

ON THE WEIGHT OF THE EVIDENCE FROM CROSS CREEK: A REPLY TO TURNER

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As stated in our original paper (Jones et al. 2002), the Cross Creek site is not of sufficient antiquity to challenge Clovis for temporal priority in western North America, but it pushes the age of the California Milling Stone culture back 2,000 years earlier than previous estimates. The Milling Stone culture and coastal adaptations on the southern California islands are so profoundly different from Clovis that they beg consideration of alternative colonization scenarios. Relying on old arguments and ignoring recently published findings, Turner (this issue) argues that there is insufficient evidence for a maritime culture on the central coast of California at the end of the Pleistocene. In our response, we further discuss implications of the findings from Cross Creek and other studies that support a coastal migration model.

Como fuera expresado en nuestro trabajo original (Jones et al. 2002), el sitio de Cross Creek no es de la antigüedad suficiente para desafiar al Clovis en la prioridad temporal en la Norte América occidental, pero empuja la edad del Período Arcaico de California por 2,000 años antes de las estimaciones previas. La cultura del Período Arcaico y las adaptaciones costeras en las islas sureñas de California son tan profundamente diferentes de Clovis que buscan la consideración de guiones alternativos de colonización. Fiándose de los argumentos e ignorando viejas conclusiones recientemente publicadas, Christy Turner (este número) discute que la evidencia es insuficiente para una cultura marítima en la costa central de California a fines del Pleistoceno. En nuestra respuesta, discutimos las implicaciones de las conclusiones de Cross Creek y otros estudios que apoyan el modelo costero de la migración.

In challenging our interpretation of the Cross Creek site (Jones et al. 2002), Christy Turner (this issue) shows significant underappreciation for the complexities of the western North American archaeological record, how it is sampled, and how it is bracketed in time. He clearly has misunderstood our presentation and misrepresented our primary points. In response, we counter his challenges concerning time and evolution, fauna and tools, and the Alaskan ice barrier. We also take this opportunity to elaborate on our view of the place of the Cross Creek site in the earliest archaeology of western North America.

Our key points on the Cross Creek site were that (1) the primary component was nearly 10,000 years old in calendric time, (2) it represented the California Milling Stone horizon or culture, and (3) the Milling Stone culture is so profoundly different from Clovis big-game hunting that it may be the product of a distinctive cultural history—one that involved a separate coastal migration into the New World by

broad-spectrum foragers. In short, based on findings from Cross Creek, the Milling Stone culture is now 2,000 years closer to Clovis, but it still shows no technological or adaptive similarities.

Archaeological Time

Christy Turner misrepresents the age of the Cross Creek site, asserting that the oldest corrected date is “9600 ± 270” (this issue, p. 391). Our data table clearly shows ¹³C/¹²C corrected dates of 9900 ± 270, 9650 ± 70, and 9640 ± 100 years B.P. (Jones et al. 2002:217). The oldest measured ¹⁴C age is 9500 ± 260 years B.P. Relying on isotope-corrected dates and converting them to calendric time via calibration, the main component at Cross Creek (excluding outliers) dates ca. 8000–7600 cal. B.C. Calibrated dating of Clovis is ca. 11,500–11,000 cal. B.C. (Fiedel 2000:52), making it at least 3,000 years older than Cross Creek, as we fully acknowledged in the original article (Jones et al. 2002:214). Our argument

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about the implications of the Cross Creek findings, however, had as much to do with its assemblage as its age. More specifically, our conclusions were based on well-documented traits of the California Milling Stone culture and recent findings from the southern California Islands.

The Milling Stone culture has been recognized in California since 1929 (Rogers 1929). In the first synthetic description, Wallace (1955:219–220) summarized Milling Stone as a culture marked by extensive use of milling stones and mullers, general lack of well-made projectile points, few bone or shell artifacts, and burial beneath rock cairns. Aside from the milling tools, the rest of the Milling Stone tool inventory was accurately described as “meager and crude” (Wallace 1955:228). Many Milling Stone sites were investigated prior to the use of radiocarbon dating, but in recent decades, hundreds of radiocarbon dates have been obtained from southern California. Based on some of these findings, early syntheses of Milling Stone established an initial date no earlier than 6000 B.C. (Wallace 1978:36; Moratto 1984:125). The Cross Creek site produced a typical Milling Stone assemblage that pushes the antiquity of the complex back 2,000 years earlier. In many ways, as Turner suggests, this might be somewhat unremarkable if not for the fact that it renders the complex as old or older than those it was thought to postdate, specifically San Dieguito/Lake Mojave and the poorly defined “Paleo-Coastal Tradition.”

Fauna and Tools

The Milling Stone complex has been recognized at more than a hundred sites in southern California (excluding the Channel Islands). Findings of the last decade show an unequivocal presence in northern California as well (Fitzgerald and Jones 1999; McGuire and Hildebrandt 1994). Nearly all who have examined Milling Stone in any detail (e.g., Basgall and True 1985; Wallace 1955, 1978) have concluded that it represents a gathering subsistence regime focused on seeds, other vegetable products (e.g., agave, and yucca), and shellfish (Erlandson 1994). The Milling Stone pattern is remarkably consistent in its emphasis on milling tools and shells over bones and projectile points (Basgall and True 1985; Erlandson 1994; Fitzgerald and Jones 1999; McGuire and Hildebrandt 1994).

The Cross Creek site was situated ca. 9 km inland at the time of its occupation. Not surprisingly, it did

not produce a large quantity of molluscan remains. However, a careful reading of our article reveals that “as much as 169 g of shell per 10 cm level” (Jones et al. 2002:222) was recovered from 1-x-2-m units processed with 6-mm mesh. Total recovery was well over 5 kg of shell for the entire excavation sample that represented a miniscule percentage of the overall site volume. In his comments, Christy Turner focused solely on the materials from a single control unit, and only on the “deepest level” (stratum 4). He is ultimately correct, however, that shellfish was not the major subsistence focus at this location. Shellfish would have comprised a larger portion of the diet at sites on or closer to the immediate shoreline, and we speculated that the inhabitants of Cross Creek split their time between shoreline sites and interior valleys. Milling Stone sites nearly as old as Cross Creek have been documented on the shoreline in the general region, and some of these have produced dense accumulations of shell (Erlandson 1994). Despite its inland location and a favorable preservation environment, however, Cross Creek produced almost no animal bone, which is typical of Milling Stone sites (Erlandson 1994). We concluded from this, as have others, that the inhabitants of Cross Creek consumed very little animal food, and that the dominant tools found in these sites—handstones and milling slabs—must reflect a largely vegetable diet.

Other than Milling Stone, the Lake Mojave complex is perhaps the best documented of the earliest California cultural patterns. Recent investigations date the complex between 9000 and 6000 cal. B.C. (Basgall and Hall 1994; Schroth 1994), making it contemporary with Cross Creek, but with a very different adaptation. Lake Mojave assemblages are marked by large numbers of projectile points, knives, perforators, formalized flake tools, with fewer cores, cobble and simple flake tools (Basgall 2000). Milling tools are present in Lake Mojave sites, but their numbers are relatively small. For instance, at Fort Irwin in southeastern California, 10 Lake Mojave components yielded 111 projectile points and 1,657 bifaces, but only 25 milling slabs and 11 hand stones (Basgall 2000:131). The Cross Creek deposit alone produced 12 milling slabs and 17 hand stones.

Lake Mojave, San Dieguito, and Paleo-Coastal are thought to mark hunting-focused economies without milling equipment that emerged from the earlier Clovis/Folsom big-game hunting complex, and Lake Mojave sites show many traits that are

logically consistent with an adaptive outgrowth from Clovis. San Dieguito and/or Paleo-Coastal are commonly viewed as adaptive links between late Pleistocene big-game hunting and the Milling Stone gathering economy. Chartkoff and Chartkoff (1984:99), for example, envision San Dieguito and Lake Mojave as markers of local adjustments made by big-game hunters to late Pleistocene environmental changes that included the disappearance of megafauna. According to this scenario, it was only later that these hunters shifted toward increased plant food exploitation and the Milling Stone complex (Chartkoff and Chartkoff 1984:105).

As stated in the original Cross Creek paper, it remains entirely possible that Milling Stone, even at the greater time depth discovered at Cross Creek, may represent an adaptive outgrowth from Clovis, but the exaggerated gathering focus of Milling Stone at 8000 cal. B.C. warrants consideration of alternative possibilities, particularly in light of recent findings from southern California islands, the initial exploitation of which has been pushed back dramatically in the last decade. Findings from Eel Point on San Clemente Island (Porcasi et al. 2000), Arlington Canyon on Santa Rosa Island (Johnson et al. 2002), and Daisy Cave on San Miguel Island (Erlandson et al. 1996) date human occupations as early as 9750 cal. B.C. The early island-dwellers all used watercraft, fish, and shellfish, and the Eel Point site also shows evidence for exploitation of marine mammals ca. 7000 cal. B.C. (Porcasi et al. 2000). This Paleo-Island lifeway is older than the Milling Stone expression at Cross Creek, but it shows no similarity to Clovis or Lake Mojave. Despite attempts by Phil Orr (1956) decades ago to demonstrate otherwise, there is no evidence that early island dwellers exploited pygmy mammoths, the only insular megafauna. There are also no fluted points known from the islands. Turner is correct, of course, in noting that the earliest coastal and island occupations still postdate Clovis by at least 1,000 calendric years, and the use of watercraft ca. 12,000 years ago may reflect the advent of a new technology by previously land-focused Paleoindians. The Paleo-Island lifeway and Milling Stone complex on the mainland, however, are profoundly different from Clovis.

Turner also argues that the lack of marine mammal remains from Cross Creek suggests something less than a maritime adaptation. Again, the location of the deposit 9 km inland provides ample explana-

tion for this absence. Even Milling Stone sites on the shoreline of Halcyon Bay might not be expected, however, to contain marine mammal remains. Research of the last decade has shown repeatedly that the earliest exploitation of marine mammals in western North America was focused on rookeries where animals are highly vulnerable to terrestrial predation (Hildebrandt and Jones 1992; Porcasi et al. 2000). Such rookeries would only be situated in locations that meet the physiological requirements of the animals, and we would not expect them everywhere. Intensive exploitation of lower-ranked species with watercraft came later with more intensive maritime economies such as those represented at Emeryville within San Francisco Bay ca. 3,000–4,000 years ago.

The Alaskan Ice Barrier

In summarizing some of the older and/or obscure literature on possible coastal migrations into the New World, Christy Turner has done the discipline a service in that such writings certainly should not be overlooked. Missing from Turner's argument is reference to recent paleoenvironmental studies that show that the Alaskan coast was free of ice earlier than previously thought and that the supposed ice-free corridor presented a no-more-inviting or viable entry way into the New World. Recent studies show that 14,000 years ago the ice-free corridor did not exist, yet unglaciated conditions were more extensive than previously thought in southeastern Alaska and British Columbia (Mandryk et al. 2001:303–305). Dixon (2001:278) has also discussed these new findings, stating that a coastal migration corridor was viable by 13,000 years ago, while a midcontinental route was not open until 11,000 years ago. Given that humans had invented watercraft no less than 50,000 years ago to settle Australia and that boat use is demonstrated by archaeological findings from Japanese islands 20,000–25,000 years ago (Erlandson 2001:69), it is not implausible that humans could reach southern California 12,000 years ago via a coastal route. Certainly, findings from Cross Creek far fall far short of proving such a migration, but definitive data one way or the other are lacking.

Summary

Christy Turner has provided a welcome opportunity to elaborate on the implications of findings from the Cross Creek site. For the most part we can hardly disagree with his claim that the Cross Creek findings

do not prove a coastal migration corridor. We think it more important, however, that a separate coastal migration has hardly been disproven, and that the archaeological record continues to produce evidence that does not match the expectations of many existing theories. Recent findings are consistent with a distinctive migration corridor along the northeastern Pacific, but we need to discover older coastal manifestations if we are going to link broad-spectrum adaptations of South America to a coastal migration.

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