A 2500-year Neolithic Revolution in the American Southwest

Harvest, Santa Clara Pueblo, 1935

Slides for a grad student colloquium presented by Bill Lipe, SMU, 11-3-2015
Early Agricultural Sites in the Southwest (2200 BC to 500 AD)
How do we know when a Neolithic Revolution has succeeded? Traditionally, it’s when we see societies with these characteristics, e.g. Pioneer period Hohokam or Basketmaker III

- Heavy dependence on farming, with developed long-term crop storage techniques
- Year-around occupation of villages or stable dispersed communities of > 50 people
- Population has been through the Neolithic Demographic Transition
- Evidence of continuously maintained socio-political institutions (e.g., public architecture, status differentiation, etc.)
- Pottery
- Tools specialized for processing agricultural products
The notion of a Neolithic Revolution and a threshold that societies need to cross before being admitted to the “Full Neolithic” club is at best a shorthand way to characterize a series of economic and social changes. At worst, it’s a relic of teleological thinking incorporated in “stage” schemes (think “Formative stage”). As frequently used, it often carries an implicit assumption that the numerous variables cited as part of the “Neolithic Emergence” changed gradually and more or less in concert. For example, that dependence on farming gradually changed from a little at the beginning to a lot when the Revolution had run its course and the Neolithic threshold had finally been crossed.

Might be better just to track changes through time in the variables, their interactions, and the processes promoting changes.
Some Examples of “Gradualism”

“In short, between 2000 B.C. and A.D. 500, cultivation of several new species of food plants was introduced into the Southwest. But the potential of this fundamentally different set of technological and subsistence techniques was not realized, and it had little economic significance until later”


“Basketmaker II appears to be adaptively transitional between the Archaic and later patterns…Maize and squash were cultivated to some extent…wild plant foods were important, as was hunting…


“There are at least six Basketmaker and Pueblo subdivisions…; each marked a gradual increase in the importance of agriculture….

(Fagan, *People of the Earth* 2010)
Maize was evidently widespread by ca. 2100 BC: Dates include sites from Tucson area, Zuni area (Old Corn) and Arizona-Utah border (Three Fir Shelter)
Some Early Agricultural Sites in Northern Chihuahua

Cerro de los Torres

Cerro Juanaquena
Cerro Juanaquena and Cerro de los Torres

- These two sites are among several Early Agricultural defensive hilltop sites in the Casas Grandes area of northern Chihuahua.

- These sites were occupied in a ca. 200 year period centered at 1250 BC.

- The settlement on Cerro Juanaquena probably housed 200 to 300 people.

- The 486 constructed terraces at C.J. represent 31,500 cubic meters of rock and dirt.

- Terrace construction would have required 30 person-years of labor.

- The terraces created flat living spaces for houses of perishable materials.

- There is ample evidence of household debris.

(Hard and Roney 1999; Roney and Hard 2003)
Tucson Area: Las Capas

Aerial overview of Las Capas excavations. Early Agricultural occupation primarily in the San Pedro phase, 1200 to 800 BC.
Las Capas Site

- Primary occupation at Las Capas was in the San Pedro phase, BC 1200 to 800. Irrigation system dates to that phase.

- Some occupation in the succeeding Cienega phase

- AMS dates on redeposited maize kernels indicate farming began at the site by 2100 BC

- Preferred settlement model for Las Capas is year around occupation, with logistical camps in the surrounding uplands.

- Squash was cultivated, and there is some evidence that so were beans, cotton, tobacco, and some native amaranths
Right: House floor at Las Capas

Left: one of many large storage pits at the site
Right: profile of canal, showing multiple episodes of sedimentation and use

Left: fields bordered with low berms are outlined. Feeder canal visible in lower left part of photo.
Artist’s reconstructions of aspects of life at Las Capas

(Images courtesy of Archaeology Southwest)
Scenes from the Old Corn Site, East-Central New Mexico (from Huber and Van West, 2005)

Multiple AMS dates on maize, calibrated 2200-1900 BC
“Gradualism” Revisited in the Northern SW

“In short, between 2000 B.C. and A.D. 500, cultivation of several new species of food plants was introduced into the Southwest. But the potential of this fundamentally different set of technological and subsistence techniques was not realized, and it had little economic significance until later”

(Woodbury and Zubrow, Handbook of North American Indians, Vol. 9, 1979, p. 51)

“Basketmaker II appears to be adaptively transitional between the Archaic and later patterns…Maize and squash were cultivated to some extent…wild plant foods were important, as was hunting…


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(Fagan, People of the Earth 2010)

In fact, heavy dependence on maize farming seems to have been early, and other elements of the “Neolithic Revolution” appeared later, and not always in the same sequence, in different areas of the SW
RG Matson’s model suggesting Classic Western Basketmaker II of AZ and UT is derived from the San Pedro phase in Southern Arizona.

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<th>BASKETMAKER II EAST</th>
<th>COLORADO PLATEAU ARCHAIC</th>
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Right: Test pit under excavation, 1972. Human coprolites indicated heavy reliance on maize, as did macrobotanical analysis of the midden deposit. Midden is well dated to 1-200 AD (Basketmaker II period)
A recent mtDNA study (Speller et al. 2010) shows a distinctive variety of domestic turkey was maintained in the Pueblo SW for from at least 1 AD through the 1700s. The birds were fed maize.

Above: Turkey feather from looters’ backdirt, Turkey Pen Site.

Right: Dried turkey droppings from the BM II midden at the Turkey Pen site.
By 200 AD, the BM II farmers had expanded out of the canyons and were dry-farming. Here, a BM II house floor on Cedar Mesa.
These results indicate that BM II had approximately the same level of dependence on maize farming as in the later BM III through PIV periods in the Northern SW.