

Nov.18: Chapter Meeting - Gary Huckleberry, PhD, a geoarchaeologist, presented *Ancient Water Management in the Arizona Desert*. Hohokam canals about 1400 AD along the Gila and Salt Rivers are well known, but the earliest Arizona canals known so far were along the Santa Cruz River near Tucson and date to about 1500 BC. Through time, canal systems expanded in size, culminating in the impressive network of channels built by the Hohokam (450-1450 BC) along the lower Salt and middle Gila rivers.

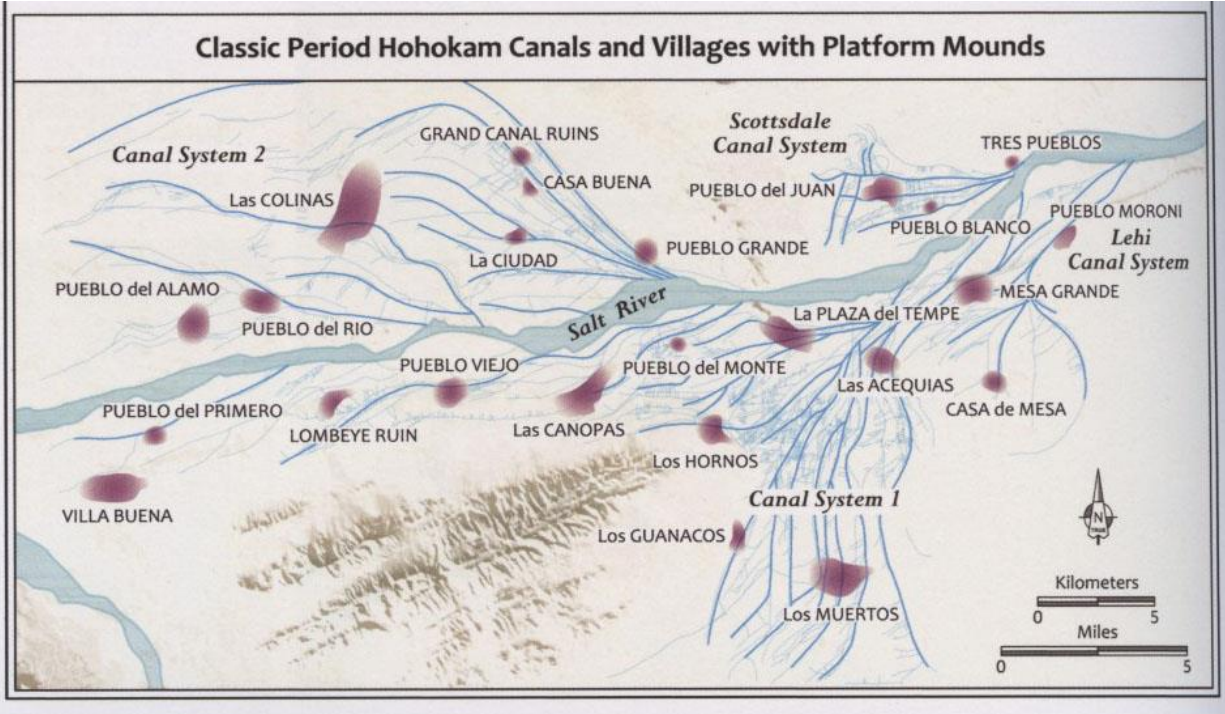
Cultural-Ecological changes associated with water control include increased labor requirements, increased food production, increased population, increased socioeconomic interaction, larger ecological footprint, and others.

Dr Huckleberry presented numerous aerial photos that show ridges or soil colorations revealing ancient canals. He also had many photos and diagrams of deep cut soil profiles of canals, often showing several successive canals along the same route which were reconstructed after silting or flood damage. Canals varied in size from the intake on the river fanning out to small feeder canals at the fields. One could easily drive a large truck down the axis of the channel of some canals near their intake. Some canals extended 15-20 miles across what is today central Phoenix. These earthworks involved an incredible amount of labor to excavate and then maintain. Dr Huckleberry showed an excavated surface of an agricultural field where soil coloration showed it had been divided into small field cells that were irrigated by small feeder canals from larger canals about 1000 BC.

He discussed methods of telling the difference between silted-in human-made canals from silted-in natural ancient watercourses involving presence of rocks, silt layers, and ceramics.

Although silting up of canals was a problem for Prehistoric American farmers, Dr Huckleberry showed how they sometimes used structures to deliberately capture silts and clay in their fields to transform them from porous gravel to water absorbing silty loam soil.

The prehistoric Hohokam people also captured short-lived seasonal runoff in washes that only flowed after heavy rainstorms and stored the water in basins. Over the decades, archaeologists have identified many Hohokam water storage features such as reservoirs (supplied by canals) and catchment basins (supplied by natural runoff).



(Image by Huckleberry and Henderson, 2017)



Park of 4 Waters, Off End of Phoenix Sky Harbor Airport Runway, Showing Hohokam Canals





Park of 4 Waters - One of the Large Hohokam Canals almost Completely Filled with Silt Showing Its width at this Part



### Excavated Surface of an Agricultural Field

Traced in white spray paint are the borders of agricultural field cells that were irrigated by small canals ~3000 years ago. These were discovered at the Las Capas Site, again in the Santa Cruz River floodplain near Tucson. These occur ~15 ft below the modern surface. Note darker soil coloration marking berms around field cells with lighter soil coloration.