

## GEOLOGY AND TOPOGRAPHY OF PENINSULAR FLORIDA AS RELATED TO THE UNIONID FAUNA.

### GEOLOGY AND TOPOGRAPHY

Present day peninsular Florida occupies only part of a much larger unit, the Florida Plateau. This platform is nearly 500 miles long and from 250 to 400 miles wide. The Plateau is part of the continent and is probably an extension of the metamorphic rocks of the Georgia Piedmont that are buried under some 4,000 feet of sedimentary rocks that are mostly limestone.

During the millions of years it has been in existence, the Plateau has been alternately dry land or covered by shallow seas. It appears to be one of the world's more stable areas. There is no faulting, with just a slight doming in the north central portion. The Plateau is nearly level, the highest part (near Haines City, Polk County) being little more than 325 feet above sea level. Nearly two-thirds of the state is below the 50-foot contour.

### MARINE SHORE LINES

Cooke (1945: 248) recognized seven Pleistocene shore lines in peninsular Florida, but MacNeil (1950:99), basing his identification of marine shore lines on the coexistence of shore-line scarps, regarded only four of these as peaks of Pleistocene flooding (Table 1). Russell (1957: 427-428), on the basis of the complete melting of the polar ice, cast doubt on the extent of Pleistocene flooding, as did Oaks and Coch (1963) on the basis of cores made in Virginia. They postulated six cycles of Pleistocene seas with maximum heights 45 feet above present levels.

The highest recognized marine shore line in peninsular Florida is at a level of from 215 to 270 feet (depending on the authority) above the present one. All of Florida was inundated except for several small islands in the vicinity of Polk County. Cooke (1945: 273, fig. 43) thought this flooding, which formed the Brandywine terrace (Citronelle formation in the southeast), took place in the early Pleistocene during the Aftonian interglacial stage, but Alt and Brooks (1965: 408), on the basis of new geological evidence, concluded that this flooding took place during the Upper Miocene. Laessle (1968) later confirmed this dating with botanical evidence. It is not possible to tell if any of the present fresh-water mollusks have persisted since the Upper Miocene.<sup>1</sup>

The highest Pleistocene shore line recognized by MacNeil (1950, pl. 1), the Okefenokee or Sunderland of Cooke (1945, 278, fig. 43), not specifically recognized by Alt and Brooks (1965) or Alt (1968), was formed sometime during the Pliocene when the sea level was 150 feet higher

<sup>1</sup> Orange (Ocala) Island referred to by Clench and Turner (1956, 104) was a land mass separated from the continent by the Suwannee Strait during the late Oligocene (Vaughn, 1910: 156) and its existence appears to have no bearing on the present molluscan fauna.