REPORTS

ON THE PLEISTOCENE ANTIQUITY OF MONTE VERDE, SOUTHERN CHILE

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The potential importance of the Monte Verde site for the peopling of the New World prompted a detailed examination of the collections from that locality, as well as a site visit in January 1997 by a group of Paleoindian specialists. It is the consensus of that group that the MV-II occupation at the site is both archaeological and 12,500 years old, as T. Dillehay has argued. The status of the potentially even older material at the site (MV-I, ~33,000 B.P.) remains unresolved.

La importancia potencial del sitio Monte Verde para el poblamiento del Nuevo Mundo estimuló un examen detallado de las colecciones de esa localidad y una visita al sitio en enero de 1997 por un grupo de especialistas en el Paleoindio. Es el consenso de ese grupo que la ocupación MV-II en el sitio es arqueológica y de 12.500 años de edad, tal como ha argüido T. Dillehay. El estatus del material potencialmente más antiguo en el sitio (MV-1, 33.000 a.P.) continúa sin resolverse.

The Monte Verde site, excavated by Tom Dillehay beginning in 1977, is widely recognized as one of the most viable of the possible pre-Clovis sites in the Americas. This locale is well known for having provided well-preserved organic remains, including wood, bone, and skin, alongside inorganic artifacts and features on an occupational surface (MV-II) dated to ~12,500 years B.P. (Dillehay 1989a, 1997). There is, in addition, a second possible occupation at this location, with a sparser artifact assemblage, dated to ~33,000 years B.P. (MV-I).

Predictably, given the age of the site, its technology, subsistence and settlement evidence, and implied human adaptations, questions have been raised concerning its radiocarbon dates, artifacts, features, and even the general archaeological status of both MV-II and MV-I (e.g., Dincauze 1991; Grayson 1988; Haynes 1992; Lynch 1990, 1991; Meltzer 1991, 1993; Morlan 1988; West 1993, 1996). Recognizing the tremendous potential significance of Monte Verde to our understanding of New World prehistory, and given the forthcoming publication of the final volume of the Monte Verde report (Dillehay 1997), Dillehay, Haynes, and Meltzer, later joined by Barker (who took the lead on logistical matters), organized a site visit in order to allow a detailed discussion and assessment of the objects recovered from Monte Verde, and of the context and ages of those objects.[1] The trip, which took place in January 1997, was made possible by the financial and logistical support provided by board members of the Dallas Museum of Natural History and by the National Geographic Society.

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The goals of the site visit were to: (1) evaluate the stone, bone, ivory, wood, and other objects recovered from the MV-II and MV-I levels that have been argued to be artifactual; (2) examine the Monte Verde sediments and stratigraphy (as well as the off-site stratigraphy); and (3) assess the results of the radiocarbon dating by examining possibilities for contamination, redeposition, or other potentially confounding factors. In essence, and particularly in light of published doubts concerning this site's claims to great antiquity, the primary goal of the visit was to ascertain whether the site is truly archaeological and, if so, whether it is truly late Pleistocene in age.

The participants in the site visit intentionally included individuals with an ongoing research interest in the peopling of the Americas but who also possessed a diversity of views, backgrounds, and experience. This cross-section of Paleoindian specialists was selected to encourage the most fruitful and thorough discussions of the materials; the goal was not to assemble a panel of pre-Clovis skeptics or, for that matter, pre-Clovis proponents.[2]

Thanks to the generosity of the Smithsonian Institution Press, all participants were provided with, and were expected to have read, the proof sheets of the final Monte Verde report (Dillehay 1997), as well as the original report (Dillehay 1989a). These volumes were a key element of the site visit as they contain the full data and interpretations of the site as presented by Dillehay and others. The participants were urged to raise all concerns they might have about any aspects of the site. Although the focus of the visit was on the MV-II deposits, the status of the earlier MV-I materials was also part of the discussion.

The site visit was conducted in several stages. Initially, participants traveled to Lexington, Kentucky, to hear presentations by Dillehay, James Adovasio (cordage), Michael Collins (lithics), and Jack Rossen (paleoethnobotany). During this time, participants also examined and discussed the Monte Verde materials archived at the University of Kentucky. These materials included approximately 90 percent of the stone objects (both MV-II and MV-I), 20 percent of the bone items, 15 percent of the wood specimens, and a diverse set of soft tissue remains (the remainder of the collections being housed in Chile).

The group then traveled to Chile, were joined by South American colleagues, and spent a day at the Universidad Austral de Chile (Valdivia). During this time, Mario Pino presented a synthesis of the Monte Verde stratigraphy; many of the remaining bone, wood, and soft tissue specimens, as well as a preserved human footprint from the MV-II surface, also were examined. From there, the group traveled to Puerto Montt, making stops to examine geological sections and gain a sense of the regional environmental context.

A final day was then spent at and around the site of Monte Verde (which is located outside Puerto Montt). It is important to realize that the main occupation area at Monte Verde no longer exists, having been destroyed by road construction associated with timbering activities and by stream meander. However, the party was able to examine a number of prepared stratigraphic sections from within and immediately adjacent to the site area itself. Those sections enabled participants to inspect the stratigraphic sequence described from the site, including the critical MV-5 (peat)–MV-6 (sands and gravels)–MV-7 (outwash sands and gravels) sequence. All participants assembled at the end of this last day of the site visit to discuss their responses to what they had seen and heard over the course of the preceding week.

This report summarizes our views of some of the main issues regarding the site's antiquity, as these emerged in that discussion. Importantly, this report represents only our opinions on certain issues, based on the opportunity we had to discuss the site over the course of a week and the direct observation of its context, stratigraphy, and collections. Readers, of course, are urged to examine for themselves Dillehay's detailed volumes on the site and draw their own conclusions. It should also be stressed that our opinions are not intended to be a final judgment on all aspects of the site's evidence for late Pleistocene hunter-gatherers in southern Chile (nor could they be, as Monte Verde will be looked at in new ways with every future study of its collections and with each new site discovery).

The central issue dealt with at that final meeting was whether MV-II is archaeological, and, if so, whether there can be any reasonable doubt that the MV-II occupation is ~12,500 radiocarbon years old. On this critical issue there was complete unanimity: MV-II is clearly archaeological, and

there is no reason to question the integrity of the radiocarbon ages.

There was disagreement among participants on specific interpretive matters. For instance, not all agreed that a particular cut mark on an object necessarily reflected human activities, or that a specific object was, in fact, an artifact. Those debates, however, were secondary, and could swirl around particular objects from virtually any archaeological site regardless of the age of that site.

The detailed evidence for the ~12,500 years B.P. occupation at Monte Verde is, of course, presented in Dillehay (1989a, 1997) and need not (and cannot) be reiterated here. It is appropriate, however, to note that these publications have, in our opinion, set a new and higher standard for reporting on assemblages of great antiquity in New World contexts. It is also appropriate here to identify a few of the lines of evidence that we found compelling, given the well-established criteria for evaluating potentially early archaeological sites (Haynes 1969:714; also Dincauze 1984).

Although the cultural evidence from Monte Verde is largely based on nonlithic artifacts, architectural remains, context, and spatial patterns, the more traditional evidence—notably, stone tools—is nonetheless present and compelling. After looking at the collections, we have no doubt that there are genuine lithic artifacts on the MV-II surface. Some of these specimens—especially the projectile points and grooved spheres (e.g., Dillehay 1989a:15, 1997)—are unquestionable based on their morphology alone. In addition, the detailed analyses by Collins, Dillehay, Marvin Kay, and others (in Dillehay 1997) present an extremely strong case that many lithic specimens, which might not appear at first glance to be artifactual, are so by virtue of their context, use wear, raw material sources, adhering residues, or other such attributes. Much the same can be said of the vertebrate faunal assemblage, the nature and condition of which is certainly compatible with an archaeological context and which, Pat Shipman has shown (in Dillehay 1997), bears cut marks that are almost certainly of human origin. Some of the wood and other botanical objects, described in exemplary detail by Dillehay (1997), were the focus of unresolved debate. There is, however, no doubt that the cordage (Adovasio, in Dillehay 1997), many of the wooden specimens, and many of the seeds and other paleoethnobotanical remains were introduced into the site by human activities. No one could, and no one did, question the human origins of the footprint. In short, while one can quibble about the artifactual nature of particular objects, one cannot argue that MV-II is not archaeological.

The stratigraphic context and sequence at the site is straightforward and well described by Pino, and Dillehay and Pino (in Dillehay 1989a, 1997). During the site visit, we were able to examine a number of exposures representative of the stratigraphy encountered at the main site. We saw no evidence of disturbance and no evidence of younger archaeological materials that could have become incorporated into older deposits. Just as Dillehay and Pino have repeatedly observed, unit MV-3 (with radiocarbon ages that fall between ~4800 and ~8300 years B.P.) is heavily oxidized and well indurated (lithification being secondary and later and not wholly complete: the unit contains soft peat facies). MV-3 forms a largely impermeable layer that helped preserve the archaeological material that lay beneath it—and would have served as an effective barrier to redeposition of younger material.

While at the site, questions were raised concerning the pedogenic processes that were, and are, occurring on the site, and the role of pedogenesis or processes such as groundwater fluctuation in introducing or moving certain soluble chemical elements. However, the evidence of unusually high amounts of nonsoluble elements and the geochemical differences between the MV-II locality and the tested off-site areas would seem to obviate much of this concern. Certain constituents may have been translocated by groundwater, but that action does not affect the archaeological integrity of the site.

The MV-II archaeological materials lie either on the upper edge of the stream-deposited sand and gravel unit MV-6 or on the eroded surface of the sandy outwash unit MV-7. They are in all cases covered by the peat layer MV-5. It is important to emphasize that the artifacts and features that constitute the MV-II archaeological component were blanketed by the MV-5 peat, thus removing concern that undated specimens on the MV-II surface may have been significantly younger than stratum MV-5. MV-5 has seven radiocarbon ages that fall between ~10,300 and 12,000 years B.P. MV-7,

which underlies the MV II archaeological unit, has ages in excess of 20,000 years B.P. The MV-II archaeological unit has a series of 11 radiocarbon ages that fall around ~12,500 years B.P., including determinations on organic artifacts. These ages are fully concordant with the noncultural series of age determinations for the stratigraphic column as a whole.

The integrity of the radiocarbon ages was discussed at length, with a particular emphasis on those factors, including local volcanic activity, that might potentially have caused the radiocarbon determinations to be spuriously old, and the possibility that southern hemisphere dates may be offset from those of the northern hemisphere due to variations in global carbon budgeting. Such concerns were ultimately dismissed, even by those who raised them, both because of the internal consistency of the MV-II ages and because the Monte Verde sequence as a whole is fully consistent with the regional chronology built over many years by a diverse group of Quaternary scientists. In addition, we note that as far as is currently known, the offset between northern and southern hemisphere radiocarbon ages is insignificant (e.g., Barbetti et al. 1995; Vogel et al. 1993).

In regard to the extremely intriguing MV-I materials, Dillehay (1997) remains noncommittal. The MV-I materials were found deep within the MV-7 deposits; at least some of them are clearly artifactual; there is no suggestion that they owe their position to disturbance; and associated radiocarbon determinations indicate an age of at least 33,000 years B.P. The chances seem good that these materials indicate a significantly early human occupation in the region. However, MV-I is located some 70 m south of the present Chinchihuapi Creek (on the north side of which sits the main, MV-II, occupation), and additional stratigraphic work is needed to relate the sequence here to the sequence that has been so well elucidated in the area of the site itself (Dillehay's Zones A and D). In addition, further excavations are needed to seek additional cultural materials and radiocarbon samples. In saying this, we are simply agreeing with and repeating what Dillehay himself feels is needed to clarify the MV-I situation.

While the MV-II occupation is only some 1,000 years older than the generally accepted dates for Clovis, the Monte Verde site has profound implications for our understanding of the peopling of the Americas. Given that Monte Verde is located some 16,000 km south of the Bering Land Bridge, the results of the work here imply a fundamentally different history of human colonization of the New World than envisioned by the Clovis-first model and raise intriguing issues of early human adaptations in the Americas.

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And, finally, those of us who had the extraordinary pleasure of traveling to Chile in the Holly Corporation jet would like to offer their deepest thanks to Lamar Norsworthy (Holly Corporation, CEO) and David Schaefer (Holly Corporation, chief pilot) for flying us down there in style, comfort, and great good humor.

Notes

1. The first three organizers are listed alphabetically, as all three had equal responsibility for the organization and archaeological content of the site visit. This idea for this visit was sparked by Dillehay's invitation (in 1989) to see the site, and Haynes's response on the importance of such a site visit (Dillehay 1989b; Haynes 1989). There soon followed informal discussions between them and Meltzer about a site visit. Even so, it was not until 1992–1993 that a formal proposal was prepared by all three, which identified potential participants, what ought to be seen of the collections and the site, how much time needed to be spent at various localities, and the general parameters of the site visit. In the fall of 1995 the Dallas Museum of Natural History assumed responsibility and acquired funding for the project and (through Barker) became involved in subsequent planning and organizational efforts.

2. The list of participants from North America included Barker (representing the Dallas Museum of Natural History), Dincauze, Grayson, Haynes, Meltzer, and Stanford. Dillehay and Adovasio were also members of the group that traveled to the site, but as participants in the project itself did not play a role in writing this report. Robson Bonnichsen attended the Lexington meetings, but did not travel to Monte Verde; he had been there previously, and his schedule unfortunately did not permit his participation in this visit or the discussion in Chile from which this report derives. The South American archaeological contingent included Gerardo Ardila, Francisco Mena (who participated in the Lexington segment as well), Lautaro Núñez, and Mario Pino.

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