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COMMENTS ON THE GENERA *MONTFORTELLA* LOEBLICH AND TAPPAN, 1963, AND *HETEROCIBICIDES* McCULLOCH, 1977 (FORAMINIFERIDA)

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The benthic foraminiferal genus *Heterocibicides* was recently established by McCullock (1977) with *Heterocibicides disjuncta* as the type by original designation. Two additional new forms were assigned to this genus by the same author, namely *H.* cf. *disjuncta,* and *H.(?) irregularis.* McCulloch, in her type description of the new genus (p. 449), utilized distinct morphocharacters to differentiate this genus from *Cibicides* de Montfort, 1808. The same morphologic characters were used by Loeblich and Tappan (1963) when they erected the genus *Montfortella,* with *M. bramlettei* as type species. Hence, the genera *Montfortella* and *Heterocibicides* are here considered to be congeneric and *Montfortella* is the valid taxon on the basis of priority.

Loeblich and Tappan (1963), in describing their specimens from the Pleistocene of Santa Barbara and from Recent tide pools at Pacific Grove, California, noted that the genus is "extremely variable in growth form" (p. 213). Variability was also noted by McCulloch (1977, p. 450), with the statement "as of now it seems to be necessary to assume that there is much variation to be expected with reference to presence or absence of imperforate areas, sutural slits and nature of coiling as shown on convex side." McCulloch on the same page further comments on the variability in noting the differences in general morphology between

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specimens off the Galapagos Islands and specimens obtained off California and Mexico.

Kohl and Haman (in press) also commented on the variable morphology in documenting Mexican Pliocene *Montfortella* from the State of Veracruz. They suggest that this variability results from two growth modes. The first is the result of attachment to various substrates. The forms related to this type of habitat are more "cibicidine" in nature, *i.e.,* plano-convex or variations of this. It is believed that *Heterocibicides disjuncta* and *H.* cf. *disjuncta* would fall into this category. The second growth form they believe to strongly suggest a phytal surface relationship. These forms assume a "pseudoacervuline" or concavo-convex, enrolled mode of growth. *Heterocibicides(?) irregularis* is typical of this type of environment. The test variability is not regarded as reason for specific differentiation by Kohl and Haman, and these authors regard their forms as conspecific with *Montfortella bramlettei* Loeblich and Tappan. It is believed that *Heterocibicides disjuncta* McCulloch, *H.* cf. *disjuncta* McCulloch, and *H.(?) irregularis* McCulloch simply represent variants of *Montfortella bramlettei* Loeblich and Tappan and as such should be regarded as junior synonyms.

Neither Loeblich and Tappan (1963), nor Kohl and Haman (in press) commented on the functional morphology of the radial sutural slits. McCulloch, however, made the observation that the sutural slits permit water circulation to the attached side of the test. No evidence is available to verify or negate this hypothesis.

On the evidence presented by Kohl and Haman the stratigraphic range of *Montfortella* is extended from the Recent and Pleistocene into the Pliocene (Zone N.20. of Blow, 1969). The studies of McCulloch, 1977, provide additional geographical and bathymetric information on the genus. Loeblich and Tappan (1963) obtained specimens from tide pools at Hopkins Marine Station, Pacific Grove, California. McCulloch (1977) recorded the taxon from the Galapagos Islands at a depth of 65 fathoms, off the north side of San Nicolas Island, California at a depth of 49 fathoms, and off San Jose de Caso, Mexico at a depth of 82 fathoms. Consequently, it is evident that the bathymetric range of the form has been considerably extended, as has the Recent areal distribution of the genus in the Pacific.

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