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Still an Open Book: Analysis of the Current Pre-Clovis vs. Clovis Debate from the Site of Meadowcroft Rockshelter, Pennsylvania and Monte Verde, Chile

Jay T. Sturdevant

One of the most prominent features of Paleo-Indian studies has been the debate concerning who first inhabited the continents of the Americas. Two sites that have been at the forefront of this debate over the last 25 years are Meadowcroft Rockshelter, Pennsylvania and Monte Verde, Chile. Because of their status as possible Pre-Clovis sites, a review of the questions surrounding these sites should reflect the current status of the Pre-Clovis debate. Presently neither site has been able to make a decisive argument for a Pre-Clovis occupation in the Americas so it is important that archaeology not get ahead of itself by proclaiming the existence of Pre-Clovis sites until conclusive evidence has been demonstrated.

Ever since the 1937 discovery of Clovis type projectile points in association with extinct megafauna at Blackwater Draw, New Mexico, a battle has been waged in archaeology over whether or not the people who used Clovis points were really the first arrivals in the North America. Were these fluted point makers the original colonizers or is there some yet undiscovered cultural assemblage waiting to unseat the 11,500 BP Clovis horizon? Many researchers have recovered and discussed the incontrovertible evidence for the association between humans and extinct megafauna that can be placed in a Late Pleistocene context (Boldurian and Cotter 1999, Cotter 1937, Frison 1999, Frison and Todd 1986, Stanford 1999, Wormington 1957). However, over the last 25 years an increasing debate has raged over whether these were really the first Americans. At the forefront of this debate are two sites that are proposed to predate the widespread Clovis horizon. The first of these is the Meadowcroft Rockshelter site in Pennsylvania, with the other site being Monte Verde, Chile. Although there have been many other proposed Pre-Clovis sites, Meadowcroft Rockshelter and Monte Verde have both been prominent in the archaeological literature during this time and are considered here as the most visible examples of possible Pre-Clovis sites.

Meadowcroft Rockshelter

Meadowcroft Rockshelter is a site in southwestern Pennsylvania that was excavated by James M. Adovasio between 1973-1978 and has been extensively reported on since that time (Adovasio 1993, and Adovasio et al. 1978, 1980, 1983, 1985,1990, 1999). It should probably be considered the first real test for the Pre-Clovis argument, and because of the tremendous efforts put forward for the last quarter century by James Adovasio the site is still a prominent feature of the American archaeological landscape. The data and interpretations presented by Adovasio however have not been immune from significant criticisms by the likes of Haynes (1980,1987) and Mead (1980). These criticisms have focused on many aspects of the data interpretations proposed by Adovasio. The following sections of this paper will review the three most important criticisms that have been produced to date

including the stratigraphy and radiocarbon dating, floral and faunal evidence, and tool technology and classification. By examining these three aspects of the site, it will become clearer as to how Meadowcroft Rockshelter fits into the current debate.

Stratigraphy and Radiocarbon Chronologies

Almost all exchange over the proposed antiquity of Meadowcroft Rockshelter has centered on the radiometric dating of the site. Despite the debate over the age of the deepest deposits, Meadowcroft Rockshelter still has one of the longest cultural sequences at any one site in the Americas which Adovasio (1985) estimates to start at 14,000 BC and last up to AD 1265. Even if this sequence was shortened to start at the accepted Clovis entry date of 11,500 BP it would still span the entire human occupation in southwestern Pennsylvania. The site has produced one hundred four radiocarbon samples, and of those, fifty-two have yielded reliable dates that are sequential and consistent within the stratigraphic sequence (Adovasio 1990). These samples were collected from hearths, living surfaces and other charcoal deposits within the site. The oldest dated level with a definite human occupation is Stratum IIa dating between 14,000 BC and 6,060 BC. To his credit, Adovasio has received absolutely no criticism over his excavation techniques or the collection methods used for the radiocarbon samples at Meadowcroft. The questions coming from Haynes (1980, 1987) have been directed toward sources of natural contamination of the radiocarbon samples from the site. His basis for this claim is "the only data indicative of a Pleistocene age for Stratum IIa are the radiocarbon analyses indicating an 11,000 year time span for deposition of the 70cm or less of sediment, a span that crosses the Pleistocene-Holocene boundary with no apparent sedimentological change, no erosional episode, and no paleosol-a most unusual geologic circumstance" (Haynes 1980: 583).

Haynes (1980) sees carbon sample contamination coming from fluctuating water table levels of Cross Creek leaching soluble carbon from a vitrinite coal layer causing an abnormal increase in the levels of soluble carbon material relative to the unsoluable charcoal which could produce unrealistically old dates. It seems though that the chances of the radiocarbon dates being contaminated at Meadowcroft are implausible for four reasons.

First, as described by Adovasio "there is no coal seam in or near the rockshelter" (1990:349). Without a source of coal that could contaminate the radiocarbon samples it becomes less likely that they could be contaminated. This would deny Haynes a source of contamination within the site. A second possible source of contamination could have resulted by ground water flooding of the site and depositing contaminating charcoal through a ground water mechanism. It seems unlikely though that ground water contamination could be a cause of the contamination at Meadowcroft Rockshelter because, vitrinite is insoluble by normal groundwater and the levels of Cross Creek were never high enough to be considered a source of ground water contamination (Adovasio 1980). Thirdly, the dates that have been obtained from the 52 radiocarbon samples are all internally consistent and in stratigraphic order. And finally, at the request of many of his challengers (Haynes 1980, Stanford 1983) Adovasio sent out numerous samples to be tested. Individual samples were issued to institutions such as the Smithsonian Institution, Oxford University, and the Carnigie Institute all of the laboratories returned similar dates using different techniques and reported that there was no contamination of the samples. It is most certainly the case that there will always be those who feel uncomfortable with the

radiocarbon assays from Meadowcroft Rockshelter but with the present evidence, the possibility of contamination seems remote.

Floral and Faunal Evidence

The most troubling aspect of the Meadowcroft record is the apparent lack of floral and faunal remains that are distinctly Late Pleistocene in age. The floral and faunal assemblages at the site seem to be a sample of relatively modern plants and animals that have existed in the immediate local environments only after the Pleistocene glaciation. Because the areas surrounding Meadowcroft Rockshelter were never glaciated it is possible to develop a good understanding of the local environment during this time consisting of both floral and faunal analysis. But, if the radiocarbon dates are correct, then the site should reflect a local environment more consistent with other Pleistocene environmental reconstructions.

Reconstruction of Pleistocene environments for the Northeast obtained by pollen cores indicates the presence of spruce pine and tundra plants as the dominant communities during the Pleistocene. Volman (1981) cites evidence of core samples taken from locations around the area of Meadowcroft Rockshelter that are consistent with this view of coniferous forests as prominent on the landscape during the Pleistocene. From the evidence, it seems that in most areas coniferous forests were the dominant plant community on the landscape until the end of the Pleistocene glaciation giving way to a more mixed coniferous/deciduous environment after the glacial retreat. So could Meadowcroft Rockshelter be an island of mixed coniferous/deciduous forest encircled by coniferous and tundra plant comminutes for approximately 4000 years? Volman (1981) has postulated that it is definitely within the realm of possibility to have an area unaffected by glacial conditions and therefore be a stable island for deciduous and hardwood plant comminutes. However, at this time the environmental data from that area of the country is still insufficient to warrant any solid conclusions (Volman 1981).

Mead (1980) also cites a lack of evidence from the faunal assemblage, which should include remains of extinct Pleistocene fauna. It makes sense to have evidence for species such as the collared lemming, yellow checked vole, and spruce or heather vole, along with long-nose peccary, musk ox, and mastodon during this time (Mead 1980). These species being present at the site would undoubtedly improve the chances for status as a Pre-Clovis site. However, most of the specimens that were recovered in Stratum IIa are unidentifiable or are charred to such an extant that identification was unobtainable, the rest of the assemblage that was identifiable was entirely made up of modern species (Adovasio 1980). It seems that Adovasio has been dealt an unlucky hand if this site is truly a Pre-Clovis site. Even with a lack of floral and faunal remains from the site, it is still possible that the local environment of the Pleistocene could have produced a sample that looked essentially more modern. Considering some of the preservation problems of these materials at the site it does not close the door on the possibility of this being a Pre-Clovis site. But its interpretation as a Pre-Clovis site is still not convincing without other sources of evidence that can be used to support the radiocarbon dates that are Pre-Clovis in age.

Tool Technology and Classification

The stone tools that have been recovered at Meadowcroft Rockshelter are seemingly part of a micro-blade tool tradition with no real connection to any of the known types that exist in the North America. This comes as both a positive and

a negative for the researchers at Meadowcroft. On the one hand there is the possibility of this being a newly discovered tool tradition. On the other hand, it is difficult to create a new type on the scant information derived from the site and without other sites producing a similar definable tool tradition in the same stratigraphic sequence, the stone tool assemblage at Meadowcroft Rockshelter floats in limbo.

Making up the lithic assemblage from Stratum IIa is approximately 400 pieces of debitage along with 13 definite tools (Adovasio 1983). Within this assemblage are bifacial thinning flakes, blades, retouched flakes, bifaces, Mungai knives, and a single projectile point classified as a Miller point. These artifacts are undoubtedly of human manufacture and are in no way relatable to natural processes of formation. The Miller point specimen collected at the Meadowcroft site from Stratum IIa is an unfluted lanceolate point and is the only real diagnostic specimen recovered from this level. From the lithic evidence Adovasio hypothesizes that the inhabitants of the rockshelter "employed a technologically standardized and sophisticated, small, polyhedral core- and blade-based industry of decidedly Eurasiatic, Upper Paleolithic flavor...this assemblage is presently unique in eastern North America, it reflects precisely the sort of lithic reduction strategy that should be evidenced at this time"(Adovasio 1993).

Although Adovasio is correct in his statement that the tool tradition fits very nicely with what we should be seeing at this time, there are some problems with the interpretation of this assemblage predating Clovis. What is needed most for this evidence to become conclusive would be to find a Miller point or some similar unfluted variety in a site with Clovis points overlying them in the stratigraphic sequence. If this was to happen it would be fairly quickly dissolve much of the controversy surrounding the site. Without a site where Pre-Clovis tools are located below the Clovis horizon, the Pre-Clovis argument will continue to be problematic mostly because the evidence is always so inconclusive.

Will Meadowcroft Rockshelter Last Another 25 Years?

Meadowcroft Rockshelter has been a thorn in the side of Clovis-first proponents ever since it was excavated in the 1970's. Up to this point Adovasio should be commended on his care in recording and publication of the information, because of his through excavation practices the debate surrounding Meadowcroft has not centered on the integrity of the investigations at the site. Bolderian and Cotter (1999) have called for the publication of a final report on Meadowcroft so that other researchers can examine the relationships between the dated hearths and the artifacts. It seems to be a site that neither can be proved Pre-Clovis nor dismissed out of hand. If the site is really a Pre-Clovis site then, unfortunately for Adovasio, it is a site with an incomplete record and therefore the site will ultimately rely on relationships to other sites and new discoveries to prove its case.

Monte Verde: The Newest Debate

In a recent issue of "Discovering Archaeology" Stuart J. Fiedel has opened the door to substantial criticism of Dillehay's (1989, 1997) reporting of the Monte Verde site in Southern Chile. It raises serious questions about Dillehay's methods of excavation and documentation of the Monte Verde site along with the validity of the interpretation as a Pre-Clovis site. Fiedel's (1999) criticism is extensive and the future status of the Monte Verde site will depend on how Dillehay responds to remedy the situation.

Ever since the publication of Dillehay's final report (1997) and Meltzer

et.al. (1997), the site of Monte Verde seemed to be a substantial watershed site for the Pre-Clovis argument. The site visit conducted by David Meltzer and a host of other experts in 1997 certainly lent the added credibility of trained observers to the site being the oldest dated site in the Western Hemisphere. The trip was also intended to set a precedent for others to examine the reports and materials themselves and make up their own minds. Fiedel has taken this suggestion and examined the report and has deduced four major errors.

1. A difficulty in reconstructing the provenience of key artifacts such as projectile point X1500001
2. A lack of photographs of in situ artifacts, especially some the important lithic specimens
3. Inconsistent labeling of artifacts and features which make reconstruction difficult
4. Inconsistent mapping and scaling

If Fiedel is correct in his criticisms it poses a couple of major problems toward attempts to reconstruct the site from Dillehay's final report. First, by not providing precise details concerning the placement of important artifacts it becomes difficult to build associations with the areas that have been radiocarbon dated. Secondly, as Haynes (1999) and Fiedel (1999) point out, it is only a few key artifacts such as projectile point X1500001 and point midsection D-S-1 that demonstrate an unambiguous human presence at the site. Without tight provenience data for these key artifacts much of the wood and bone materials would be highly speculative and human manufacture or modification would be hard to determine. It is for this reason that the artifacts of definite human origin must be precisely located. It was also a mistake to omit photographs of in situ artifacts, which is one of the most important aspects of site recording. Even if all of the artifact locations and maps can be reconstructed, the omission of these photographs from the final report is an error in judgement that should be remedied if the photos exist.

In the responses that are given Dillehay and others offer little detail about how to fix the problems suggested by Fiedel. Instead of trying to correct the errors in site recording Dillehay et.al. (1999) and Adovasio (1999) provide us with *ad hominim* arguments directed toward what they perceive Fiedel's understanding of complex site recording to be.

"We understand Fiedel's concerns and his lack of understanding of these procedures and their implications... Fiedel shows an elementary misunderstanding of standard procedures in the long-term interdisciplinary research and publication of a complex site."(Dillehay et.al. 1999: 12,14).

"In our view, archaeologists who have never dealt with the management and exposition of a complex site loci like Monte Verde are in no position to pronounce on the perceived or imagined inadequacies of those who do. Put most simply, the vast bulk of Fiedel's criticism represent a fundamental lack of awareness of how large-scale, high-resolution excavations and attendant documentation protocols operate. In fact, Fiedel's remarks demonstrate a near total failure to grasp the major methodological issues, let alone the tactical nuances, of excavations at a site like Monte Verde" (Adovasio 1999:20).

Statements like these do not promote the scientific nature of archaeology and seem to miss the point that Fiedel is trying to illustrate. Which is that sites such as should be recorded and published properly, and in a manner so that all people with an educated interest are able to decide for themselves on the validity of the interpretations that are presented. By

omitting evidence and or misrepresenting data future site reconstructions become difficult. Underlying most of the debate concerning Monte Verde is the issue of how important site reconstruction is to archaeology. Since archaeology is a destructive science and considering our limited ability to replicate experiments it is absolutely necessary that the utmost care and consideration be used when excavating and processing archaeological materials. This includes developing a consistent and understandable artifact numbering system and cataloging process that is not a hindrance to site reconstruction.

Future of the Pre-Clovis Debate

At this time the two best candidates for Pre-Clovis sites are probably Meadowcroft Rockshelter and Monte Verde. Each site has problems that are mirror opposites of the other. Meadowcroft Rockshelter is a well-documented site with a questionable floral and faunal record. Monte Verde is a site with good radiocarbon dates but until Dillehay addresses Fiedel's criticisms in detail, the status of the site will remain equivocal. Some would argue that potential Pre-Clovis sites are held to a much higher standard than any other type of site and that much of the criticism of sites such as Meadowcroft Rockshelter and Monte Verde are unwarranted and overly particular. When in fact, the Pre-Clovis vs. Clovis debate should be considered as a useful example of how archaeological sites are analyzed and debated. The Pre-Clovis VS Clovis debate underlines the importance of rigorous methods of data collection along with complete and well organized site reporting.

Since the issue of when people first arrived in North America is still one of the most important in American archaeology, it is not to much too ask that the sites on which we base our interpretations be able to conclusively prove that there were people here before the Clovis horizon. At the present time, the Pre-Clovis vs. Clovis argument is still an open book with many chapters yet to be investigated and written. Given the questionable state for the evidence of Pre-Clovis occupations, the Clovis argument is still the more conclusive of the two and should not be abandoned until there is a discovery which undoubtedly proves that a distinct cultural manifestation predates it. The most difficult aspect of this is that the debate could continue on indefinitely because of the hit-or-miss nature of archaeological excavations. Only new sites and continued debate are going to solve the questions of when and who were the first arrivals in the North America.

References Cited

Adovasio, James M.

1992 *Upper Paleolithic-Paleoindian Adaptations*, edited by O. Soffer and N. D. Praslov, pp:199-218. Plenum Press, New York.

1998 Paradigm-Death and Gunfights. In, Special Report: Monte Verde Revisited. *Discovering Archaeology* 1(6):20.

Adovasio James M., J.D. Gunn, J. Donahue, and R. Stuckenrath

1978 Meadowcroft Rockshelter, 1977: An Overview. *American Antiquity* 43:632-651.

Adovasio, James M., J.D. Gunn, J. Donahue, R. Stuckenrath, J.E. Guilday, and K. Volman

1980 Yes Virginia, It is Really that old: A Reply to Haynes and Mead. *American Antiquity* 45:588-595.

Adovasio, James M., J. Donahue, and R. Stuckenrath
1990 The Meadowcroft Rockshelter Radiocarbon Chronology 1975-1990. American Antiquity, Vol. 55:348-353.

Adovasio, James M. et al.
1983 Evidence from Meadowcroft Rockshelter. In, *Early Man in the New World*, Edited by Richard Shutler, Jr., pp.159-162. Sage Publications, Beverly Hills.

1985 Paleoenvironmental Reconstruction at Meadowcroft Rockshelter, Washington County, Pennsylvania. In, *Environments and Extinctions: Man in the Late Glacial North America. Peopling of the Americas Edited Volume Series*, Edited by Jim I. Mead and David Meltzer, pp.73-110. Center for the Study of Early Man, University of Maine at Orono.

Adovasio, James M., D. Pedler, J. Donahue, and R. Stuckenrath
1999 *No Vestige of a Beginning nor Prospect for an End: Two Decades of Debate on Meadowcroft Rockshelter*. Ice Age People of North America: Environments, Origins, and Adaptations. Bonnichsen, Robson and Karen L. Turnmire editors, Center for the Study of the First Americans, Oregon State University Press.

Boldurian, Anthony T. and John Cotter
1999 *Clovis Revisited: New Perspectives on Paleoindian Adaptations from Blackwater Draw, New Mexico*. University Museum, University of Pennsylvania, Philadelphia.

Cotter, J.L.
1937 The Occurrence of Flints and Extinct Animals in Pluvial Deposits near Clovis, New Mexico, Part IV: Report on the Excavations at the Gravel Pit in 1936. *Proceedings of the Philadelphia Academy of Natural Sciences*.

Dillehay, Thomas D.
1989 Monte Verde: *A Late Pleistocene Settlement in Chile: Paleoenvironment and Site Context*, vol. I. Smithsonian Institution Press, Washington, D.C.

1997 *Monte Verde: A Late Pleistocene Settlement in Chile: The Archaeological Context*, vol. II. Smithsonian Institution Press, Washington, D.C.

Dillehay, Thomas D. et.al.
1999 Reply to Fiedel, Part I. In, Special Report: Monte Verde Revisited. *Discovering Archaeology*, 1(6): 12-14.

Fiedel, Stuart J.
1999 Artifact Provenience at Monte Verde: Confusion and Contradictions. In, Special Report: Monte Verde Revisited. *Discovering Archaeology*, 1(6):1-12.

Frison, George C.
1999 The Late Pleistocene Prehistory of the Northwestern Plains, the Adjacent Mountains, and Intermontane Basins. In, *Ice Age People of North America: Environments, Origins, and Adaptations*. Bonnichsen, Robson and Karen L. Turnmire editors, Center for the Study of the First Americans, Oregon State University Press.

Frison, George C. and L. C. Todd
1986 *The Colby Mammoth Site: Taphonomy and Archaeology of a Clovis Kill in Northern Wyoming*. University of New Mexico Press.

Haynes, C. Vance
1980 Paleoindian Charcoal from Meadowcroft Rockshelter: Is Contamination a Problem? *American Antiquity*, 45:582-587.

1987 Clovis Origin Update. *The Kiva*, 52:83-94.

1999 Monte Verde and the Pre-Clovis Situation in America. In, Special Report: Monte Verde Revisited. *Discovering Archaeology*, Vol. 1, No. 6 pp.17-19.

Mead, Jim I.
1980 Is It Really that Old? A Comment about the Meadowcroft Rockshelter "Overview". *American Antiquity*, 45:582-587

Meltzer, David J., Donald K. Grayson, Gerardo Ardilla, Alex W. Barker, Dena F. Dincauze, C. Vance Haynes, Francisco Mena, Lautaro Nunez, and Dennis J. Stanford
1997 On the Pleistocene Antiquity of Monte Verde, Southern Chile. *American Antiquity*, 62:659-663.

Stanford, Dennis
1983 Pre-Clovis Occupation South of the Ice Sheets. In, *Early Man in the New World*. Edited by Richard Shutler, Jr., pp. 65-72. Sage Publications Beverly Hills.

1999 Paleoindian Archaeology and Late Pleistocene Environments in the Plains and Southwestern United States. In, *Ice Age People of North America: Environments, Origins, and Adaptations*. Bonnichsen, Robson and Karen L. Turnmire editors, Center for the Study of the First Americans, Oregon State University Press.

Volman, Kathleen C.
1981 *Paleoenvironmental Implications of Botanical Data from Meadowcroft Rockshelter*, Pennsylvania. Ph.D. dissertation, Department of Botany, Texas A&M University.

Wormington, H. M.
1957 *Ancient Man in North America*. Denver Museum of Natural History, Popular Series No. 4, Denver