



*Wild Cochineal on a pad of Prickly Pear at the Boyce Thompson Southwestern Arboretum.*

**Wild Cochineal of Prickly Pear (*Opuntia* sp.) as a Dye Source in Arizona.**

As weather begins to warm in the Sonoran Desert, patches of white cottony material become evident here and there on pads of *Opuntia*. Beneath the snowy fluff hides the creature that produces these protective layers, the cottony cochineal insect (*Dactylopius* spp.) that feeds only on *Opuntia*. Gently push apart the long filaments of wax secreted from special glands on the insect's body to reveal the animal itself. It consists of a soft, ovoid mound-shaped body, without distinguishable appendages or features to the naked eye, and is colored a purplish-gray. This is a female cottony cochineal, permanently attached to the plant by sucking mouthparts inserted into the *Opuntia* stem. She feeds upon the plant juices until mature, then lays a number of eggs and dies. Male cochineals are winged when mature.

Puncture the sac-like body of a female cochineal and a bright red drop of fluid exudes. It contains carminic acid, a strong and color-fast natural dye. The dried bodies of these cottony

cochineal scale insects and their domesticated relative, cochineal, were used in Mexico and South America to color fabrics. In fact, a lucrative industry was developed by Spaniards after the conquest of Mexico, when domestic cochineal was raised in large quantity and exported world-wide. The advent of aniline dyes in the latter 1800's supplied a source of cheaper colorfast reds and the industry declined.

Here in Arizona only one record of prehistoric use of cochineal exists. Frank Russell, in his book on the Pima Indians (reprinted by University of Arizona Press, 1975), cites use of wild cochineal on page 96. Pimas dyed the ends of war arrows, made from arrow bush stems with cochineal. Modern handcrafters who practice dyeing wool with natural materials make use of this brilliant natural colorant much as did ancient Americans—by collecting and drying female insects from *Opuntia*, then immersing them in boiling water to release the dye. Various mordants may be used to enhance color fastness. —C. D. Crosswhite.