The Nature and Timing of the Neolithic Demographic Transition in the North American Southwest

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Abstract  Maize agriculture was practiced in the US Southwest slightly before 2000 BC, but had a negligible impact on population growth rates until it was coupled with other innovations in subsistence and social practice. These include the development or introduction of more productive landraces; the ability to successfully cultivate maize under a greater variety of conditions, with dry farming especially important; the addition of beans, squash, and eventually turkey to the diet; and what we infer to be the remapping of exchange networks and the development of efficient exchange strategies in first-millennium-AD villages. Our tabulations of the P(5–19) proportion emphasize the heartlands of the Chaco and Mesa Verde Anasazi (prehispanic Pueblo) populations. We find that this measure is somewhat affected by warfare in our region. Nevertheless, there is a strong identifiable Neolithic Demographic Transition signal in the US Southwest in the mid-first-millennium AD in most sub-regions, visible a few hundred years after the introduction of well-fired ceramic containers, and more or less contemporaneous with the first appearance of villages.

Keywords  Maize · North American Southwest · ceramic containers · demography

Background Considerations: Early Maize in the US Southwest

Following its domestication in southern Mexico more than 6300 years ago, maize arrived in the southern portions of the US Southwest slightly before 2000 BC\(^1\) (Diehl and Waters 2006; Huber 2005; Huckell 2006). The earliest presently known maize sites in the American Southwest (Fig. 1) do not form a strong south-to-north chronological gradient (Blake 2006; Huber 2005: Fig. 36.11; Smiley 1994), since maize appears to have reached northeastern Arizona by 1940 BC (Smiley 1994), which is almost as early as the southern Arizona dates. More lag can be seen in its subsequent east–west spread—for example, it reached the Northern Rio Grande in

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New Mexico by about 1200 BC (Vierra and Ford 2006:505)—and in its later spread into the northern reaches of the Colorado Plateau in Utah, around AD 600 (Barlow 2006) (Fig. 2). While the core cultigens of the Mesoamerican agricultural adaptation also included beans and squash, their entrance into the Southwest was later and less distinct. Macrobotanical evidence for these plants is much less abundant than is the evidence for maize throughout southwestern prehistory, and the first occurrences of each are generally in the first millennium BC (Smith 2001).

So familiar is the concept of the Neolithic wave-of-advance defined for Europe by Ammerman and Cavalli-Sforza (1973) that archaeologists tend to assume that the model will work elsewhere. But in Europe, a highly productive package of domesticates, including animals, and ceramic vessels for cooking and storage, was “assembled” early and was then able to spread very rapidly from east to west through zones of relatively similar climate and biota. From its probable homeland in the tropical deciduous forests or thorn forests of the Balsas depression to the US Southwest,