(note)

The Bitter Wild Cucumber of the Gila River

Frank S. Crosswhite. Boyce Thompson Southwestern Arboretum.

Those who have explored canyons and washes of the Gila drainage basin in southern Arizona likely have seen a very green cucurbitaceous vine with rather thin and broad mesophytic leaves covering spiny bushes of Desert Hackberry (*Celtis pallida*), Tomatillo (*Lycium* spp.), Catclaw (*Acacia greggii*), or Mesquite (*Prosopis velutina*). The vine produces spiny fruits that are quite bitter to the taste. This strange relative of the cucumber is *Marah gilensis*, named for the Gila River and restricted to its drainage basin.

The lushness of this wild cuccumber contrasts sharply with the xeric aspect of the plants with which it grows. The Cucumber Family is basically tropical, so adaptations of *Marah gilensis* which allow it to grow in our desert are of special interest. These adaptations relate to seasonality. The plant appears above ground only during a favorable period from late winter into spring. In summer, autumn and early winter *M. gilensis* is present only as the underground tuber. In February or March a number of fast-growing stems arise from the tuber, almost like asparagus but more flexuous. These are not at all frost-hardy and are killed if a heavy freeze occurs. Since they came up under shrubs and small trees they are protected from light freezes, however.

Wild Cucurbitaceae not uncommonly have bitter fruits. For example the Gherkin (*Cucumis anguria*) is thought to be a mutant of *C. longipes*, a bitter wild African species. The Bitter Gourd (*Momordica charantia*), fruits of which have poisoned children and dogs, are sliced and dried in India for making curry and are gathered immature in the Orient for cooking with meat and fish. Squashes and Pumpkins (*Cucurbita pepo, C. moschata, C. maxima, C. ficifolia, C. mixta*), all have non-bitter fruits but certainly are cultivated derivatives of wild bitter-fruited *Cucurbita*. Although the five *Cucurbita*

Vikkie Bone, Jeff Clark and Kent Newland examining a tuber of Marah gilernis at the Boyce Thompson Southwestern Arboretum.

species listed above are generally considered to be *species* because they are cross-incompatible, scientists have been successful in crossing each of the five to *Cucurbita lundelliana*, a bitter-fruited wild species, indicating that it may have had an important role in origin of the cultivated group! Wild forms of Watermelon (*Citrullus vulgaris*) can be either bitter or sweet, but the closely related Colocynth (*Citrullus colocynthus*) is always bitter. Indeed, the name for the Watermelon genus, *Citrullus*, is properly translated as "little citrus," in allusion to the bitterness. Juice of Colocynth is thought to be the "gall" mentioned frequently in the Bible, including the "gall of bitterness" (Acts 8:23) and "vinegar mixed with gall" (Matthew 27:34). The "gall" of Colocynth is so powerful that it has been used in embalming and even to keep moths out of woolen clothing!

The 10-12 species of *Marah* aside from *M. gilensis* are all native to the Pacific Coast states of North America from British Columbia to Baja California. *Marah gilensis* is radical in distribution for the genus, extending eastward into the Gila drainage basin. Dr. Albert Kellogg chose the name *Marah* for the genus in 1863. A gross error occurs in the book *A California Flora* by Philip A. Munz (University of California Press, 1959. pg. 1059), where *Marah* is said to be the aboriginal name for the genus. Biblical scholars will quickly recognize that Kellogg was alluding to the far-off *Marah* ("bitterness" in Hebrew!), the site of the bitter pools of water which dismayed the Israelites after they had crossed the Red Sea and entered the Wilderness of Shur. Just as the innate bitterness of wild Cucurbitaceae has been effectively bred out of our presently cultivated cucumbers, melons, squashes and pumpkins, so too was the bitterness of the Israelites taken away when the waters of *Marah* were sweetened by Moses casting antidotal wood of the properly selected plant into the pools! Before sweetening of *Marah* the thirsty and angry Israelites slandered Moses in a symbolic and very powerful display of lack of faith. The ultimate sweetening of the waters can be seen symbolically as a demonstration of good coming about through marriage of faith with technology. Perhaps *Marah* would be a good symbol for modern plant breeders to adopt! —F. S. Crosswhite

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(review)

People of the Desert and Sea. Ethnobotany of the Seri.

Richard Stephen Felger and Mary Beck Moser. University of Arizona Press. 1985. 435 pp. $65.

This is such a great book that I have to seriously ask if it is in the running to be *the* best book of all time. Many reserve this designation for the Bible. Certainly it is the best book on the Seri. It is the best ethnobotanical book I know of. I would not be surprised to see it designated as the best book in the English language for 1985 or for the decade. It is comprehensive and a gold-mine of information. Knowledge from decades of research is unfolded in an orderly and systematic arrangement. Photographs and drawings are well-chosen, abundant and effectively used.

The Seri seem to have inhabited their stretch of Sonoran Desert for millenia. Occupying land not suitable for agriculture, the Seri brought an ancient hunting and gathering economy right down to the 20th Century. They were opportunists of the first order, logically and systematically exploiting the resources available to them. They have sometimes been depicted in the literature as fierce raiders and even as cannibals.

The "raiding" reputation came about when Spaniards introduced domestic livestock onto lands bordering the Seri. The Indians did not recognize private ownership of living uncaged animals. They saw cattle and sheep as additional game animals. The relationship was between these animals and the Seri as the hunted and the hunters. The Spaniards, or later the Mexicans, should not be involved, from the Seri viewpoint, in this relationship. The Spaniards and Mexicans, however, seeing their livestock fall prey to the Seri, hunted the Indians down and shot them. There are numerous recorded incidents of massacres such as the one of 1662 when "several hundred" Indians were killed. Prior to 1750 it had been common for the government to round up Seri women and deport them to Guatemala.

During the decades of the 1750's to 70's, military campaigns were mounted by General Parrilla and Colonel Elizado with the avowed intention of exterminating the Seri. A hundred years later, during the 1850's and 60's, mounted cowboys with rifles from the Costa Rica Ranch were encouraged to kill Seris on sight. The owner of the ranch estimated that his men killed about half of the Seri during a 12-year period. The entire San Esteban group of Seris was apparently killed by the military in the 1860's.

Hatred of the Seris was so intense that women and children were slaughtered as well as the men. Despite popular opinion, evidence has apparently never been found that the Seri were cannibalistic. Perhaps it was easier to kill them if they were thought of as degenerate and cannibalistic.

The Seri surviving after centuries of repeated campaigns of extermination were an amalgamation of survivors from various bands which had once displayed considerable geographic, ethnic, and dialectic differentiation. Since the differences had undoubtedly arisen through geographic compartmentalization of a single ancestral stock, perhaps the amalgamation of survivors merely reconstituted the original stock. In any event, Felger and Moser have been extremely successful in extracting a very full account from the Seri of their plant knowledge and traditional subsistence patterns. The Seri presented in the present book are culturally rich rather than impoverished.

—F. S. Crosswhite