent ambassadors to Pérez soliciting resident priests.

Some of them went to see me, while I was converting the Yaqui Nation, saying, that they wanted to begin building a church and house for the time when a Father would convert them. They planned ahead by seeking experts in such works [Pérez de Ribas 1944:151].

A few years earlier, probably in 1613, Pérez de Ribas accompanied frontier military post Captain Diego Martínez de Hurdaí on a probe through Yaqui territory into Piman country. The modesty of Piman women very favorably impressed the missionary.

In confirmation of this, I am able to affirm that one time I accompanied the captain and his troops when he went to visit the Yaqui Nation, and at the request of the Nebome Nation continued onward to see some pueblos of this people, because they are friends and allies, although gentiles. A great number of people of all ages assembled and approached us to greet us, and according to the gestures of peace, we touched our hands to their heads. When the women arrived, especially the young ones, we saw that they were so shy that they hung their hair in front of their faces so they could not be seen [Pérez de Ribas 1944:150].

In other words, Rev. Andrés Pérez de Ribas personally visited Nebome—southern Piman—towns and himself observed Piman ways of living.

On the basis of personal observation, supplemented probably by information that he gained from the first Jesuit missionaries among the southern Pimans, Pérez de Ribas wrote a summary of southern Piman subsistence activities. He reported that they cultivated the same domesticated plants generally grown by Mesoamericans, adding that “in some appropriate places, they plant irrigated fields, taking water out of the arroyo in canals to irrigate them.” Pérez de Ribas continued:

In addition to this, they used to plant next to their houses a kind of vineyard of a plant that the Spaniards call lechuguilla, because its form resembles that of lettuce. Its leaves are, however, much stronger. It takes one or two years for it to grow and mature. When it matures, they cut it. Baked with some of its leaves, the root serves them as food that is tasty and sweet. They grind it and make a sort of jelly like a conserve. When one of these roots is cut, it leaves already started other renewals and shoots. Thus, once this type of vineyard is planted, it lasts them for many years [Pérez 1944:150].

Some of Pérez de Ribas’s phraseology may strike the contemporary ear as strange. Yet he penned nearly a perfect description of southern Piman *Agave* cultivation and processing. He mistakenly reported cooking only the root, not the above-ground heart of the plant, and he did not report pit-roasting. Pérez de Ribas may not have witnessed *Agave* harvesting and baking, but he almost certainly watched cooked pulp being processed with stone mortars, and tasted the sweet-tart product, which indeed has the consistency of European jelly or conserves before they “jell.” Probably Pérez de Ribas then left without observing processed pulp being sun dried for storage or transport.

Pérez de Ribas’s calling the *Agave* fields “a kind of vineyard” may seem strange. It was very logical, however, from his early seventeenth century perspective. Jesuit missionaries had initiated conversion efforts during the final decade of the sixteenth century farther south among Native Americans who tagged *Agave* cultivars for sugar-rich juice to ferment into mildly alcoholic (6%) pulque [Valenzuela-Zapata 1985:65]. Because *Agave* juice fermented liquid drinking was an aboriginal trait, and because it frequently formed part of traditional Native American rituals, Christian missionaries in Pérez de Ribas’s time viewed it as inspired by the Devil. So missionaries strove to stop the practice [Pérez de Ribas 1944:II:130]. To the missionary mind, therefore, an *Agave* field was analogous to a European vineyard—where grapes grew that furnished juice fermented into wine, the nearest European analog to pulque.

**Southern Pimans and Northern Pimans**

Recent archeological investigation has located rockpiles that presumably once encouraged *Agave* plants deliberately set out by local Native Americans, plus
associated Agave remains, on the San Pedro River, Santa Cruz River, middle Gila River, and upper Queen Creek (Fish et al 1987:108, Fig. 1). These drainages were the habitat of Northern Piman-speaking tribes when Spanish colonial officials and Jesuit missionaries visited them during the final decade of the seventeenth century, the Gila in 1694 [Kino 1919:1:127–28], and 1697 [Burrus 1971:343–46], the Santa Cruz that same year [Burrus 1971:335, 347–49] the San Pedro also [Burrus 1971:359–60, 336–37] and the Papagueria in 1698 [Smith et al 1966:17–19]. These colonial frontiersmen failed to venture north of the middle Gila River Valley to visit the lower Salt, Verde, and Agua Fria Rivers where archeologists have also found rockpiles and Agave remains (Fish et al 1985:108, Fig. 1). In the mid-nineteenth century, however, Pimas and Maricopas whose primary residence was in rancherias along the middle Gila River visited fishing camps on lower Salt River, and sought there refuge from contagious disease spreading northward through Sonora [Bartlett 1854:II:241].

The Pérez de Ribas summary of Nebome (southern Piman) culture around 1613 provides an additional key perspective on dating the so-called Classic Hohokam riverine settlements where the people lived who grew and processed Agaves in southern Arizona river valleys. The Jesuit missionary wrote:

The Nebomes lived along the banks of arroyos with good waters and flows. Their houses were better and more substantial than those of the other nations. They had walls of great adobes which they made of clay, and which they roofed with flat roofs and terraces. Some they built much larger and with embrasures in the manner of forts, so that if enemies should attack them, the inhabitants of the pueblo could assemble in these structures and take advantage of their archery [Pérez de Ribas 1944:149].

What Pérez de Ribas described as the southern Piman town around 1613 was, in other words, precisely what archeologists have termed “Classic Hohokam” architecture in southern Arizona’s riverine oases. Because archeologists in the southwestern United States have relied extensively upon ceramic vessels as chronological markers, they have inferred that certain ceramic types were utilized during Classic Hohokam times. Haury [1976: 203], for example, considered Gila and Tonto Polychromes to be “one of the distinguishing features of the Civano Phase” along with Casa Grande Red-on-Buff vessels. Yet, the fundamental archeological definition of the Classic Hohokam period has clearly been the Blackwater Casa Grande, or Big House. As Haury [1976:53] phrased it, “Casa Grande National Monument is the type example of architecture for the Civano Phase.” Buildings were massive, made of puddled adobe or coursed clay, protected by external walls even when single storied. Casa Grande is a stronghold, multistoried like functionally equivalent structures in the Gila and Salt River basins [Haury 1945:14, 186–92; Hammack and Sullivan 1981]. Consequently, the Pérez de Ribas circa A.D. 1613 description of “Classic Hohokam” southern Piman towns provides a much more accurate date for such settlements than does ceramic trade ware recovered from Gila-Salt River basin Casas Grandes. The terminal date of “Classic Hohokam” from the upper Yaqui River to the Verde River is much more likely to have been after A.D. 1613 than around A.D. 1450 and certainly A.D. 1300.

This chronological revision derives from a simple logical rule. Any chronological interpretation of village remains in Northern Pimeria that fails to take into account the historic record of radical changes in housing and settlement patterns in southern Pimeria is inevitably erroneous.

Cultural Dynamics

The seventeenth century Piman abandonment of Casas Grandes and Agave cultivation can easily be accounted for in an historic temporal framework. Both of these Classic Piman cultural characteristics may be viewed as logical consequences of pre-Columbian population growth and resulting human competition for natural resources. Population growth has been identified as having led to populous, defensively wood-palisaded towns in the south-eastern [Larson 1972:391] and walled Puebloan towns in the southwestern United States [Dobyns 1983:333–34]. Piman population and settlements went through the same pre-Columbian processes.

When population density reached a critical level in the Sonoran Desert riverine oases, Pimans who had gotten along with one another began fighting over resources. Irrigable oasis fields became so valuable that Piman-speaking tribes fought wars of territorial conquest. Such conflicts led to prompt construction of earthen walled defensive towns throughout Piman territory. Emergency horticultural and processed wild foods were stored in the Casas Grandes multistoried bastions that doubled as warehouses.

Evidently territorial warfare cut off or at least restricted access to wild Agave by residents of riverine oasis Piman towns. They nonetheless retained their appetite for sweet-tart roast Agave pulp. As population density increased, per capita consumption of all available sweets including giant cactus fruit syrup and honey inevitably declined. The predictable result was high demand for scarce sweets. The Piman solution to diminished access to a desired food was to grow it on a type of naturally irrigated sloping field similar to Piman ak chin fields for cultivars. Possibly strong military task forces had to invade the uplands to dig up young Agave shoots to transplant in the bajada slope rock pile beds. On the other hand, shoots might have been obtained from the south by international trade, as were parrots and/or macaws [Nunez 1904:156; Kino 1919:II:267].

When Native American population collapsed during the sixteenth century under the onslaught of Old World pathogens [Cook and Borah 1971:73–118, 376–429], the population pressure that generated Casas Grandes, earth defensive walls, and Agave cultivation quickly diminished. Such was the cultural inertia, however, that intertribal warfare persisted for decades. The northwesternmost Pimans, the Soba’amakam, fought with the Himeris tribe until at least the 1680s [Kino 1919:1:124].
The Himeris inhabiting the upper San Pedro River Valley also fought with the ancestral “Gila River” or Kohat Pimans on the lower San Pedro River at least until the 1690s [Mange 1954:79; Burrus 1971:337]. One archeologist has recognized that Piman residence in massive earthen walled compound villages also persisted on the upper Santa Cruz River into the 1750s [Di Peso 1956:36, 41].

Christian missionaries and Spanish colonial officers strove to impose a Pax Hispanica upon Native Americans under effective colonial control [Pérez de Ribas 1944:II:165]. They also negotiated peace treaties with and between tribes beyond the colonial frontier. The need for defensive walls and Casas Grandes therefore declined.

Piman intertribal competition for wild Agave seems to have ended no later than the third decade of the eighteenth century. Rev. José Agustín de Campos [1724:46-47] noted, during a trip northward from his Mission San Ignacio de Xáburic, encountering a party of Kohat tribesmen processing Agave near the San Pedro River.

Historic innovations in Piman horticulture probably diminished demand for Agave pulp, because new cultivars furnished functional equivalents. By 1698, the Kohat tribesmen had already adapted melons to ak chin ephemeral stream flood plain horticulture [Smith et al 1966:17]. By 1700, the Colorado River Quechan grew watermelons [Kino 1919:I:249]. Their seeds necessarily traveled via the Piman Soba'amakam.

The northernmost Pimans had, therefore, started growing watermelons earlier in the seventeenth century. Northern Pimans learned to store melons picked before first frost in straw-lined pits [Couts 1961:66–67]. Thus, they lengthened watermelon “season” from June–October until November [Emory 1848:82, Turner 1966:107], and December [Cooke 1938:181, Gracy and Ruggley 1965:152]. Sweet watermelon flesh furnished a much liked substitute for fresh baked Agave pulp that was available for six months or longer, and could be grown in quantity in irrigated riverine oasis fields. It lessened the need to venture far from home after Agave or to grow it.

Pimans also quickly imported Old World peaches, planted seeds, and harvested locally grown fruits [Di Peso 1951:19; Pennington 1980:177]. Lush, ripe peaches seasonally reduced appetite for Agave. By the early eighteenth century, at least some northern Pimans grew not only peaches, but also apricots, quinces, pears, and apples [Di Peso 1956:53; Bolton 1936:573]. Pimans also began growing Old World sugar cane during colonial times—by 1710 in Pimería Alta [Di Peso 1956:53; Bolton 1936:573]. Chewing mature sugar cane furnished Pimans with another substitute for fresh baked Agave pulp. Pimans with access to markets and stores could purchase rudely refined sugar [Pennington 1980:188].

The Rev. Andrés Pérez de Ribas’s terminology for Agave fields among southern Pimans provides a further clue to additional motivation for abandoning Agave “vineyards.” Christian missionaries among the Pimans who encountered Agave cultivation may well have discouraged it on the premise that cultivated Agave sap would be fermented and drunk as part of traditional Native American non-Christian rites.

Other historic dynamics of horticultural change may have been more important than missionary intervention. Ironically, although Agave is today not known as a northern Piman cultivar, it is still grown by southern Pimans longest subject to conversion efforts. Indeed, the very variety that Pérez de Ribas saw may still be grown. It could be “An unidentified white maguey” that Pennington [1980:177] reported was “cultivated in at least 50 percent of the Pima gardens” at Onavas, Sonora, in 1968–1971. Pennington concluded that: “This plant may be analogous to a maguey mentioned by Pérez de Ribas.” Is it an analog or descendant?

References


Hammack, Laurens C. and Alan P. Sullivan, editors. 1981. The 1968 Excavations at Mound 8, Las Colinas Ruins Group,
The Moral Element in the March of Science, Technology, and Agriculture

(Continued from page 34)

society by its nature would want other specialists to deal with these matters. Scientists are allowed to detach from the vicissitudes of life to systematically examine, test, and develop knowledge. From such development of knowledge come the flow charts of industry—the systematic assignment of labor resulting in that “habitual employment in specialized endeavor” which is the dictionary definition of industry.

Think of a country of innocent humans living natural lamb-like lives in peace and joy. Then consider an adjacent country with scientists, industrialists, and technologists feeding data on the agricultural potential of the adjacent country into their computers. Once the first person ate of the forbidden fruit of knowledge in the Garden of Eden, science was born. The chain of events was begun which would create and govern society. At this point one can’t resist comparing the problems of society with the simple good and innocence of pre-society humanity. When society is seen in its inevitable role as an independently evolving being, the negative aspects of the original sin, eating of the fruit of the tree of knowledge, become immediately clear. One can’t resist comparing the runaway aspect of society as an organism with that of the Frankenstein monster, the intelligent computer, or perhaps the robot which decided to act on its own. Again we must ask, “Is the organism of society to be a lamb or a beast?”

Technology is meaningful to society in the economic sense of yielding ever more advanced improvements leading to greater productivity with elimination of manual operations, the old industries fading into the sunset. We naturally think of the animal of society in the role of the corporate raider using a leveraged buyout to gain control of a company in order to gut it, liquidate the assets, terminate the pension plan, and fire all the workers. Biologically speaking, and ignoring the moral factor and humanity, this might have been the right thing to do, the most efficient course of action for society to take, if more money could be obtained from liquidating than continuing the company. But would the liquidation merely result in instant gratification and negate what might have been better good down the road?

American agriculture is energized by innumerable subsets of science, industry, and technology and by means of complex feedback patterns manages to energize our society itself. War, agriculture, and health care are the three great users of science, industry and technology. Both war and agriculture are land-hungry. Whereas the former kills and maims, providing grist for hospitals and doctors, it temporarily reduces population and in turn the demand on agriculture. Proliferation of agriculture, on the other hand, can kill and enfeeble whole communities of organisms. On the local scene it may result in loss of readily viewable scenery—trees, flowers, wildlife. On the international scale it threatens to extinguish innumerable endangered species of both plants and animals. Yet agriculture is the necessary dynamo of our modern society.

We have now reached the point where the reader wonders if this is essentially an anti-social editorial. It is not. This is because a finite number of humanists have gotten close enough in the past to the control center of society to inject enough serum of humanity into society to keep the animal nature of the beast under control. Such humanists have believed that the steel worker should be allowed to appreciate good music, the postal worker should be allowed to hunt and fish, the taxi driver should be allowed to cultivate a garden. Members of society near the control point routinely substitute their thinking for that of the masses. In the absence of action by humanists, such thinking becomes the automatic response of society. But the individual members of the mass of society still retain brain function which we might style “member-thinking.” Whereas the automatic biological forces of society make for fitness, the accessory moral or member-thinking forces demand flexibility. Here is the moral element.

Because people are necessarily used like pawns by society, humanists have insisted on certain standards. The standards have been built up through a series of treaties between the biologically natural nature of society that rewards fitness and the humanist forces which crave flexibility. Nowhere are all the words of the treaty written down except in the heart and soul of humanity. The time traveler would have seen the reality of the winning, however, on the field at Runnymede, or in the Roman senate, or in the presence of the Ark of the Covenant, or at Yorktown and Independence Hall. Part of this evolving treaty are the 40-hour work week, women’s rights, elimination of slavery, but much more.