Cooper's Ferry Revisited

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In response to "[The Pre-Clovis Peoples](#)" (Vol. 5, No. 2).

To the editors:

In his review, Yuichi Nakazawa examines the purported evidence of an initial encampment at the Cooper's Ferry site in Idaho ca. 16,000 cal. BP. These are significant claims in relation to the larger issue of an occupation of the Americas during the pre-Clovis age, meaning before 13,500 cal. BP.¹ Loren Davis et al. assert that

Cooper's Ferry provides direct evidence for human settlement south of Late Wisconsinan ice sheets in the upper Columbia River basin before the earliest hypothesized opening of the IFC [ice-free corridor] at ~14,800 cal yr B.P. This evidence refutes the IFC hypothesis and leads us to deduce that humans initially migrated into the Americas along the Pacific coast.

The superficial similarity of stemmed projectile points from Cooper's Ferry and northern Japan is cited as evidence by Davis et al. in support of a proposed migration route from Hokkaido, along the Pacific coast, then up the Columbia River to this site, about 500 kilometers inland.

The evidence from Cooper's Ferry is examined in great detail in a forthcoming paper I have written with several colleagues. As Davis et al. acknowledge, the site has been extensively disturbed by rodent burrowing, or faunalurbation.² The rodents carried relatively late artifacts, bones, and charcoal fragments down, and moved earlier material up. When people of the Western Stemmed Point tradition camped at Cooper's Ferry ca. 11,500 cal. BP, they dug deep, narrow storage pits that were backfilled with sediments containing mixed materials of disparate ages. These interventions by rodents and humans help to explain why a bone found in the middle of one pit (Feature F134) was dated to ca. 16,040 cal. BP while another piece found near the top of the pit was dated to ca. 11,500 cal. BP.³ Along with my colleagues, I find the evidence for any human presence earlier than 14,600 cal. BP unpersuasive. A charcoal concentration (Feature F129) interpreted by Davis et al. as a

human-created fireplace *might* indicate a pre-Clovis-age occupation ca. 14,600 cal. BP, but its anthropogenic origin remains questionable.

Unequivocal evidence for the first occupation of Cooper's Ferry is provided by multiple consistent radiocarbon dates of ca. 11,500 cal. BP and by the style of the chipped stone dart points found at the bottom of two pits (PFA2 and PFP1).⁴ These artifacts are, without question, Lind Coulee points. At other sites in the same region, points of this type have been securely dated to 11,900–11,200 cal. BP.⁵ Rather than attributing them to the Lind Coulee type, Davis et al. compare the intact points from the pits, as well as three dart or knife fragments found in sediments outside the pits, to stemmed bifaces of the Tachikawa type found in Hokkaido. The latter points were made using a pressure flaking technique that produced lower-right to upper-left diagonally oriented flake scar patterns.⁶ No such oblique flake pattern can be seen on the Cooper's Ferry points. These points instead exhibit the broad collateral flaking, oriented perpendicular to the long axis, that is observed on Lind Coulee points. Most of the points from Cooper's Ferry are also serrated. This is not a reported attribute of Incipient Jomon stemmed points. As Nakazawa correctly observes,

While the overall shapes of both types of stemmed point do exhibit some common features, a great deal of caution should be exercised when attempting to link technologies with human dispersal. This is especially true for comparisons involving such distant locations on either side of the Pacific.

The ostensible similarity of the Japanese and North American stemmed points is likely the result of technological convergence rather than shared cultural ancestry.

Although the precise ages of Tachikawa and other Hokkaido stemmed point types have not been established, Nakazawa notes that the same kinds of stemmed points found to the south, on Honshu, are "firmly dated to ca. 14,000 cal. BP." These points are associated with early Jomon pottery, both on Honshu and Hokkaido, where the pottery at the Taisho 3 site is dated to 15,000–14,000 cal. BP.

All of the stemmed points from Hokkaido identified by

Davis et al. as supposed prototypes for the Cooper's Ferry points were found at the Kamishirataki 2 locus. A wide range of radiocarbon dates was obtained at that site, but the multiple dates of ~13,500 cal. BP may best represent the age of the stemmed points.⁷ As Nakazawa mentions in his review, similar points from Incipient Jomon sites in Japan are no older than 15,000–14,000 cal. BP.⁸ If hypothetical Paleoindian ancestors had indeed emigrated from Hokkaido early enough to have arrived in Idaho by 16,000 cal. BP, their stone tool kit could not have included bifacial stemmed points that were not used in northern Japan until a millennium after their departure. While Davis et al. claim these people arrived at Cooper's Ferry ca. 16,000 cal. BP, they present no stratigraphic evidence that any of the whole or fragmentary stemmed points were deposited there before ca. 13,700 cal. BP. Taken at face value, this evidence implies that the Idaho colonists only started making Tachikawa-like points two millennia after their arrival. As Nakazawa suggests, the most likely explanation is the coincidental convergence of two unrelated toolmaking traditions. An alternative but highly improbable scenario involves the Idaho colonists somehow maintaining contact with their homeland over the intervening centuries such that they could adopt this innovation by diffusion from Japan after 14,000 cal. BP. Any emigrants leaving Hokkaido at or before 16,000 cal. BP would have been making microblades, of which there is no trace in the lowest levels of Cooper's Ferry.

Nakazawa writes that "Davis et al. examine the north-eastern Asian origins of the first dispersed population in the New World using evidence gleaned from the latest advances in genetic research." He notes that they "do not attempt to identify a genetic ancestor for the pre-Clovis," but "their paper suggests that the Upper Paleolithic population of the Japanese archipelago was a likely candidate."

Nakazawa is too kind. Davis et al. cite only one source, an analysis by Noboru Adachi, Ken-ichi Shinoda, and Masami Izuho,⁹ in support of their assertion that the supposed Hokkaido–Idaho linkage, based only on the stemmed point comparison, "complements current evidence of shared genetic heritage between late Pleistocene peoples of northern Japan and North America." Ancient Jomon and modern Ainu genomes are, in fact, only very remotely related to those of Native Americans; their shared Asian ancestors diverged more than 26,000 years ago.¹⁰ No Ancient North Eurasian genetic component is present in the genome of a 2,500-year-old Jomon individual, although it can be found in all ancient and many recent Native Americans.¹¹ The most common mitochondrial DNA haplogroup in ancient Jomon samples is N9b. Its date of origin is estimated as 22,000 cal. BP.¹² This clade is completely absent from both ancient and modern Native American populations.¹³ The ubiquitous Native American clades of Y chromosome haplogroup Q, found both in modern groups and ancient individuals, including Anzick,

Kennewick, and Shuká Káa from the Alaskan coast,¹⁴ are absent from Japan and coastal China.¹⁵ The D-M125 or D-1b clade, which is very common among Ainu and also Japanese males, is completely absent from the Americas. The rapid radiation of D-1b males in Japan appears to have begun about 13,000 cal. BP.¹⁶ Two genomes from Devil's Gate in the Russian Far East, dating from 7,700 cal. BP, are basically ancestral to the modern Ulchi natives of that region. They belong to mtDNA haplogroups D4 and M. There is no evidence of a close relationship to either Ancient North Eurasians or Native Americans, whether ancient or recent.¹⁷

It is very unlikely, although not impossible, that the Late Pleistocene inhabitants of Hokkaido were a vanished population, a group related to the Paleolithic peoples of interior Siberia who were completely replaced by Incipient Jomon intrusions. Only the recovery of ancient genomes from northern Japanese skeletons older than 12,000 cal. BP could rule out this scenario. If such a process of population replacement did not occur and the later Jomon and Ainu are biological descendants of the Late Pleistocene people of Hokkaido, Native Americans cannot be descended from the same population.

No human DNA was recovered from bones or sediment at Cooper's Ferry. As in the case of Hokkaido, it is not impossible that the original Western Stemmed Tradition inhabitants of the site were completely replaced, perhaps during the southward expansion of the Old Cordilleran complex ca. 9,000 cal. BP.¹⁸ All of the ancient individuals or populations of western North America that might have been associated with the Western Stemmed Tradition or some hypothetical ancestral or related Paleocoastal complex—Kennewick Man, the Spirit Cave people in Nevada, the 4,900-cal. BP people of San Nicolas Island off Southern California—are closely related genetically to the Anzick Clovis boy.¹⁹ They did not belong to some mysterious, vanished pre-Clovis population.

Nakazawa recounts the controversy beginning in the 1990s concerning the 9,000-year-old Kennewick Man, noting that "his morphology suggested a connection to the Ainu indigenous population in northern Japan." He should have added that a 2015 analysis of the skeleton's DNA demonstrated that Kennewick Man was a Native American,²⁰ possessing the same Ancient North Eurasian component that is present in the Anzick Clovis infant and absent from all Jomon and Ainu samples. Just as morphological similarity does not indicate homology with regard to artifacts, it is becoming clear that similar skull shapes often do not indicate close genetic relationship.²¹

"While the Kennewick Man controversy was unfolding," Nakazawa writes, "the prospect that coastal migration was the most likely route by which early humans arrived in the Americas began gathering support." Indeed, during the past decade, this has become the dominant hypothesis concerning ancestral Native American migration. An

important factor in its ascendance has been the advocacy of the journal *Science*, which published the Cooper's Ferry report. *Science* has been publicizing the coastal migration hypothesis since 2008,²² publishing numerous reports and perspectives from researchers,²³ along with additional articles and stories by staff reporters.²⁴

In a 2017 article, *Science* reporter Lizzie Wade made the claim that "Most archaeologists think the first Americans arrived by boat. Now, they're beginning to prove it."²⁵ Three months later, *Science* published a Perspective piece with a similar assertion by Todd Braje et al.: "Most archaeologists and other scholars now believe that the earliest Americans followed Pacific Rim shorelines."²⁶ These views may well reflect a current consensus, but there is still no proof that a Pacific Rim migration occurred. In this context, the continuing absence of pre-13,500 cal. BP sites along the Pacific coast of North America cannot be solely attributed to the submergence of the narrow continental shelf by a rising post-glacial ocean.

Contrary to the assertions made by Davis et al., the meager evidence of pre-13,500 cal. BP occupation at Cooper's Ferry does not prove a Pacific Rim migration took place, nor does it preclude a terrestrial migration of the founding Paleoindian population, originating from interior Siberia, via the ice-free corridor.

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2. Davis et al., "[Late Upper Paleolithic Occupation at Cooper's Ferry](#)"; Loren Davis and Charles Schweger, "[Geoarchaeological Context of Late Pleistocene and Early Holocene Occupation at the Cooper's Ferry Site, Western Idaho, USA](#)," *Geoarchaeology* 19 (2004): 685–704, doi:10.1002/gea.20020.
3. Davis et al., "[Late Upper Paleolithic Occupation at Cooper's Ferry](#)."
4. Loren Davis, Alex Nyers, and Samuel Willis, "[Context, Provenance and Technology of a Western Stemmed Tradition Artifact Cache from the Cooper's Ferry Site, Idaho](#)," *American Antiquity* 79, no. 4 (2014): 596–615, doi:10.7183/0002-7316.79.4.596; Loren Davis, Daniel Bean, and Alexander Nyers, "[Morphometric and Technological Attributes of Western Stemmed Tradition Projectile Points Revealed in a Second Artifact Cache from the Cooper's Ferry Site, Idaho](#)," *American Antiquity* 82, (2017): 536–57, doi:10.1017/aaq.2017.9; Davis and Schweger, "[Geoarchaeological Context of Late Pleistocene and Early Holocene Occupation](#)."
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6. Kenji Nagai, "[Flake Scar Patterns of Japanese Tanged Points: Toward an Understanding of Technological Variability During the Incipient Jomon](#)," *Anthropological Science* 115 (2007): 223–26, doi:10.1537/ase.061211.
7. Ian Buvit et al., "[Radiocarbon Dates, Microblades and Late Pleistocene Human Migrations in the Transbaikial, Russia and the Paleo-Sakhalin-Hokkaido-Kuril Peninsula](#)," *Quaternary International* 425 (2016): 100–19, doi:10.1016/j.quaint.2016.02.050.
8. Yoshiaki Otsuka, "[The Background of Transitions in Microblade Industries in Hokkaido, Northern Japan](#)," *Quaternary International* 442 (2017): 33–42, doi:10.1016/j.quaint.2016.07.023; Katsuhiko Sano, "[Mobility and Lithic Economy in the Terminal Pleistocene of Central Honshu](#)," *Asian Perspectives* 49 (2010): 279–93, doi:10.1353/asi.2010.0015.
9. Noboru Adachi, Ken-ichi Shinoda, and Masami Izuho, "Further Analyses of Hokkaido Jomon Mitochondrial DNA" in *Emergence and Diversity of Modern Human Behavior in Paleolithic Asia*, ed. Yusuke Kaifu et al. (College Station: Texas A&M University Press, 2015), 406–17.
10. J. Víctor Moreno-Mayar et al., "[Terminal Pleistocene Alaskan Genome Reveals First Founding Population of Native Americans](#)," *Nature* 553 (2018): 203–207, doi:10.1038/nature25173; Takashi Gakuhari et al., "[Jomon Genome Sheds Light on East Asian Population History](#)," *bioRxiv* (2019), doi:10.1101/579177.
11. This sentence refers to an Ancient North Eurasian genetic component as represented by the 24,000-year-old boy from Mal'ta, west of Lake Baikal, and the 18,000-year-old girl from Afonova Gora on the Yenisei River. Gakuhari et al., "[Jomon Genome Sheds Light on East Asian Population History](#)."
12. Noboru Adachi et al., "[Mitochondrial DNA Analysis of Hokkaido Jomon Skeletons: Remnants of Archaic Maternal Lineages at the Southwestern Edge of Former Beringia](#)," *American Journal of Physical Anthropology* 146, no. 3 (2011): 346–60, doi:10.1002/ajpa.21561.
13. For an example, see Bastien Llamas et al., "[Ancient Mitochondrial DNA Provides High-Resolution Time Scale of the Peopling of the Americas](#)," *Science Advances* 2 (2016), doi:10.1126/sciadv.1501385.
14. Viola Grugni et al., "[Analysis of the Human Y-Chromosome Haplogroup Q Characterizes Ancient Population Movements in Eurasia and the Americas](#)," *BMC Biology* 17, no. 3 (2019) doi:10.1186/s12915-018-0622-4; Thomaz Pinotti et al., "[Y Chromosome Sequences Reveal a Short Beringian Standstill, Rapid Expansion, and Early Population Structure of Native American Founders](#)," *Current Biology* 29 (2019): 1–9, doi:10.1016/j.cub.2018.11.029.

15. Yusuke Watanabe et al., "[Analysis of Whole Y-Chromosome Sequences Reveals the Japanese Population History in the Jomon Period](#)," *Scientific Reports* 9 (2019), doi:10.1038/s41598-019-44473-z.
16. Watanabe et al., "[Analysis of Whole Y-Chromosome Sequences](#)."
17. Veronika Siska et al., "[Genome-Wide Data from Two Early Neolithic East Asian Individuals Dating to 7700 Years Ago](#)," *Science Advances* 3, no. 2 (2017), doi:10.1126/sciadv.1601877.
18. James Chatters et al., "The Paleoindian to Archaic Transition in the Pacific Northwest: In Situ Development or Ethnic Replacement," in *From the Pleistocene to the Holocene: Human Organization and Cultural Transformations in Prehistoric North America*, ed. C. Britt Bousman and Bradley Vierra (College Station: Texas A&M University Press, 2012), 37–66.
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20. Morten Rasmussen et al., "[The Ancestry and Affiliations of Kennewick Man](#)," *Nature* 523 (2015): 455–58, doi:10.1038/nature14625.
21. Maanasa Raghavan et al., "[Genomic Evidence for the Pleistocene and Recent Population History of Native Americans](#)," *Science* 349, no. 6,250 (2015), doi:10.1126/science.aab3884.
22. I have written about this topic in more depth elsewhere. Cf. Stuart Feidel, "[Chasing Red Herrings Down the Kelp Highway](#)," paper presented at the annual meeting for the Society for American Archaeology, Washington, DC, April 2018.
23. For examples, see Tom Dillehay et al., "[Monte Verde: Seaweed, Food, Medicine, and the Peopling of South America](#)," *Science* 320, no. 5,877 (2008): 784–86, doi:10.1126/science.1156533; Jon Erlandson et al., "[Paleoindian Seafaring, Maritime Technologies, and Coastal Foraging on California's Channel Islands](#)," *Science* 331, no. 6,021 (2011): 1,181–85, doi:10.1126/science.1201477; Todd Braje et al., "[Finding the First Americans](#)," *Science* 358, no. 6,363 (2017): 592–94, doi:10.1126/science.aao5473; Michael Waters, "[Late Pleistocene Exploration and Settlement of the Americas by Modern Humans](#)," *Science* 365, no. 6,449 (2019), doi:10.1126/science.aat5447.
24. For examples, see Michael Balter, "[Ancient Algae Suggest Sea Route for First Americans](#)," *Science* 320, no. 5,877 (2008): 729, doi:10.1126/science.320.5877.729; Balter, "[Do Island Sites Suggest a Coastal Route to the Americas?](#)" *Science* 120, no. 6,021 (2011): 1,122, doi:10.1126/science.331.6021.1122; Carolyn Gramling, "[Ancient DNA Suggests the First Americans Sidestepped the Glaciers](#)," *Science*, August 10, 2016; Lizzie Wade, "[On the Trail of Ancient Mariners](#)," *Science* 357, no. 6,351 (2017): 542–45, doi:10.1126/science.357.6351.542; Wade, "[New Map of Alaska's Ancient Coast Supports Theory that America's First People Arrived by Boat](#)," *Science*, May 30, 2018; Wade, "[Ancient Site in Idaho Implies First Americans Came by Sea](#)," *Science* 365, no. 6,456 (2019): 848–49, doi:10.1126/science.365.6456.848.
25. Wade, "[Most Archaeologists Think the First Americans Arrived by Boat. Now, They're Beginning to Prove It](#)," *Science*, August 10, 2017.
26. Braje et al., "[Finding the First Americans](#)."