creek bed and minimally modified by use. The creek bed context itself raised the specter of fluvial deposition for the remarkably well-preserved wood and the scattered mastodon bones. Hut foundations made of small logs staked to the ground were reported, but this skeptic wondered whether the logs were naturally fallen trees with the "stakes" actually representing branches preserved on the underside of the trunks.

My skepticism was diminished and my interest aroused when in May 1989 I heard a conference report in which Dillehay explained that the stakes were made of a different species of wood from the logs through which they were driven and that some of the stakes were wrapped with reeds! Since then I have eagerly awaited this book, and it has not disappointed. But it is a challenging book, because it presents the case for human occupation at Monte Verde on the basis of the biotic and abiotic evidence, leaving the cultural features and artifacts for a subsequent volume. Dillehay admits that this approach imposes "a burden on the reader to understand and accept results not yet presented" (p. xx). The burden seems heavy in chapter 1, wherein summary statements present botanical, wood, bone, and stone items entirely as the remains of human activity with no apparent consideration of alternatives. Likewise, "huts" and other features are presented as residential and nonresidential architecture without even proof that they are artificially formed. Only in subsequent chapters is skepticism gradually dispelled. The very fact that Monte Verde is an open site with remarkable organic preservation (bone, wood, twigs, seeds, leaves, animal tissue) is initially puzzling, but it holds the key to the unusual history of the deposit and its veracity as a human settlement.

Dillehay and nine collaborators present data and interpretations concerning geology, stratigraphy, chronology, wood and other plant macrofossils, pollen, diatoms, mollusks, insects, and vertebrates. Each discipline seeks to account for its own data set, considering both natural and cultural processes that might explain the site formation and its state of preservation. These studies are admirable for their consideration of multiple working hypotheses. Several of them (dealing with aspects of geology, paleobotany, and vertebrate paleontology) ultimately arrive at the conclusion, through argument by elimination of alternatives, that human agencies must have been involved in the formation of the site. Those studies that do not reach this conclusion (pollen, diatoms, insects) pertain to small particles and organisms that exist beneath daily notice of humans (except specialist students).

Human activity is indicated by modification of raw material (bone and wood) in a few cases, but is more abundantly demonstrated by the importation of numerous items from disparate sources. For example, 75 species of plants are represented by macrofossils (wood, seeds, leaves, and so on) in the site deposits. Although 75% of these are local in the sense that they may have originated within 5 to 10 kilometers of the site, it is unlikely that all of them grew within the small catchment area of the creek. The other 25% are non-local and were imported from the Pacific coast in the west and the Andean grasslands in the east. One species, the boldo (*Peumus boldus*), is a forest tree found no nearer than 1000 kilometers north of the site. These plants are selectively represented by parts that are edible, combustible, medicinal, or useful in construction; unusable parts must have been discarded elsewhere, because they are rare in the site deposits. *Peumus boldus* is represented by its edible seeds and a masticated cud of its medicinal leaves. Other imported items include several kinds of stone raw material, clay, salt crystals, a bitumen-like substance, and possibly a paleocamelid scapula. The investigators carefully consider both natural and cultural agencies that could have brought these materials together at Monte Verde.

A major objective of this book is the use of abiotic and biotic evidence to reconstruct paleoenvironmental parameters. Site data, new regional data, and previous geological and paleoecological studies are integrated for this purpose. Due consideration is given to the effects of human selection, especially in the plant assemblage, and non-selected materials (diatoms, pollen, and insects) are especially important here. Nearly all the data suggest that the environment of 13,000 years ago was similar to that of the present. An exception is the pollen study, in which the environment at the time of occupation is interpreted as colder than now but ameliorating. To me, the pollen evidence from the Monte Verde site seems rather weak compared with the fossil insect record, from which a wonderfully detailed paleoenvironmental picture is developed (fig. 12.6). A debate between the palynologist (Heusser) and the paleoentomologist (Ashworth) has a long history (see abstracts of the 12th International Quaternary Association Congress, 1987). It represents a vigorous and healthy effort to integrate multiple lines of evidence, and Dillehay discusses this process at length in a concluding chapter.

The epistemological lesson of this book is that evidentiary standards erected in advance cannot prepare us for, and may blind us to, unusual deposits that contain previously undiscovered kinds of material remains. Our search for the earliest human colonists has been focused on clearly shaped stone artifacts and extinct megafauna, but Monte Verde shows that an early archaeological record can be read from imported plants and clay. It is disconcerting to me that my skepticism concerning an archeological site has been abated by a book that does not even present the artifacts and cultural features, and it is a mark of well-integrated Quaternary science that this work has such an effect.

If people were in southern Chile 12,000 to 13,000 years ago, were they there earlier? Dillehay reports a small assemblage of fractured stones that "show clear percussion scars or use wear on their edges" associated with radiocarbon dates approximately 33,000 years old, but he concludes that this material "must remain ambiguous" (p. 18). Near the end of the book he asks why there appears to be a cultural hiatus between 33,000 and 13,000 years ago. Surely this represents a conviction that a larger sample and a greater variety of abiotic and biotic data would reveal an unequivocal archeological record at least 33,000 years old. The completion of studies in a subsequent volume may shed more light on this potential as well as present the artifacts and cultural features of the 12,000-to-13,000-year-old human occupation at Monte Verde.

RICHARD E. MORLAN
Archaeological Survey of Canada, Canadian Museum of Civilization, Hull, Québec J8X 4H2

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