

nations for core depths cited here can be obtained from Webb and Wrenn (in press).

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Foraminifera from DVDP holes 8-12, Taylor Valley

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Dry Valley Drilling Project (DVDP) holes 8, 9, 10, and 11, in eastern Taylor Valley provide excellent calcareous benthic foraminifera assemblages. Hole 12, farther up Taylor Valley, contains only a few poorly preserved foraminifera that probably are reworked. Foraminifera from the eastern group of holes are useful in correlation between the dry valleys and Deep Sea Drilling Project (DSDP) holes in the Ross Sea continental shelf. Three broad foraminiferal subdivisions are detailed here. In ascending order these are referred to as microfaunal units I, II, and III.

The lower microfaunal unit (I) extends between 183 and 172 meters in hole 10 and 328 and 205 meters in hole 11. These intervals contain more than 30 species of minute, well-preserved benthic taxa and a number of planktonic taxa including *Neogloboquadrina pachyderma* (Ehrenberg). Microfaunal unit I coincides with the lower part of McKelvey's (in press) lithologic unit 5 in hole 10 and units 7 and 8 in hole 11. The latter sediments are diamictites interbedded with laminated sandy silty mudstones. Foraminifera are distributed evenly throughout these sediments. The fauna exhibits close affinity to Miocene faunas in the lower part of the Cenozoic succession at DSDP site 273A, in the western Ross Sea continental shelf. Hole 11 was terminated in Miocene sediments so there is every possibility of a more extensive marine Cenozoic record in eastern Taylor Valley.

The middle microfaunal unit (II) extends between 172 and 153 meters in hole 10 but has not been recognized in hole 11 only a few kilometers to the west. The interval contains rich assemblages of robust but poorly preserved and often recrystallized calcareous benthic foraminifera. Subdivision II foraminifera are distributed through a relatively narrow stratigraphic interval (about 20 meters). These sediments occur in the upper part of McKelvey's lithologic unit 5, described as olive-gray massive and laminated sandy mudstones containing occasional pebbles and fine medium-grade poorly sorted sandstone. The boundary between microfaunal units I and II in hole 10 coincides with the

base on a 1-meter breccia bed (at 171.55 meters) (see McKelvey, 1975, p. 41).

Unit II microfossils are correlated with the Pecten gravels of Wright Valley (Webb, 1972, 1974) and the Scallop Hill Formation of White Island. Correlation is also made with the uppermost part of the Miocene-Pliocene succession at DSDP hole 273A. A Pliocene age is adopted.

The uppermost microfossil unit (III) extends between 153 and 0 meters in hole 10 and between 205 and 0 meters in hole 11. The uppermost part of the unit is also represented in holes 8 and 9. Large, diverse calcareous benthic foraminiferal faunas are characteristic of the lowermost and uppermost 20 meters of this thick sedimentary succession. The intervening interval is largely unfossiliferous. Microfaunas are *in situ* and represent quite shallow sites of deposition. No planktonic taxa have been recorded. In terms of McKelvey's (1975) lithological subdivision the oldest microfossil unit III assemblage occurs in the lower part of his unit 4 (diamictites and pebbly sandstones) and the youngest in his unit 1 (pebbly coarse sandstones, conglomerates, and mudstone debris). The microfauna is closely related to present-day microfaunas. A Pleistocene age is adopted. The boundary between microfossil units II and III coincides with thin breccia beds in both holes 10 and 11 (McKelvey, 1975, p. 40, 54).

Microfossil studies on core from holes 8 to 11 further confirm the influence of marine incursions into the dry valleys in the late Cenozoic (Webb, 1972, 1974; Webb and Wrenn, 1975; Wrenn and Webb, in press). Whereas Wright Valley has revealed no evidence of marine invasion prior to the Pliocene, eastern Taylor Valley was clearly a fjord during the Miocene. Significant faunal and sedimentary hiatuses punctuate the late Cenozoic record in eastern Taylor Valley. These have been produced by the interaction of the tectonic uplift of the Transantarctic Mountains, fluctuations of sea level, and alterations of grounding and floating by the Ross Ice Shelf. The microfossil record in hole 12 argues against marine penetration that far west in Taylor Valley, at least during the Pleistocene.

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Carbon-14 dates of *Adamussium colbecki* (Mollusca) in Marine deposits at New Harbor, Taylor Valley

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Emerged fossil marine deposits occur at New Harbor, Taylor Valley, particularly near Dry Valley Drilling Project (DVDP) holes 8, 9, and 10, despite the absence of nearby well-defined emerged beaches (figure). These deposits yielded numerous carbon-14 samples of *Adamussium colbecki*; at all sample localities abundant valves were enclosed in the deposits and several were articulated. Further, a sample that consisted of fragments of *A. colbecki* was collected from holes 8 and 9.

Samples QL-160, QL-161, and QL-191 were collected from stratified sand deposits with minor amounts of gravel that lack associated glacial clasts and that compose delta-like features located at mouths of seaward-sloping stream valleys (figure). DVDP holes 8, 9, and 10 (all three holes are at 77°34' 43"S. 163°30' 43"E. and are located 1.9 meters above