MORE ON THE RUMOR OF "INTENTIONAL OVERSHOT FLAKING" AND THE PURPORTED ICE-AGE ATLANTIC CROSSING

METIN I. EREN[1], ROBERT J. PATTEN[2], MICHAEL J. O'BRIEN[3] AND DAVID J. MELTZER[4]

[1] *University of Kent, UK*
[2] *Stone Dagger Publications, USA*
[3] *University of Missouri, USA*
[4] *Southern Methodist University, USA*

Lohse, Collins, and Bradley ignore or misrepresent the arguments we have made concerning "controlled" overshot flaking and the purported Ice-Age Atlantic Crossing. Here, we summarize our previous work and explain again how it directly tests the explicit claims of Stanford and Bradley (2012; Bradley and Stanford 2004, 2006). We also correct the inaccuracies and false accusations of Lohse, Collins, and Bradley, and refute their belief that arguments should be rejected or accepted on the basis of majority consensus and authority rather than on empirical data and logical arguments.

KEYWORDS: *biface thinning, Clovis, efficiency, evolutionary convergence, overshot flakes, peopling of North America, pre-Clovis, Solutrean*

We thank Jon Lohse, Michael Collins, and Bruce Bradley for their response (Lohse et al. 2014) to our recent discussion of the purported Ice-Age Atlantic crossing (Eren et al. 2013). We were hoping that our paper might elicit a thoughtful discussion of technology and the manner in which it could be used to detect historical relatedness. Unfortunately, that is not the case, as not only do Lohse et al. ignore the large amount of archaeological evidence we present that is inconsistent with a Solutrean–Clovis trans-Atlantic connection and the inference of "intentional" overshot flaking (Eren et al. 2013: 2938–2940, Appendix A Supplementary Data), they also misrepresent our work to such an extent that we felt it was necessary to write this rejoinder. This misrepresentation is ironic in light of their call for "fair and honest evaluation of appropriate data." Our goal here is threefold: (1) to summarize our previous work and explain again how it directly tests the explicit claims of Stanford and Bradley (2012; Bradley and Stanford 2004, 2006); (2) to correct the inaccuracies and false accusations of Lohse, Collins, and Bradley; and (3) to refute their belief that arguments should be rejected or accepted on the basis of majority consensus and authority rather than on empirical data and logical arguments.

THE ICE-AGE ATLANTIC CROSSING HYPOTHESIS: WHAT WE *ACTUALLY* SAID

The proposal that Pleistocene peoples arrived in North America from Europe has been around for more than a century, but there is no evidence from any scientific field, recently including genetics, linguistics, skeletal and dental analysis, and oceanography, to support it (Dulik et al. 2012; Eriksson et al. 2012; Goebel et al. 2008; Kashani et al. 2012; Meltzer 2009; O'Rourke and Raff 2010; Raghavan et al. in press; Straus 2000; Turner 2002; Westley and Dix 2008). Archaeologically, there are a few similarities between the artifact assemblages of Solutrean Paleolithic foragers (23,500–18,000 cal BP) and Clovis Paleoindians (13,300–12,800 cal BP), but there are a far larger number of differences (Straus et al. 2005). This suggests that any similarities (technological or otherwise) might well be the result of convergence and not shared ancestry. Indeed, as noted in our original article and reiterated here,

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convergence of cultural entities is a common phenomenon (see also O'Brien and Lyman 2000), and specific examples of convergence have been empirically demonstrated in the case of stone tools produced by humans (e.g., Lycett 2009; Shea 2006) as well as other primates (e.g., Haslam et al. 2009). Further, there is virtually no evidence for marine-mammal hunting in either Solutrean, purported pre-Clovis, or Clovis sites (Cannon and Meltzer 2004; Straus et al. 2005), yet this was the presumptive subsistence strategy for the Pleistocene peoples who purportedly crossed the North Atlantic. Finally, it has been shown recently that several additional lines of archaeological evidence, including radiocarbon dates, are also inconsistent with the predictions of the hypothesis (O'Brien et al. 2014).

As explicitly stated in our original work, we tested *one* line of archaeological evidence with respect to the Ice-Age Atlantic Crossing Hypothesis: the removal of overshot flakes (Eren et al. 2013: 2935, 2940). Overshot flakes are ones that during the manufacture of a biface are struck from prepared edges of a piece and travel from one edge across the face and remove only "a small portion of the opposite edge" (Stanford and Bradley 2012: 50; see also Eren et al. 2013: Figure 1). Controlled, intentional overshot flaking is a difficult knapping technique that few modern knappers have mastered, but Stanford and Bradley (2012: 28) are "completely convinced" that the technique was intentionally used by Solutrean and Clovis peoples because of its presumed advantages, most prominent among which is that overshot flaking is an "incredibly efficient" or "highly effective" strategy for rapidly thinning stone bifaces (Bradley and Stanford 2004: 461, 2006: 708–710; Stanford and Bradley 2012: 28). Stanford and Bradley (2012: 28, 157) make two other claims: first, that there is "clear archaeological evidence of widespread use" of overshot flaking by Solutrean and Clovis knappers; and second, that the "level of correspondence between [Solutrean and Clovis] technologies is amazing," such that "even the details of flaking are virtually identical." Based on these three claims, they then argue that because the intentional use of a complex, difficult, even "counterintuitive" (Stanford and Bradley 2012: 28) strategy is unlikely to occur by chance, its presence in two separate groups "suggests that it is unlikely to have been independently invented." Thus, the occurrence of supposedly intentional overshot flaking on both sides of the Atlantic in Late Pleistocene times is said to "demonstrate historical connections between [the] technologies" (2012: 138).

As we noted in our original article, much of this argument is speculative and untestable: We cannot determine how challenging or difficult overshot flaking would have been to Pleistocene hunter–gatherers, who, unlike modern knappers, spent their lives making and using stone tools (Eren et al. 2013: 2936). What may appear "difficult" or "complex" (however defined) to twenty-first-century archaeologists may not have been all that difficult for prehistoric people to achieve. However, Stanford and Bradley's claims of intentionality and historical relatedness rest on their assertions of overshot efficiency, frequency, and similarity, and these latter empirical premises *do* have empirically testable predictions. Given the prominence Stanford and Bradley have given overshot flaking with respect to the Ice-Age Atlantic Crossing Hypothesis, not only in the scientific literature but also in the popular media, we felt it important to explicitly test those premises. If the empirical foundation on which Stanford and Bradley base their chain of inference for a Solutrean–Clovis link fails, then the inferences built on it—that this complex and difficult strategy must have been intentionally applied and thus its presence in two groups widely separated in time and space indicates historical relatedness—are left unsupported.

We used experimental archaeology to test the overshot-efficiency prediction and quantitative analyses of the archaeological record to test the overshot-frequency and similarity predictions. To summarize, our results showed that

1. Despite claims by Stanford and Bradley (2012; Bradley and Stanford 2004, 2006), overshot flaking is not more efficient at thinning bifaces than non-overshot flaking (Eren et al. 2013: 2936–2938).
2. There is no regular, frequent occurrence of overshot evidence at Clovis sites (Eren et al. 2013: 2939, Supplementary Materials Table S2). There are no published data with respect to the frequency or regularity of overshot flaking at Solutrean sites.
3. Data provided by Stanford and Bradley (2012: Table 6.1) show that the amount of overshot flaking in Solutrean and Clovis assemblages is statistically different (Eren et al. 2013: 2938–2939, Supplementary Materials Table S1).

We also noted that the incidence of overshot flaking in purported pre-Clovis assemblages

ought to be significant if, as recently argued by Stanford and Bradley (2012), there was a pre-Clovis "missing link" between Solutrean and Clovis in eastern North America (Eren et al. 2013: 2940). Although we did not accept the 14 pre-Clovis sites they list as valid, either because they are not securely dated or are not well described (Eren et al. 2013: 2940; see also O'Brien et al. 2014), we noted that Stanford and Bradley reported only one overshot flake from these 14 assemblages. Further, bifacial points at proposed pre-Clovis sites fail to exhibit overshot scars, and in fact rarely are scars present that travel past the biface medial axis. The absence of evidence of overshot flaking in pre-Clovis sites indicates that there remains a 5000-year gap in the appearance of this purported technique on either side of the Atlantic Ocean.

Stanford and Bradley (2012: 241) contend that "the more basic a technology, the more likely its independent invention." We agree. Since our experimental and archaeological analyses unequivocally point to the conclusion that there is no basis for inferring either Clovis, pre-Clovis, or Solutrean knappers intentionally practiced the "complex," "difficult," "counterintuitive" (Stanford and Bradley 2012: 28), and now inefficient (Eren et al. 2013) technique of controlled overshot flaking, it follows that their link between Solutrean and Clovis via an intentionally applied controlled overshot technique is invalid. Instead, when considered *in toto*, our experimental and archaeological results are consistent only with the proposition that Clovis and Solutrean knappers independently invented a basic, straightforward, efficient technique for thinning bifaces that occasionally happened to produce the analogous detritus of overshot flakes. In other words, based on the very logic of Stanford and Bradley (2012: 241) quoted above, the most robust and parsimonious explanation for the presence of overshot flakes in Clovis and Solutrean assemblages is convergence, not historical relatedness.

Correcting The Inaccuracies and False Accusations of Lohse, Collins, and Bradley

Lohse, Collins, and Bradley accuse us of "flawed logic," "distortions," using an "unprofessional tone," and "contributing little to the topic it purports to address, or even to studies of Clovis, Early Paleoamericans, Pleistocene North America, or nearly any other issue." We address these misrepresentations and false accusations below, but we do not expect readers to simply take our word for it. Rather, we encourage them to compare our original discussion and results (Eren et al. 2013), and our refutations below, to the statements of Lohse, Collins, and Bradley, as well as those made by Stanford and Bradley (2012; Bradley and Stanford 2004, 2006).

(1) Lohse, Collins, and Bradley "question the validity of the experiment: If the experiment was intended to determine the rates of *accidental* overshots, why did they set out to intentionally make them?" (emphasis in original)

Reply: In no way did our experiment intend to determine rates of accidental overshots. We find this accusation bizarre, as the experiment was constructed to examine only the efficiency of overshot flaking in terms of bifacial thinning. We are unsure how we could have been more explicit about this and are unclear as to how they could have misinterpreted the purpose of our experiment.

(2) Lohse, Collins and Bradley state that we "inappropriately reduce the complexity of technological correlations between Clovis and Solutrean to one shared trait: controlled overshot flaking."

Reply: We explicitly stated that we were investigating *one* aspect of the Ice-Age Atlantic Crossing Hypothesis, though a very important one (Eren et al. 2013: 2935, 2940), given the importance Stanford and Bradley (2012; Bradley and Stanford 2004, 2006) place on it. We are not sure why Lohse, Collins, and Bradley state otherwise. Indeed, in Stanford and Bradley's (2002: 261) initial publication on the subject in the scientific literature, overshot flaking was the first topic they discussed in making their Solutrean–Clovis link.

We acknowledge that Stanford and Bradley (2012) looked at 11 other subjectively determined, non-quantitative lithic reduction steps and techniques in their Dynamic Systems Analysis, and used cluster analysis of unweighted variables and attributes to compare Solutrean and North American Pleistocene assemblages. However, their Dynamic Systems Analysis (Stanford and Bradley 2012: Figure 6.1) did not include a comparison of Solutrean and *pre*-Clovis (see also point 14 below), and their cluster analysis (Stanford and Bradley 2012: Figure 6.4) provided no information on the clustering algorithm, a scale to indicate cluster interstitial distances, or a measure of significance, rendering their dendrogram statistically meaningless and irreproducible. Moreover, such analyses inform only on overall assemblage similarity, not on how historically related

assemblages might be (O'Brien et al. 2014). This is odd, as Stanford and Bradley (2012: 149) note that "it is one thing to look at a group of artifacts and say they are alike, another to conclude that the likeness indicates that they are related." We could not have said it better.

(3) Lohse, Collins, and Bradley state that "controlled overshot flaking potentially provides many benefits: it produces flakes that are usable for multiple purposes, when used with other flaking strategies it allows knappers to control biface width and thickness proportions, and it provides a way for knappers to resolve problems (stacks, square edges, etc.) on both margins through a single removal," and it can "result in bifaces with flat longitudinal cross-sections."

Reply: First, Lohse, Collins, and Bradley are assuming both the intentionality and potential benefits of overshot flaking without empirically or quantitatively demonstrating any of them, much as Stanford and Bradley (2012) do. Second, as we noted in our original article, any demonstrated potential benefits are only *consistent* with prehistoric intentionality; they do not *prove* it because any assertion of prehistoric intentionality is always an inference (Eren et al. 2013: 2936). Third, as recently noted by Lycett and Eren (2013), over four decades ago Clarke (1968: 28) emphasized that in the absence of appropriate comparative standards, where necessary parameters are required to give an otherwise relative entity (e.g., "rare," "few," "thick," "thin") its required specificity, such "nonspecific generalizations" are essentially meaningless. Lohse, Collins, and Bradley continually rely on nonspecific generalizations (e.g., "flat"), as do Stanford and Bradley (2012), especially with respect to the use of the term "efficiency," which we discuss below in our reply to point 6.

(4) Lohse, Collins, and Bradley state that we "mistakenly view the goal of Clovis biface manufacture to be 'maximally thinned.'"

Reply: Nowhere in our original article do we state or imply that the goal of Clovis biface manufacture is maximal thinning.

(5) Lohse, Collins, and Bradley state that we "fail to understand what is meant by 'proportional flaking.'"

Reply: Our quote ("Bifacial thinning is a proportional reduction process…"), which Lohse, Collins, and Bradley misinterpret, does not refer to "proportional flaking" but instead to how biface thinning—both in absolute and relative terms—takes place.

(6) Lohse, Collins, and Bradley state that we make a logical fallacy, namely that "because overshot flaking is not the most efficient method of thinning bifaces, it is most parsimoniously explained as an error and it therefore cannot have been shared in common by Clovis and Solutrean knappers."

Reply: In fact, it was Stanford and Bradley (2012: 28, 49; Bradley and Stanford 2004: 461, 465, 2006: 708–710; Bradley et al. 2010: 73–75) —not us—who proclaimed overshot flaking's ability to "efficiently," "effectively," or "massively" thin bifaces, and it was they who then linked this characteristic to the purported technique's intentional application and supposed historical connectedness. But, recalling Clarke (1968) from above, without a comparative standard, a term such as "efficiency" is meaningless. So, we are left to conclude either that proponents of a Solutrean–Clovis link were making meaningless statements or that they were indeed asserting the *comparative* thinning efficiency of overshot flakes, which is what we tested. Given that Bradley et al. (2010: 75) attempt to conduct such a comparative test between overshot and nonovershot flakes using archaeological specimens, we assumed the latter. That said, we are pleased that Lohse, Collins, and Bradley accept that our comparative experiment "does in fact demonstrate that overshot flakes do not thin bifaces as well as other strategies," given the importance Stanford and Bradley place on efficiency for inferring the intentionality of overshot flakes.

However, despite what Lohse, Collins, and Bradley depict, we did not base our conclusion that overshots are accidents solely on our experimental analysis. We also undertook a comparative analysis between our experimental overshots, which were already shown to be inefficient, and actual Clovis overshots from the Gault site (Eren et al. 2013: 2938). That our experimental overshots were better in terms of thinning efficiency than the Clovis overshots is consistent with the notion that the Clovis overshots were accidents. Finally, as summarized above, we also based our conclusions on the archaeological records of Clovis, supposedly pre-Clovis, and Solutrean, as well as on statistical comparisons of these complexes using data published by Stanford and Bradley (2012).

(7) Lohse, Collins, and Bradley state "the fact that [production of overshot flakes] did occur as either intentional or accidental outcomes in Solutrean and Clovis assemblages negates Eren

et al.'s main conclusion, raising considerable questions about the manuscript's main point."

Reply: Never have proponents of the Solutrean hypothesis (in its latest iteration) *ever* stated that the mere occurrence or presence of overshot flakes, i.e., as accidents, was enough to make a link between Solutrean and Clovis. The link between the two complexes has always been the complex, difficult, counterintuitive, intentionally applied *strategy* of overshot flaking—one that was most unlikely to occur by chance and thus "suggests that it is unlikely to have been independently invented" (Stanford and Bradley 2012: 28). If one is to accept that overshots were accidental, that means one must also accept that they are accidents of a more basic, straightforward, and efficient strategy such as overface flaking. And given that Stanford and Bradley (2012: 241) contend that the "more basic a technology, the more likely its independent invention," accepting overshots as accidents resulting from a basic technique also necessarily means supporting Solutrean–Clovis convergence, not historical relatedness.

(8) Lohse, Collins, and Bradley accuse us of "using new terminology in an apparent attempt to self-ascribe credit" for "ideas and concepts, specifically full-faced flaking."

Reply: This accusation is absurd. Our definition of an "overface flake," i.e., those flakes that terminate beyond the biface midline but prior to reaching the far edge (Jennings 2012, 2013; Smallwood 2010, 2012), is not only different and broader than all the other definitions they cite, i.e., flakes that "almost reach the opposite edge" or that "traveled most of the way across the biface without removing the opposite edge," but also quantitative, rather than intuitive, in nature.

(9) Lohse, Collins, and Bradley state that if overshot flakes are mistakes, then "overshot flaking should be present in many other biface thinning assemblages such as Predynastic Egyptian, Early Danish Neolithic and Caddoan to name but a few." They also note that "Stanford and Bradley (2012: 264 note 37) present data from the Archaic levels at the Gault Site (also Bradley et al. 2010: 76), including deposits that are associated with extreme thinning technologies like Andice and Castroville, and show that overshot flaking was not present at a significant level. Clearly the trait does not simply occur wherever bifaces are aggressively thinned."

Reply: This is specious reasoning. One cannot test an inference for one set of data (e.g., the intentionality of overshot flaking in Clovis and Solutrean assemblages) by examining another, different set of data (e.g., Egyptian, Early Danish Neolithic, Caddoan, or Archaic assemblages). This would be like attempting to study the peopling of North America with data on the peopling of Australia. We agree that raw material probably plays no role in the differential occurrence of overshots between the Clovis and Archaic levels at Gault. But there are several other potential reasons we list (Eren et al. 2013: 2939), ignored by Lohse, Collins, and Bradley, that could easily explain the occasional occurrence of overshot mistakes in Clovis but not in Archaic assemblages. At the population level, Clovis knappers may have used a strong support grip, whereas Archaic knappers did not (Patten 2005). Or, perhaps Archaic knappers were not looking to produce full-faced flakes as often as Clovis knappers were. We will never know the exact reason(s) for sure, and this is why *the lack of overshots in other cultures cannot support the notion that overshot flakes were intentionally removed by either Clovis or Solutrean knappers*.

(10) Lohse, Collins, and Bradley state, "Another of Eren et al.'s misunderstandings is that Bradley and Stanford (2004; see also Stanford and Bradley 2012) suggested that overshot flaking of Clovis bifaces would be the dominant method of thinning, in terms of relative numbers."

Reply: Nowhere do we state that if overshot flaking was intentionally applied, then it should be the dominant method of thinning, in terms of relative numbers of flakes produced. However, Stanford and Bradley (2012: 28, 157; see also Bradley et al. 2010; Collins 1999) do claim there is "clear archaeological evidence of widespread use" of overshot flaking by Clovis and Solutrean knappers. Our survey of the literature (Eren et al. 2013: 2938–2939) shows this statement to be at best inaccurate and misleading, in terms both of where overshot flakes occur regionally and of their intra-assemblage density.

(11) Lohse, Collins, and Bradley state, "End thinning and fluting also make up small proportions of Clovis biface thinning flakes, but to our knowledge nobody has argued that they were unintentional or mistakes."

Reply: We are perplexed by this comment. The reason no one has made this argument is because there is no independent mechanism for accidentally producing end thinning flakes or flutes. A knapper either chooses to strike the end or not. However, there are independent, non-overshot

lateral flaking strategies (e.g., full-face flaking) that can result in overshot mistakes, especially given the plethora of factors that may potentially influence their frequency (Eren et al. 2013: 2939).

(12) Lohse, Collins, and Bradley ask, "granting for a moment that Eren et al. are correct that overshot flaking was accidental, why would not a certain percentage of inadvertent overshots be seen as acceptable, normative behavior within a given social group?"

Reply: On this point, we agree almost entirely. The question of whether overshot flakes were intentionally produced, and thus necessarily passed between Solutrean and Clovis (despite being absent in purportedly pre-Clovis sites), *is a different question than whether overshot flakes are potentially diagnostic of Clovis and Solutrean relative to their respective and immediately adjacent geographical and chronological "cultural neighbors*." For example, if we stumbled onto a site in Colorado that happened to possess some overshot flakes but no fluted points (and we had no radiometric dates), we would hypothesize that it *could* indeed be Clovis (e.g., Cooper and Meltzer 2009) rather than Archaic, Woodland, or Late Prehistoric. However, we could never be certain because, as Lohse, Collins, and Bradley correctly note, there are no robust studies documenting the frequency of overshot flakes in non-Clovis, non-Solutrean, or non-Pre-Clovis cultures. Although we agree with Lohse, Collins, and Bradley, once again we are confused with their accusation, because nowhere in our original article (Eren et al. 2013) did we state that overshot flakes themselves were not potentially diagnostic of Clovis or Solutrean, albeit diagnostic mistakes.

(13) Lohse, Collins, and Bradley state, "because finished points are most commonly found retouched, resharpened, and reworked, which leaves most overshot scars unidentifiable, a volunteer survey of largely surface-collected points is perhaps the *least* appropriate source of information to use for recognizing systematic, controlled overshot flaking."

Reply: We also agree with this statement, which is why in our original article (Eren et al. 2013), we followed the suggestion of Stanford and Bradley's (2012) and used only Clovis sites on or near raw-material sources, where the earlier stages of biface manufacture occurred, as well as caches. Lohse, Collins and Bradley dismiss as biased and irrelevant the observation in Straus et al. (2005) that there is a relatively low incidence (~12%) of overshot flaking in the data on finished points recorded in Meltzer's Texas Clovis Fluted Point Survey (TCFPS). To be sure, the TCFPS data are not without bias, as explicitly noted by Straus et al. 2005: 511 (see also Bever and Meltzer 2007; Meltzer 1987; Meltzer and Bever 1995), but then those data are not without value either, for they provide—as Lohse, Collins and Bradley admit—a measure from one region of the frequency of points displaying overshot flakes (as opposed to the number of overshot flakes per specimen). And if the incidence of overshot flaking is as diagnostic and pervasive as Lohse, Collins and Bradley suggest, its signature should not be entirely erased from Clovis assemblages. Lohse, Collins and Bradley also object that data on overshot flakes were not provided in Meltzer and Bever (1995), but it was also noted in that paper that matters of technology are best seen in sites that yield earlier stage preforms and reduction debris (Meltzer and Bever 1995: 73; Lohse, Collins and Bradley also identify that 1995 article as the "last published update of the survey." For the record, a more recent article on the TCFPS was published in 2007 in the *Bulletin of the Texas Archeological Society*, where it immediately preceded an article for which Collins and Lohse were principal authors [see Bever and Meltzer 2007; Collins et al. 2007]).

(14) Finally, the elephant in the room: pre-Clovis. Lohse, Collins and Bradley make mention of the similarities of Clovis and Solutrean throughout their rejoinder. Yet, pre-Clovis is mentioned but twice. If the historical link between Pleistocene Europe and North America was that profound, then surely it would be expressed far more visibly in assemblages more proximate in time. Why is it then, as Collins and Lohse observe at pre-Clovis sites such as Meadowcroft and Cactus Hill, that "neither the points nor the blades are technologically very similar to those of Clovis" (Collins and Lohse 2004: 182)? If Solutrean peoples came onto these shores, why does their technology vanish, only to re-appear 5000 years later? The answer to that not-entirely rhetorical question is that Solutreans did not come onto these shores.

The Bottom Line: The Rumor of "Intentional Overshot Flaking"

Lohse, Collins, and Bradley ask, "in light of the near-consensus agreement that Clovis and perhaps Solutrean biface thinning were both characterized by intentional overshot flaking, we

ask: Do Eren and his co-authors truly perceive it to be accidental?"

We answer unequivocally yes because empirical, quantitative experimental and archaeological data robustly and parsimoniously lead us to that conclusion, not because we assume it *a priori* or possess some sort of "agenda," as Lohse, Collins, and Bradley presume. However, in the end, Lohse, Collins, and Bradley's question is the wrong one to ask. The correct question is, do our experimental and archaeological data support the intuitive assertions about the presence of "controlled" or "intentional overshot flaking" that have been made recently and over the past 30 years, as well as the subsequent use of those assertions as a cornerstone for a Solutrean–Clovis trans-Atlantic connection? Based on our empirical results (Eren et al. 2013), the answer to *this* question is unequivocally no, especially when those results are evaluated in conjunction with other multidisciplinary evidence and our arguments above.

As noted by Lohse, Collins, and Bradley, our conclusions about overshot flakes "seemingly run counter to a generation of focused analyses on Clovis and Solutrean lithic technology." Perhaps this is because many of these studies were not true, formal analyses (Lycett and Chauhan 2010; O'Brien 2010; Surovell 2009) but rather mere descriptions based on intuition, cherry-picking, and the "flintknapper's fundamental conceit" (Thomas 1986: 623). In this sense, we see the Ice-Age Atlantic Crossing Hypothesis as merely the most extreme case to date of a chronic inclination in studies of lithic technology to depend more on assumption, authority, and experience than on hypothesis testing, quantification, and analysis. Maybe this is why Lohse, Collins, and Bradley find it so odd that we can readily change our minds about our previous conclusions about overshot flaking. A true commitment to evidence gives a person the capacity, when needed, to readily change direction in the pursuit of scientific reality rather than drown in the rumors, assertions, and egos of one's peers or advisors.

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Notes on Contributors

Metin I. Eren is a Leverhulme Early Career Fellow at the University of Kent, Canterbury, U.K., and a Research Associate at the Cleveland Museum of Natural History, Cleveland, Ohio, U.S.A.

Robert J. Patten studied civil engineering, and did topographic mapping for the U.S. Geological Survey before he retired. Winner of the 2004 Society for American Archaeology Crabtree Award, he has knapped stone tool replicas for over fifty years.

Michael J. O'Brien is Dean of the College of Arts and Sciences, Professor of Anthropology, and Director of the Museum of Anthropology at the University of Missouri, Columbia, Missouri, U.S.A.

David. J. Meltzer is Henderson-Morrison Professor of Prehistory at Southern Methodist University, Dallas, Texas, U.S.A.

Correspondence to: Metin I. Eren, Department of Anthropology, University of Kent, Marlowe Building, Canterbury CT2 7NR, UK and Department of Archaeology, Cleveland Museum of Natural History, Cleveland, Ohio 44107, USA.
Email: metin.i.eren@gmail.com