When a Clovis Point is a Clovis Point

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Introduction

The Clovis point is arguably the most well-known projectile point in the New World. It is recognized in the far-Western US now but that is a relatively recent conclusion for the Great Basin. In recent years renewed attention has been given to the subject due to a number of notable examples documented in the Great Basin and surrounding areas such as the Simon Cache in Idaho, the East Wenatchee site in Washington State and the Dietz site in Oregon. All these locations are significantly north of the Central Great Basin. Relatively few examples have been found in the central region. More recent research has suggested that not only a "classic" Clovis exists in the Great Basin similar to Clovis in other regions, but another variant exists that doesn't conform to all morphologies of Clovis from the rest of the continent (Beck, Jones and Taylor, 2019, Rondeau 2023). The intent of this commentary is to explore the observed differences between artifacts that might be Clovis or some potential "divergent" form, review interpretations of these differences and to make conclusions on what these differences mean in terms of deciding if a point is actually Clovis. I argue there is only one "type" of fluted point in the Central Great Basin and that is Classic Clovis. The observed differences are varied, inconsistent and lack logical rationale to substantiate a separate distinct type.

Beck and Jones (2024) summarize a variety of reasons put forth by researchers why examples of Clovis points in the Great Basin diverge from the "classic" underlying Clovis point (also present in the Great Basin). These "morphological gradations" may be from any number or combinations of the reasons put forth. The common rationale has been provided that suggests these "divergent forms" represent some later lineage that descended in time from the classic Clovis form (Beck, Jones and Taylor, 2019, Miller, Holliday, Bright, 2014). This logic has also been applied to describe an evolution from Clovis through Western Stemmed points, eventually arriving at the basally-thinned un-fluted Blackrock Concave Base form (Willig 1991 p. 104, 1989 p.243, Carlson 1988 p. 321). This logic mirrors the thought that Clovis evolved into Folsom and others on the Plains. This theory is less than satisfying in the Great Basin for the following reasons.

1. Classic and the so-called "divergent" Clovis points occur together, alongside each other in most locations in the Central Great Basin. Temporal separation would suggest horizontal separation but that does not appear to be the case.
2. Classic and divergent Clovis most commonly occur alongside Western Stemmed points and tools, particularly Haskett. With the co-location of Clovis and Western Stemmed (WST), without demonstrable separation in time, indeed an overlap in time has been indicated (McDonough et al. 2024 p13), the influences <u>and sharing of these disparate</u> technologies seems unavoidable. WST influence in real-time would overwhelm temporal evolutionary changes muddying interpretations of those influences.
3. Blackrock Concave Base (BRCB) points and their related tools are significantly different from Clovis.
    a. Unlike Clovis (all varieties) BRCB makers tried to avoid volcanic materials such as obsidian and basalt and preferred to use cryptocrystalline materials.
    b. Unlike Clovis, they did not make blades & cores and they did not make intentional use of overshot flaking for biface reduction. BRCB used bifacial reduction flakes for cutting tools whereas Clovis used blades from prepared cores (in addition to biface reduction flakes when the opportunity arose).
    c. Unlike Clovis, BRCB makers frequently used heat treating for their lithic materials. There are rare cases of heat treating in Clovis, such as at Anzick, but it is not the norm in the Great Basin, especially in light of the difference in preferred material (obsidian) and elsewhere.

It is difficult to see an evolution from the Classic Clovis → Divergent Clovis → BRCB in the Central Great Basin, given the compressed timeline for the generally accepted "late arrival" of Clovis, plus subsequent time to diverge into a post-Clovis Western Fluted, and then finally on to such different technologies as BRCB and WST. Regardless, the main intent of this commentary is to focus on WHAT the differences are that help in identifying artifacts. Debates over WHY things are the way they are, or even WHEN they are, in relation to each other is an inevitable part of the discussion.

A Statistical Analysis

The 2019 analysis from Beck, Jones, Taylor "What's not a Clovis" includes a statistical analysis of far-western fluted points using a comparative data-base of 95 well-known and documented Clovis points from elsewhere in the continent (Beck et al. 2019). The authors "score" each and every one of 492 western fluted points to determine if it is indeed a "classic" Clovis or a "Not Clovis." Each western point was graded as Clovis/Non-Clovis on each of several different continuous attributes (e.g. width, thickness, concavity, etc.) and discrete attributes (single vs multiple flutes, presence of guide scars or not, etc.) For the continuous variables, each point was given a score of "Clovis" or "Not Clovis" based on where its value fell with respect to one standard deviation (negative 1 s.d. for width for example) from the baseline Clovis mean. So, by definition, the comparative truth data (the real Clovis) include points that fail each continuous "Classic Clovis" metric 16% of the time, assuming one side of a uniform distribution is relevant. The final weighted scoring does not include any summary of how the baseline comparative artifacts score. I.e. how many of the 95 *baseline* Clovis points, if any, fail the rolled-up Clovis test as defined? In other words, what is the confidence of the original assumption on what a Clovis point IS? Also, this binary approach is useful in general terms to decide if something may or may not be consistent with Clovis from other regions, but cannot by its very nature help with characterizing <u>what</u> the non-Clovis points actually are, if anything. The perspective of looking for a previously un-defined variant of fluted point, such as exists in regions to the East (Folsom, Cumberland, Gainey, Barnes, etc.) is not aided in this analysis. The stated intent of the Beck/Jones/Taylor exercise is to provide a "systematic comparison of fluted points from the Far West with Classic Clovis points in order to determine if, in fact, <u>there is a non-Clovis fluted point form in this region</u>" (Beck et al. 2019). This statement seems incongruous with the analysis that tries to prove what is NOT Clovis rather than to define what another fluted point form actually is.

Here I attempt to explore this complicated situation. Table 1 below shows attributes used in the 2019 study. For evaluating fragments of fluted points, which is acknowledged in the analysis, some metrics cannot be used such as flute position, max width (the difference between basal and max width is only 3 mm) and max thickness. Metrics that are at least potentially useful include thickness, basal width, basal concavity, concavity depth / basal width, number of flutes, and presence of guide scars and nubbins (prepared fluting platform). Below I present a variety of artifacts that were not included, for the assessment and understanding of where they sit on the spectrum of each metric, and attempt to interpret the data. The intent is not to perform a statistical analysis which would not be valid due to sample size, rather an exploratory discussion of observations to make informed opinions. In general summary, Classic Clovis is thicker, wider, has shallower concavities, shorter flutes, and lack multiple flutes, guide flakes and nubbins.

Classic vs. Divergent GB Clovis	Classic Clovis	Divergent (Not Clovis)
Maximum Width (mm)	≥ 25.28	< 25.28
Maximum Thickness (mm)	≥ 6.679	< 6.679
Basal Width (mm)	≥ 22.22	< 22.22
Basal Concavity Depth (mm)	≤ 5.540	> 5.540
Maximum Flute Length	≤ 36.17	> 36.17
Basal Concavity Depth / Basal Width	≤ 0.190	> 0.190
Maximum Flute Position (mm)	≤ 0.454	> 0.454
Presence of guide scars or "nubbins"	Not allowed	allowed
Number of Flutes	single on both faces	multiple on either face

Table 1 Metrics for Classic vs. Divergent Clovis

Maximum Width

A maximum width less than 25.28 mm is an indicator of a potential divergent form. (at least 84% of the baseline data set is greater than 25.28 mm). Figures 1, 2 and 3 illustrate Great Basin fluted points that have such divergent widths. The first divergent point, shown in Figure 1, has a concavity depth of 4.5 mm so it does not violate the concavity metric but does violate the depth/width metric. It also violates the max thickness threshold. The second divergent candidate is shown in Figure 2. CL-002 fails the width, basal width, concavity depth and depth / width. It barely satisfies the thickness threshold. Similarly, the point in Figure 3 also fails all the metrics except for thickness.

X-ray Chemical Source = Coso
Length = 42.63 mm
Width = 20.88 mm
Thickness = 6.55 mm
Concavity Depth = 4.5 mm
Basal Width = 20.88 mm
Concavity Depth / Basal width = 0.216
Mass = 5.4 g

Figure 1 CL-001 Narrow fluted point

X-ray Chemical Source = Coso
Length = 40.85 mm
Width = 22.99
Thickness = 6.80
Concavity Depth = 6.59
Basal Width = 20.98
Concavity Depth / Basal width = 0.314
Mass = 5.3 g

Figure 2 CL-002 Narrow fluted point

Length = 56.97 mm
Width = 20.41 mm
Thickness = 7.75 mm
Concavity Depth = 4.83 mm
Basal Width = 19.17 mm
Concavity Depth / Basal width = 0.252
Mass = 8.8 g

Figure 3 CL-004 Narrow fluted point

Each of these three essentially "complete" points have all been re-flaked, re-touched and re-based (Rondeau, 2014). For these points, using Width or Basal Width as independent criteria due to the extensive rejuvenation of the points is questionable. These points are all marginally ground and have other attributes consistent with Clovis. CL-001 has a concave-concave cross-section that does not extend far enough to form fluting "grooves". That is not inconsistent with a re-based point, especially of its size. Scratching is present and end-thinning flakes create a flute-like appearance. CL-002 has end-thinning not inconsistent with fluting. CL-004 has prominent end-thinning flakes that possibly represent the maximum possible attempt at fluting given the width of the point. The origin of these flakes is proximal to the current base of the point.

Concavity Depth and Depth / Basal Width

It is clear the original mental template of the classic Clovis point includes a very shallow concavity. The depth of concavity as a metric becomes problematic due to a number of reasons encountered in the real world however. It would be far more meaningful if every point considered was a pristine (un-rejuvenated / un-resharpened / un-rebased) version of the maker's design. Evaluating the level of re-working vs the originally intended concavity depth becomes impossible to evaluate. The points in Figures 1, 2 and 3 above all fail the concavity depth / basal width but their widths do not represent the original intent. Below (Figures 4, 5, 6, 7) are fluted points (Rondeau 2014) that all satisfy the width and basal width criteria but fail the concavity depth and depth / width criteria. Thickness is satisfied for only CL-005. Maximum thickness could have been distal of the break point however on the others.

X-ray Chemical Source = Coso
Length = 39.59
Width = 29.06
Thickness = 8.3
Concavity Depth = 10.32
Basal Width = 22.79
Concavity Depth / Basal width = 0.453
Mass = 5.7 g

Figure 4 CL-005 Fluted Point

X-ray Chemical Source = Coso
Length = 29.51 mm
Width = 32.16 mm
Thickness = 6.48 mm
Concavity Depth = 8.64 mm
Basal Width = 30.39 mm
Concavity Depth / Basal width = 0.284
Mass = 6.9 g

Figure 5 CL-007 Fluted Point

X-ray Chemical Source = Unk
Length = 27.75 mm
Width = 29.06 mm
Thickness = 6.13 mm
Concavity Depth = 10.16 mm
Basal Width = 26.83 mm
Concavity Depth / Basal width = 0.379
Mass = 4.7 g

Figure 6 CL-009 Fluted Point

Figure 7 CL-018 Fluted Point

So why are these points so deeply concave? I propose the following reasons why a "Classic Clovis" point might have a relatively deeper basal concavity:

1. Like the points in Figures 1-3, the points in Figures 4-7 are rejuvenated. But for these points the width was preserved in the re-basing process. Rebasing could have resulted in deeper concavities. CL-007 in particular shows possible evidence of a mid-point break and subsequent rebasing similar to what is shown in Clovis Technology (Bradley et al, 2010, page 103).
2. Obsidian is Brittle. For craftsmen accustomed to precise fluting on more forgiving material, obsidian could have presented a challenge. Minor errors resulting in basal "damage" may have required "fixing" resulting in deeper concavities.
3. In some cases, the re-basing may have been performed on a convex-base or Western Stemmed point (see discussion below).

It is naturally easier to glean insights from points that are more pristine and therefore less subject to debate over the effects of re-working. For reason #2, we look to the Fenn Cache. In the Fenn Cache, there is ONE complete, pristine Clovis point made from obsidian (Figure 8 from Frison & Bradley, 1999). It has a concavity depth of 8.07 mm and a depth/width ratio of 0.326, well in excess of the allowable 0.19 maximum for "Classic Clovis". One other obsidian point in the Fenn cache is heavily damaged but also has a ratio approaching the threshold depending on how it is measured. Another non-obsidian point from the Fenn Cache has a pronounced concavity and is suspected to be sourced from not far from the Colby Site. Three Colby site Clovis points are shown in Figure 9. These three points represent a significant range in concavity depths and are all from the same kill site. This illustrates concavity depths, as measured, cannot be used to demonstrate separation in time, location or technological/manufacturing evolution.

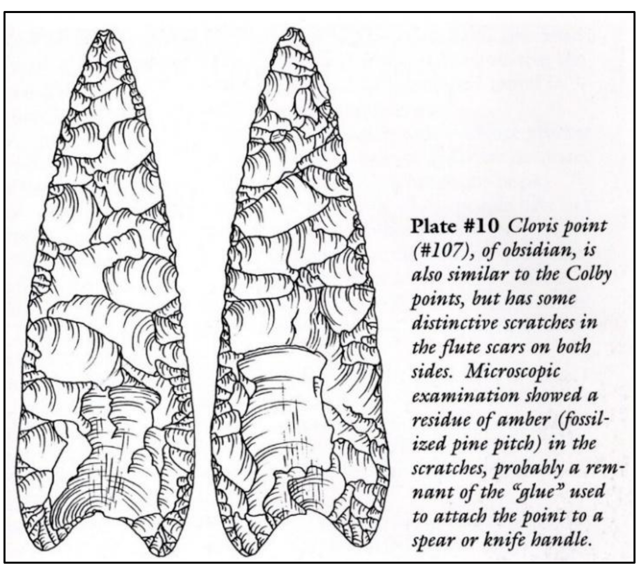

Figure 8 Fenn Cache Catalog #107, Plate 10

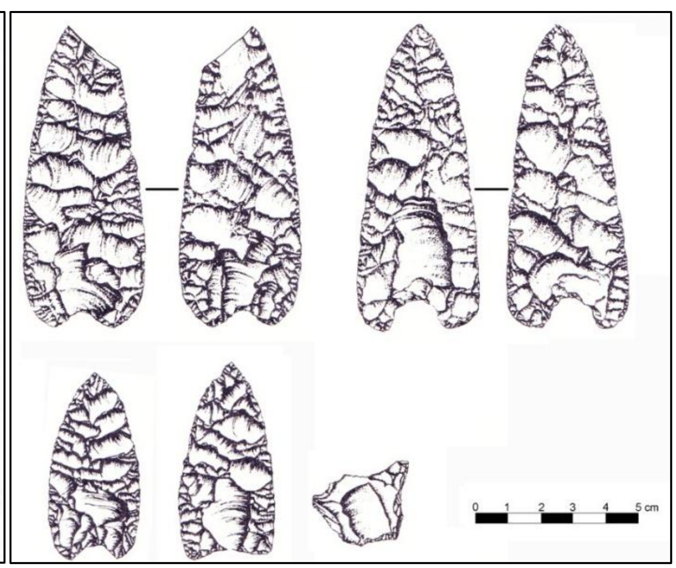

Figure 9 Colby Mammoth Kill Site Points

Lastly, I submit the possible occasional and/or ad-hoc merging of technologies, not necessarily part of any larger morphological evolution. Figure 10 shows more detail of the point from Figure 4.

Figure 10 CL-005 Fluted Haskett Point

Figure 11 compares this point (CL-005) with a Typical Haskett point, comparing width/thickness and stem taper angle for a similar break point. This break point is very common for these points. As can be seen in the figure, CL-005 is remarkably similar to the Haskett point in many respects. The second image from left compares edge views. The third image has the fluted point overlaying the Haskett. The fourth image shows the break edges. Whether a Clovis maker picked up a Haskett and fluted it, or a Haskett maker was emulating observed Clovis behavior is a curious question, but the possibilities shouldn't be discounted.

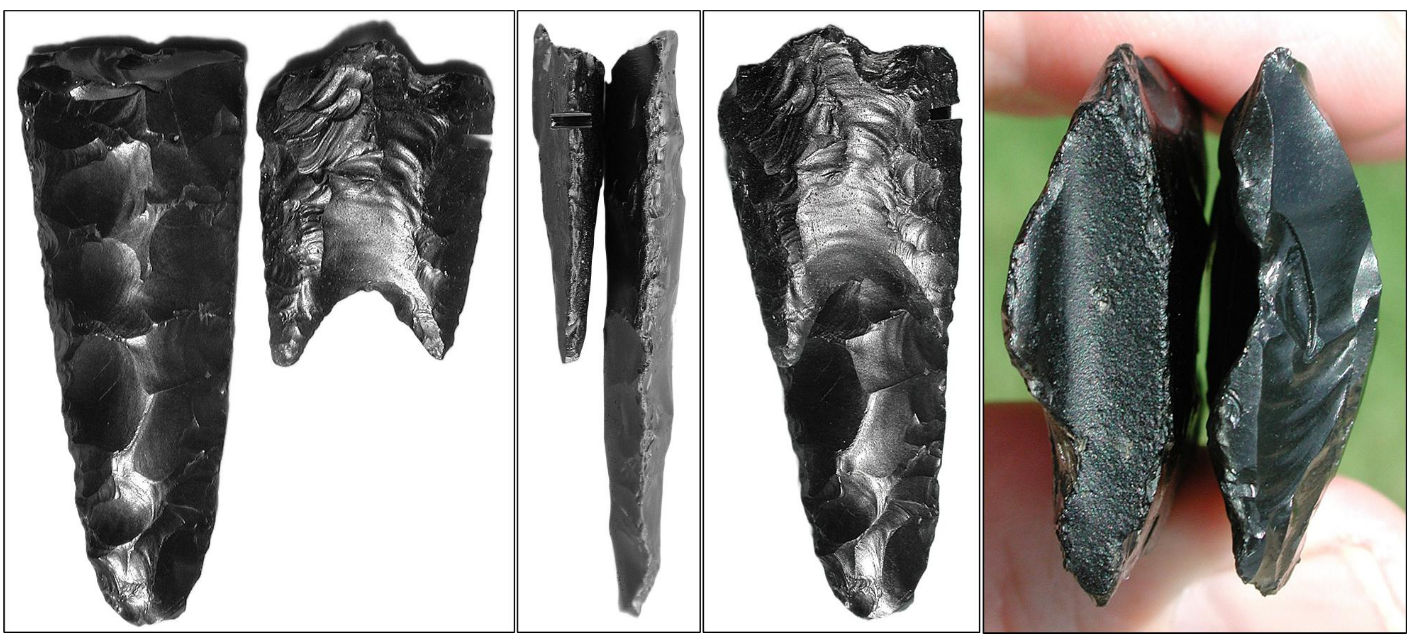

Figure 11 A Possible Clovis - Haskett Hybrid

Presence of "Nubbins"

According to Beck et al, the presence of nubbins indicates a post-Clovis fluting technique (2019, page 113). Figure 12 shows an obsidian fluted point basal section with a pronounced isolated fluting platform. This point (CL-040) is 39 mm wide (basal width = 26.82 mm) and 8.58 mm thick. Concavity depth is 4.11 mm and depth / basal width is 0.153. It shares many attributes with what is known as Clovis and meets all continuous variables to qualify as Clovis. Nubbins and multiple flutes are discrete variables that according to the 2019 report disqualify this point as being Classic Clovis.

Figure 12 CL-040 Clovis Fragment with Prepared Fluting Platform

Interestingly, other Clovis artifacts from across the continent show very similar features however. The Wauseon Clovis fluted preform from Ohio, considered to be Classic Clovis by many authors (Eren et al, 2016 p. 147) shows extensive over-shot flaking and a remarkably similar pattern of fluting preparation (see Fig. 13 below). Additionally, Morrow documents twelve Clovis preforms (different from Gainey fluting technology) from the Ready-Lincoln Hills site in Illinois (Fig 14 below for example) that retained prepared and isolated striking platforms for fluting (Morrow, 2015, p. 89). These platforms are positioned near the center plane of the biface. Morrow (1995, p. 181, Fig 3) also provides a possible sequence of recycling and repair of broken Clovis points (Figure 15.) CL-040 appears to be a mid-section of a large Clovis point. After the original proximal base was lost, the distal two-thirds of the point was being prepared for fluting. A subsequent hinge break fractured the point a second time resulting in the discarded fragment. It appears likely nubbins were created as part of a classic-Clovis re-basing technique different from the classic early-stage fluting technique that did not require such pronounced platform preparation as it was not necessary on a full-size preform.

Figure 13 Wauseon Clovis

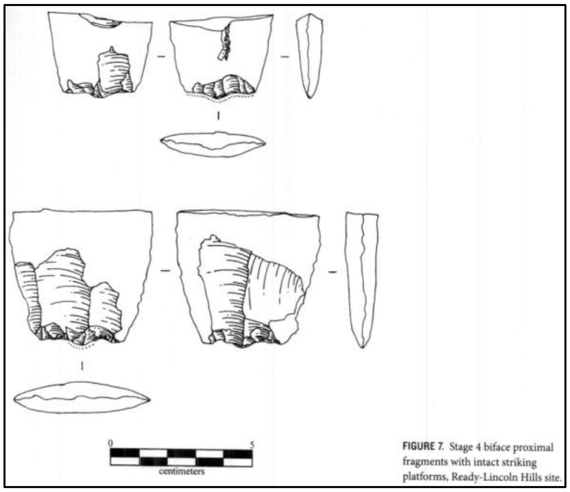

Figure 14 Ready-Lincoln Hills Preforms

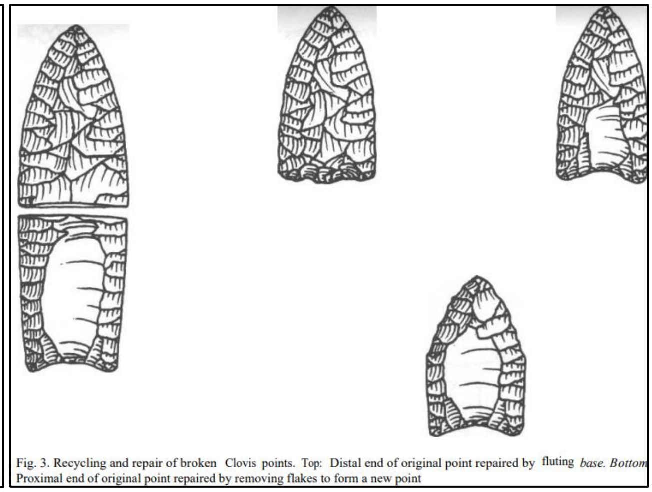

Figure 15 Morrow's Proposed Recycle Stages

Presence of Guide Scars

From the 2019 report, "the presence of guide scars is also indicative of a post-Clovis fluting technique." Figure 16 shows what is defined as having "classic" Clovis morphology, from Beck and Jones (same authors, 2024, p. 165). This Blackwater Draw point exhibits what could be interpreted as multiple flutes and/or guide scars. Figure 17 shows five points (both faces) considered to be Classic Clovis from the Fenn Cache (Frison & Bradley, 1999) that are all interpreted as having multiple flutes and/or guide scars.

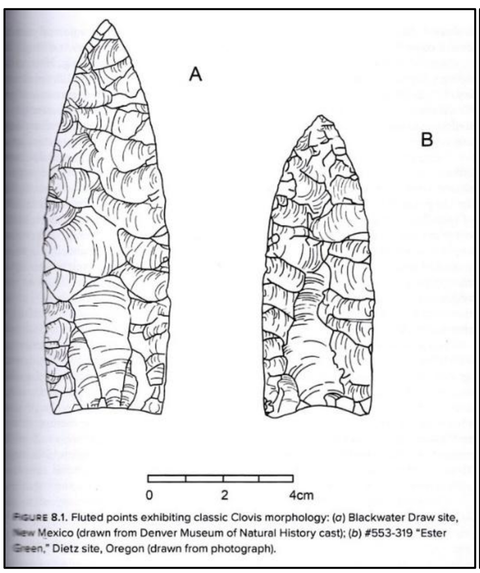

Figure 16 "Classic" Clovis Morphology (left)

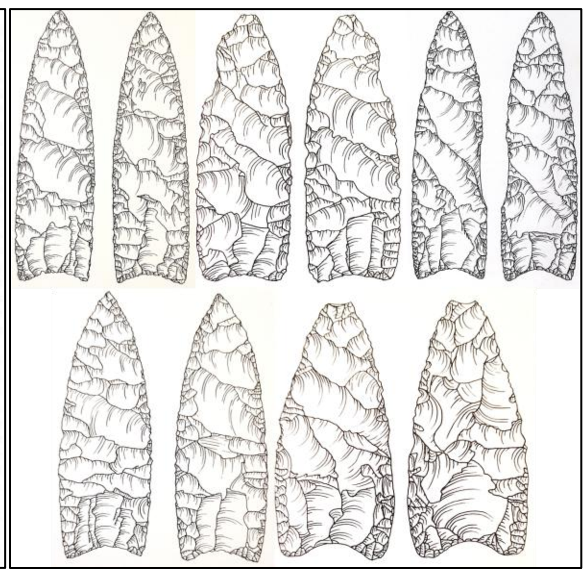

Figure 17 Fenn Cache Clovis Points

Summary

Non-Clovis fluted points in the west are reportedly supposed to tend toward being thinner, narrower, have deeper concavities, and have guide scars, multiple flutes and nubbins. While it is true deeper concavities seem to be more common (but not exclusive to the western-US) there does not seem to be any consistent relationship between concavity depth and any of the other metrics. Many deeply-concave fluted points are not narrow, nor are they thin. Many of the narrower points are so, due to obvious rejuvenation, or possibly influenced by different hafting strategies. Concavity depths may be due to re-working but also could be due to the brittle nature of obsidian. Guide scars exist on a significant percent of all fluted points all over the continent whether they are Classic Clovis or some other "divergent" fluted form. Assuming the late arrival of Clovis in the Great Basin, along with the consistent co-occurrence of classic and divergent forms, it doesn't seem plausible there was enough time, or population, in the Great Basin environment for any temporal evolution to take place. This would also have to happen in context of the competition with the established population of stemmed point makers. Extrapolating evolutionary analogues from eastern regions is not sufficient to assume similar technological evolutions occurred in this different geographical and geological environment. The original intent of this commentary was to try to define the second form of fluted points in the Central Great Basin, and to the far-West in general. Terms like “Western Fluted”, “Clovis-Like” and “Great Basin Fluted” are terms that have never been clearly defined. So far there is no set, or combination of attributes (consistent, specific and measurable) sufficient to use in the identification of a separate fluted “type”. In simpler terms, if one defined a technologically distinct point form, based in part, by three simple parameters of concavity depth > 5.54 mm, max width < 22.22 mm and max thickness < 6.679 mm, one would expect to find numerous examples that meet all three criteria. This author has never seen any. Not one. Describing singular morphological gradations from the basic complex template to define a distinct type is a flawed approach. As virtually all fluted point fragments found in the Great Basin are not from secure and established Clovis contexts, it is very difficult to unequivocally say they are not Clovis. Frequently points that do not conform to the strict definition for Clovis (“typologically or technologically”) are indeed Clovis based solely on their context (Bradley et al 2010 p. 104 fig. 346). For all these reasons I conclude that until a distinct non-Clovis type is defined for fluted points in the Central Great Basin, a fluted point found there is Clovis.

In 1991, Willig (p. 93) wrote Clovis flutes usually extend half way up the point, which has an average length of 7.5 cm. This suggests an average flute length of 37.5 mm which exceeds the allowed length in the “Classic Clovis” metric in Table 1. Other characteristics described in the same passage allow fluting on only one side as well as multiple fluting. Obviously, a lot has been learned since then. Hopefully research will continue to advance our understanding in the future.

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