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Prehistoric Squash (*Cucurbita pepo* L.) from the Salton Basin

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THE historic Indians of the Salton Basin of southeastern California were part-time agriculturalists. The Kamia (Comeya, Kumeyaay, etc.) of Imperial Valley (Gifford 1931) farmed along New River Slough in years when this distributary channel contained floodwaters derived from the Colorado River Delta. The Cahuilla of Coachella Valley (Strong 1929), the northern end of the basin, also farmed to some extent. Ethnohistoric records indicate that Kamia agriculture was closely related to that practiced by the Yuman tribes of the Lower Colorado (Castetter and Bell 1951). This might well be expected in view of the proximity and overall cultural similarity of the Kamia to the river tribes. The historic Cahuilla agricultural system differed somewhat from that employed by the Kamia and the Yuman tribes of the Colorado River. Lacking streams to overflow their lands with floodwater, the Cahuilla employed ditch irrigation from small streams descending the desert slope of the Peninsular Range (Wilke, King, and Hammond 1975), and directed irrigation waters from small reservoirs which they built around springs on the floor of the basin (Wilke and Lawton 1975). There is some evidence that they occasionally farmed in small natural catchment basins (Lawton and Bean 1968). Also, the Cahuilla probably employed pot irrigation, using water from walk-in wells, but this practice is not documented by historic accounts. Both groups seem to have cultivated maize (*Zea mays* L.), tepary beans (*Phaseolus acutifolius* Gray), squash or pumpkins (*Cucurbita* sp.), and watermelons (*Citrullus lanatus* [Thumb.] Mats. & Nak.), all of which probably derive from the Lower Colorado River region, although the latter was introduced from the Old World.[1]

In the tradition of the Colorado River tribes, the Kamia undoubtedly planted in early or mid-summer after the farming plots were overflowed by floodwaters. Historic records suggest that the Cahuilla raised two crops annually, planting taking place in December and again sometime in the summer (Wilke and Lawton 1975).

Almost no direct information is available on the origin and antiquity of agriculture in the Salton Basin. The fact that agriculture is well integrated into the Cahuilla creation story and other tales and myths, and that there are Cahuilla terms for crop plants, suggest that the practice is of some considerable antiquity (Lawton 1974). The plant remains described here, and the context in which they were found, are related to the probable antiquity of agriculture in the basin.

Prior to about A.D. 1500, the entire lower portion of the Salton Basin was inundated by inflow of the Colorado River, forming Lake

Cahuilla, an inland sea over 100 miles long (Fig. 1).[2] This lake overflowed across the Colorado Delta into the Gulf of California, and thus was fresh water. Archaeological studies of aboriginal campsite residues at the Myoma Dunes at the northwest end of Lake Cahuilla, near the present town of Indio, indicate that the locality was probably inhabited the year round. This is suggested by the presence of seasonally sensitive food remains derived from midden deposits and a large sample of human coprolites (desiccated fecal material). Food items among nearly 40 species tabulated from the residues include abundant fish (*Gila elegans* Baird & Girard, *Xyrauchen texanus* Abbott), shellfish (*Anodonta dejecta* Lewis), mudhens (*Fulica americana* Gmelin.), screwbean (*Prosopis pubescens* Benth.) pods, pinyon (*Pinus monophylla* Torr. & Frém.) nuts, seed and pollen of cattail (*Typha* sp.), and seeds of many other plants, including bulrush (*Scirpus* spp.), lowland purslane (*Sesuvium verrucosum* Raf.), goosefoot (*Chenopodium* spp.), knotweed (*Polygonum lepathifolium* L.), witchgrass (*Panicum* spp.), *Dicoria canescens* T. & G., etc. The latter is especially important because it is available for collection only in the winter.

Also found among the decomposing coprolite residues, but not in any of the analyzed specimens themselves, were seeds of cultivated squash or pumpkin (*Cucurbita pepo* L.). This polymorphic species includes such cultivars as 'Small Sugar,' 'Zucchini,' 'Summer Crookneck,' and 'Acorn.' The seeds, shown in Fig. 2, upper row, were found in a deposit designated Coprolite Bed D, dated by radiocarbon to 365±140 ^{14}C years B.P. (UCR-124).[3] Most of the seeds were damaged, apparently as a result of mastication. The association with aquatic species indicated that the squash seeds are coeval with the last stand of Lake Cahuilla, and they therefore must date to before A.D. 1500 (Wilke 1976).

Pollen analysis of the Myoma Dunes coprolites, including a sample from nearby Bed A

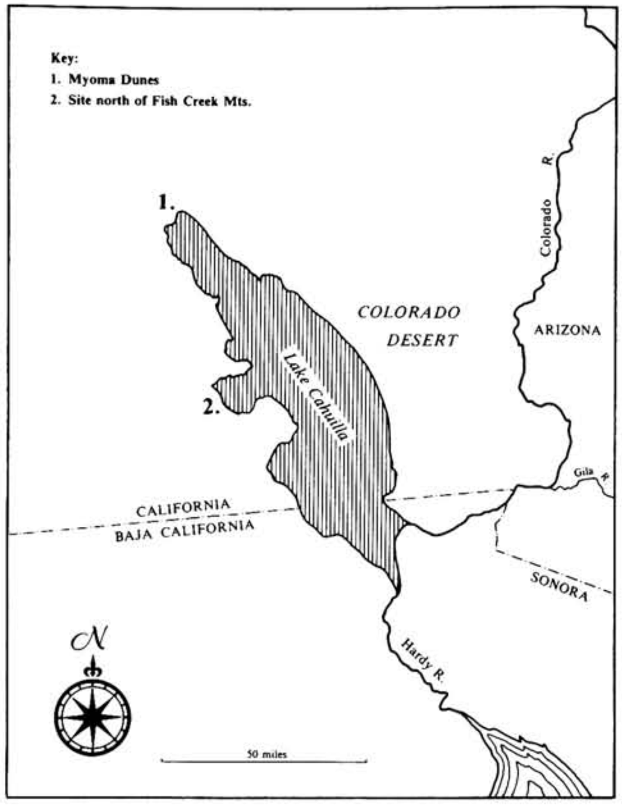

Fig. 1. Location of sites at prehistoric Lake Cahuilla that yielded squash seeds.

(Hattori 1975), revealed abundant grains of mesquite (*Prosopis*) and cattail (*Typha*), but none of cultivated plant species.[4] This suggests that the squash was probably not cultivated in the immediate vicinity, but possibly obtained by exchange from elsewhere. No other cultivated plant remains were found in analysis of 109 coprolites, a fact that supports the conclusion that agriculture was not practiced at Lake Cahuilla during its recent stand, as suggested earlier by Lawton and Bean (1968). The data indicate that the abundance of naturally occurring aquatic and low desert resources, supplemented by others from the nearby mountains, provided a stable diet, and that agricultural pursuits were not necessary at the Myoma Dunes.

Additional squash seeds were recovered from an *olla* (storage jar, Fig. 3) found near the west shore of Lake Cahuilla just north of the Fish Creek Mountains.[5] This locality is about

Fig. 2. Cultivated squash (*Cucurbita pepo* L.) seeds from Lake Cahuilla, Salton Basin, southeastern California. Upper row: seeds from Myoma Dunes Coprolite Bed D; lower row: seeds recovered from an *olla* found north of the Fish Creek Mountains. Actual size.

Fig. 3. *Olla* that contained squash seeds, found near the Lake Cahuilla shoreline just north of the Fish Creek Mountains. Maximum diameter, 14.2 cm. Photo by Murray Burnaman.

50 miles south and slightly east of the Myoma Dunes. The *olla* was intact, and had been secured with a stopper. It contained only a few seeds, of which several are shown in Fig. 2, lower row. Although slightly smaller than those from the Myoma Dunes, they appear to be of the same species, *C. pepo*. Association with shoreline features suggests approximately the same age as the Myoma Dunes specimens. Since the *olla* was an isolated find, no other data on the nature of the aboriginal setting are currently available.

If we assume that these seeds are correctly dated to the fifteenth century or slightly earlier, and that the squash was not grown locally at Lake Cahuilla, but obtained elsewhere, we must logically ask where it originated. *Cucurbita pepo* is known from a number of archaeological sites in the American Southwest (Cutler and Whitaker 1961:Table 2). Its earliest occurrence is at Tularosa and Cordova caves, in western New Mexico, at about 300 B.C. Thereafter, the species is known from a number of sites in Colorado, Utah, Arizona, New Mexico, and northern Mexico. But it is not reported archaeologically from western Arizona or from the Lower Colorado, where crop growing was an important subsistence activity in early historic times (Castetter and Bell 1951). It is of course possible that further archaeological work will show that *C. pepo* was grown in this region in prehistoric time, but at present there is no evidence to support this idea. Furthermore, its occurrence on the Lower Colorado in historic time is open to question. Most of the pumpkins and squash of this region are assigned to *C. moschata* Poir. or *C. mixta* Pang.

(Castetter and Bell 1951). Thus, it seems unlikely that the squash remains reported here could have come from the Lower Colorado, even though agriculture was doubtless being practiced there long before the fifteenth century. It is more likely that the squash was traded from more distant regions to the east in Arizona, or perhaps from the Glen Canyon region, where it was grown from at least A.D. 1050-1250.

It therefore appears from the Myoma Dunes data that crops were not grown in the Salton Basin in the fifteenth century, but some cultivated plant foods occasionally reached there from regions to the east. Diversion of the Colorado River, causing it to flow directly into the Gulf of California about A.D. 1500, resulted in Lake Cahuilla drying by evaporation. After the recession of the lake, the floor of the basin was reoccupied by the historic tribes of the region. By 1823, agriculture was well developed among the Cahuilla of the northern Salton Basin and among the Kamia to the south. It reached the Cahuilla of Coachella Valley sometime between the recession of Lake Cahuilla ca. A.D. 1500 and 1823, almost certainly from the Lower Colorado. But since the species was not grown on the Lower Colorado, the historic Cahuilla crop complex probably did not include *C. pepo*, as found at Lake Cahuilla.

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NOTES

1. Although tepary beans are not reported in early historic accounts, they do appear to have been cultivated by the Cahuilla of Coachella Valley. Ruby Modesto of Torres-Martinez Reservation described a small bean which her grandmother had grown. When shown samples of various teparies, Mrs. Modesto selected a brown tepary bean as resembling closely the variety formerly raised by her grandmother in Coachella Valley. The name she gave for this bean is *tévinmalyem*. The watermelons, according to Mrs. Modesto, were very small, about the size of a baseball, and were called *suʔchem*. We are indebted to Mrs. Modesto for information on teparies and watermelons, and to J. G. Waines for samples of teparies.

2. If current radiocarbon data are interpreted correctly, the last stand of Lake Cahuilla had a duration of perhaps 200 years, ending by about A.D. 1500 (Wilke 1976).

3. The same sample was recounted at the UCLA Isotope Laboratory and yielded an apparent age of 420±80 ^{14}C years B.P. (UCLA-1889). We are indebted to professors R. E. Taylor and Rainer Berger for radiocarbon analyses.

4. We extend our gratitude to Professor Peter J. Mehringer, Jr., for his assistance in making this pollen analysis possible.

5. We are indebted to Mr. Murray Burnaman of Fallbrook and Mrs. Rose Tyson of the San Diego Museum of Man for making this material available for analysis.

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