

PALEONTOLOGY AND CHRONOLOGY OF AN EVOLUTIONARY TRANSITION
BY HYBRIDIZATION IN THE BAHAMIAN LAND SNAIL *CERION*

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The late Quaternary fossil record of the land snail *Cerion* on the island of Great Inagua in the Bahamas documents patterns of evolution of shell morphology indicative of hybridization. Two cases were analyzed: the evolution of an area effect in *Cerion columna* involving the local occurrence of an unusual flat-topped form, and the transition from the extinct *C. excelsior* form to the presently-occurring *C. rubicundum* form. The timing of these evolutionary events was determined by a combination of radiocarbon and amino acid epimerization dating carried out directly on individual shells.

On the north side of Inagua, a flat-topped form lives along several km of the coast, with a transition to the typical tapering form occurring over a short distance. In the fossil record in the same area, an even more extreme flat-top form occurs. This form is not known from elsewhere in the Bahamas but very similar shells of the *C. dimidiatum* complex do live nearby on Cuba. The local occurrence of this flat-topped form on Inagua is probably the result of colonization of forms similar to the fossil specimens and their subsequent introgression with the typical *C. columna* form. Dating of the fossil specimens indicates that these flat-topped forms inhabited that area by 13,000 yr B.P. This indicates that the area effect seen in the modern snails may have an origin dating back many thousands of years.

On the east side of Inagua, a fossil deposit containing a wide range of *Cerion* forms, ranging from long, slender, weakly-ribbed *C. excelsior* forms to shells more similar to the modern forms, was found. Analysis of these shells indicates that a wide range of ages is represented in the deposit and documents a regular pattern of change in morphology over time. The oldest shells, dating back beyond 18,000 yr B.P., are all of the typical *C. excelsior* form, whereas early to middle Holocene shells all show a consistent morphology intermediate between these and the modern forms. The transition to the modern forms, not represented in the fossil record, occurred some time subsequent to 4000 yr B.P. The Holocene specimens of intermediate morphology presumably arose from hybridization between *C. excelsior* and a form similar to the modern one, some time subsequent to its colonization of Inagua; the modern forms do not occur in the older fossil record of the island. These hybrids did not represent a fleeting transition phase between the *C. excelsior* and modern forms but persisted for at least several thousand years.