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Further Comments on Pinto Points and their Dating

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VOLUME 9, No. 2, of *Journal of California and Great Basin Anthropology* included two lengthy articles intended to clarify the nature and dating of so-called Pinto points (Jenkins 1987; Vaughan and Warren 1987). These discussions were laudable attempts to define a widespread point type in the Great Basin and to provide a dating for it. They grew out of the reality of Great Basin archaeology, which has few sites with any depth or undisturbed stratigraphy, and except for dry caves consists largely of lithic collections with few distinctive artifacts other than projectile points. The result is that the archaeology of this region is dominated by analysis of points, and to the outsider it looks as if Great Basin archaeology consists primarily of point types (cf. Michels 1965; Warren 1984; an exception is the series of reports on Hidden Cave beginning with Thomas [1985] which incidentally provide considerable data on obsidian dating and its application to Great Basin archaeology). While these point sequences have been variously suggested to equate with climatic changes and ecological variables, the validity of such interpretations is dependent upon a reasonably precise dating of the point types, and the controversy over dating impedes the drawing of general conclusions. Efforts to improve the dating of widespread point types such as Pinto are therefore essential if interpretive efforts are to move forward. I would like, however, to point to some general problems which were not clearly addressed by the articles cited.

Both of these articles, and most previous workers, started with the assumption that Pinto points were time markers and that they could be used to delineate reasonably short time periods. Most researchers have also made a tacit assumption that if they could date Pinto points in one site or context, such a dating would apply generally to Pinto points throughout a wide part of the Great Basin. Both of these assumptions are probably wrong for this particular point class, which is a rather generalized form with a very wide spatial and temporal spread. Spatially, the variants cover the whole Great Basin. Temporally, the argument about whether the short-daters or the long-daters are correct is likely to be meaningless because both of these datings are supported in one place or another and both are probably correct—Pinto points may well occur over a period of more than 5,000 years, and published age estimates span 7,000 years. If this is so, use of these points as a time marker provides a pretty blunt instrument for observing climatic or any other sequential changes in the Great Basin.

The problem of chronological placement requires a better definition of Pinto points and necessitates removal of the general confusion resulting from very diverse use of the term "Pinto" by various authors over the years. Certainly Harrington's (1957) use of the term "Pinto" for several variant point forms did not conform to typological conventions. He apparently used the term to apply to the majority of points he found at Little Lake rather than defining the varieties as individual types, as all modern scholars would do. I am reminded by Philip Wilke that Pinto is a series or a form and not a type; this is true, but it adds to the confusion since the literature tends to use the term to refer to a variety of "types." Vaughan and Warren's (1987) study tackled this problem in depth, presenting a historical summary of the way these points were classified by previous writers and suggesting a typological standard, which, although certainly an improvement, will not eliminate all typological arguments in the future.

While metric attributes of Pinto, Gatecliff, and Elko points were compared, it may be more important to emphasize the material from which these points were made (as Vaughan and Warren [1987:210] noted). Vaughan and Warren concluded that differences between obsidian and volcanic Pinto points are significant only for shoulder width in the collection from the Awl site. This may be confusing since obsidian is also volcanic, but the distinction being made was between volcanic glass and fine-grained opaque materials such as basalt and andesite. This issue requires more detailed study with larger samples, since Vaughan and Warren had very few obsidian points in their collection, while other sites (e.g., Little Lake) yielded nearly all obsidian specimens. These differences in material undoubtedly have an effect on the form of finished points, perhaps more of an effect than can be seen in Vaughan and Warren's small sample. For example, they concluded that thickness is not a diagnostic attribute to separate cryptocrystalline/obsidian points from fine-grained volcanic points at the Awl site, although they recognized that statistical comparisons can be questioned because of the very small sample of the former material (only three specimens).

More important, the large differences in frequency of obsidian vs. "fine-grained volcanic" are probably chronological differences as well, since the frequency of obsidian use is not merely a question of available sources but reflects a shift away from such materials as basalt toward obsidian for stone tool manufacture through time. This is widely shown in many areas including some which are hundreds of miles from any obsidian source.

The discussion by Jenkins (1987) raises a number of questions. He pointed out that Pinto points have been dated variously by other authors, some of them concluding that their evidence suggests considerably more recent dating than that of other investigators. He used a sample from his site of Rogers Ridge to conclude that Pinto points date from 8,000 to 8,500 years ago, an observation which may be correct for this location but, as mentioned above, does not date all Pinto points wherever they are found.

Jenkins' use of obsidian dating did little for the method or for his line of reasoning. He dismissed the obsidian rates suggested by Ericson (1977) and by me (Meighan 1981) with the statement, "These 'linear' rates have proven unreliable in accurately dating cultural components of the Pinto and Lake Mohave periods" (Jenkins 1987:221). This is a belief not supported by evidence, for these linear rates conform closely to radiocarbon dating in many locations. Indeed, that is the way obsidian hydration rates are determined empirically. To accept the statement that obsidian dates are unreliable is to discard the method. In this case, we might rather discard the radiocarbon dates, since Table 1 of the article reported that obsidian hydration readings of 14.4 microns, for example, can be matched with radiocarbon dates ranging from "modern" to 8,400 years ago.

Jenkins' mean hydration measurements, which he correlated with radiocarbon ages of about 8,000 years ago, are about 15.6 microns. However, he listed two readings with a mean of 12 microns, matched with a radiocarbon age of 4,020 years or about 2,000 B.C. This is *exactly* the rate suggested by Ericson (1977); if one figures the Coso rate at 340 years/micron, the result for 12 microns is 4,080 years. Although no Pinto points are reported from that level, there is one point in a 5,000-year context (regrettably this one has no hydration data associated with it). Sutton (1988) reviewed an early article on Pinto chronology (Jenkins and Warren 1984), and pointed out that these authors suggested a hydration rate of as much as 390 years per micron for the Awl site and a beginning date for the Pinto period of 4,000-5,000 B.C. (Jenkins and Warren 1984:58). Incidentally, Jenkins' mean hydration of 15.6 microns at the Awl site would figure to 5,304 years ago using the 340 years/micron rate. That remains a possibility unless the linkage between obsidian hydration readings and radiocarbon samples is unquestionable. Such a linkage is rarely free of doubt for a variety of reasons, and it is not free of doubt in this report of a mixed assemblage.

Jenkins and Warren used data from the Rose Spring site as part of their review and commented that:

> The fact that there are no significant differences between obsidian hydration measurements from throughout a deposit that is 5-ft. deep [*sic*] and represents more than 1,500 radiocarbon years of

> occupation suggests: (1) something is very much wrong with the (a) obsidian sample, (b) hydration measurements, or (c) radiocarbon dates; or (2) there are factors affecting obsidian hydration at the site that are not understood [Jenkins and Warren 1984:56].

Any or all of these problems may be present, but I would suggest that a simpler explanation is that of site mixing in a sandy desert deposit. Except for cave sites, there are very few Great Basin sites in which the cultural stratigraphy corresponds with the physical stratigraphy, and in a collection with a limited number of points, it is not to be expected that the points will match up precisely with the radiocarbon dates.

In his most recent review, Jenkins (1987) did not propose an obsidian hydration rate for his Rogers Ridge collection, and there would be major problems in defining such a rate. It is not possible to figure a hydration rate for his Pinto points because most of his hydration readings are on chipping waste, and individual readings for individual Pinto points are not presented. In his Figure 7, 35 obsidian hydration readings are presented for Features 3 and 4, but only 6 (17%) of these readings are on Pinto points (according to Figure 5) and the remainder are on flakes and other point types. In fact, in his Table 1 there are only four Pinto points linked with radiocarbon dates (varying from 5,050 to 8,410 years ago). What the tables suggest to me is that the site may be considerably mixed, some of the radiocarbon dates may not be validly associated with Pinto points, or both.

Because of the limited sample, Jenkins' tables do not provide convincing evidence that the various point types at the site are contemporary. However, the larger sample of points with obsidian hydration readings from Little Lake does show many of the point types to be of the same age. As I concluded in 1981, ". . . while the site was used for at least 2000 years, there is no detectable culture change so far as the point types are concerned" (Meighan 1981:212). Little Lake apparently includes all the point types illustrated by Jenkins (1987:Fig. 2), and the hydration readings for the other point forms are in the same range as those for Pinto points.

More important is the fact that the Rogers Ridge site is reported to have a mean hydration reading of about 15.6 microns (range: 9.0-24.5). The Little Lake site, with 65 hydration readings (all on projectile points) averaged over 10 microns (range: 6.4-17.2). At Little Lake, the mean hydration for Pinto points like those illustrated by Jenkins is 10.3 microns. Since both sites are stated to use Coso obsidian primarily, unless something can be shown to speed up the hydration rate at Rogers Ridge by 50%, it must be concluded that these assemblages are of considerably different age, with Little Lake's Pinto points being substantially more recent than those at Rogers Ridge. This does not support the long-daters but argues, as stated above, that Pinto points span a long time period and that dating them at one site does not provide an age applicable to all other sites where these points occur.

While the evidence is tenuous, it might be suggested that the Pinto point tradition began in the southern deserts and spread through time to the northern areas of the Great Basin. The shorter dates seem to be put forward for Pinto and related forms from northern locations. For example, Heizer and Hester (1978:Table 6.2) provided 7 radiocarbon dates associated with Pinto points, ranging from about 2,600 to 5,400 years ago. These are primarily from northern locations, not from the Mojave desert. They noted one "short date" of 3,880 years ago as being very significant because the date was run on a wooden foreshaft to which a Pinto point was attached. Of course, this is where the definition of types becomes critical. Are the

"Pinto" points dated by Heizer and Hester the same thing as the "Pinto" points defined by Vaughan and Warren? We cannot tell without a re-examination of the older collections using Vaughan and Warren's criteria.

Aside from the problems of matching up the typological definitions of various authors over the years, there is a problem in defining types based on small samples. The published illustrations of Little Lake points include 47 specimens in Harrington (1957) and a different 64 in my report (Meighan 1981), a total of 111 illustrated points, compared with 20 in Vaughan and Warren's paper and 15 in the article by Jenkins (plus 20 Pinto points illustrated from the Awl site by Jenkins and Warren [1984]). Even a cursory look at the published illustrations shows that the much larger sample of points from Little Lake includes many intermediate forms which have to be included in defining the characteristics of Pinto points. Little Lake could resolve some of the typological problems for Pinto points if the collection were re-examined. Harrington (1957) said he got over 500 points from the site. I agree with Vaughan and Warren's conclusion that "a similar analysis of the assemblages of 'Pinto' points described by Amsden, Rogers, and Harrington would be the strongest test of the validity of the 'Pinto series' in the Mojave Desert" (Vaughan and Warren 1987: 212).

Little Lake could also resolve some aspects of the chronology very well if we had a series of radiocarbon dates from the site to go with the large obsidian sample. Unfortunately, the site was dug before radiocarbon dating was developed, and it would require new excavations to obtain organic material, a project that would be well worth doing. Use of obsidian dating for the Little Lake site is therefore tenuous in spite of the fact that Coso obsidian has been well correlated with radiocarbon dates elsewhere. However, whatever the Little Lake dating turns out to be, it will only date Pinto points at the Little Lake site--it will not provide an age for Pinto points elsewhere and will certainly not provide a date for the hundreds of surface finds of these points throughout the Great Basin.

I conclude that Pinto points, even defined with the much greater detail provided by Warren, are not very precise time markers. A similar finding was stated by Jenkins and Warren (1984:56) in their comment, "there is no doubt that the use of Pinto points continued into the Gypsum Period . . ." Whatever the initial date for Pinto points may turn out to be, the persistence of the form over thousands of years cannot be discounted. Hopefully, a further refinement of the typology will identify some varieties of Pinto points which can be identified with a time period at least as short as a millennium or so. Until this is available, it is premature to use Pinto points as correlates of climatic change, shifts to or from big-game hunting, or other large-scale changes in Great Basin prehistory.

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