EVIDENCES OF POST-PLEISTOCENE DESICCATION IN SOUTH WEST ECUADOR AND NORTHERN PERU

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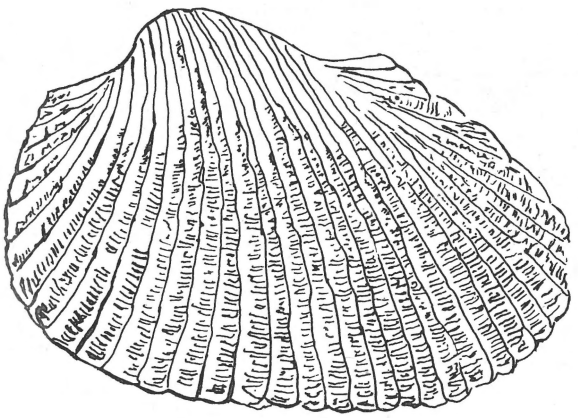
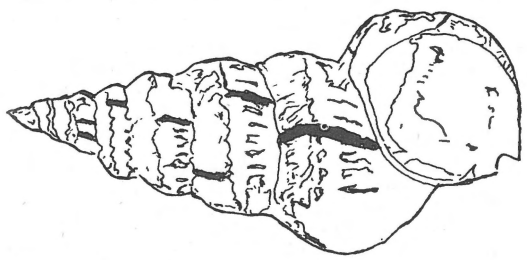
Recent intensive exploration for archaeological remains in southwestern Ecuador and northern Peru has resulted in the establishment of an archaeological chronology for Holocene occupations.[2)] Incidental to these studies, observations on the paleoecology of southwestern Ecuador were made by the author (S a r m a, 1970), and for northern Peru by others. Several of the preceramic and ceramic occupational periods show a preponderant occurrence of two forms of molluscs, *Anadara tuberculosa* (S o w e r b y, 1833) and *Cerithidea pulchra* (C.B. A d a m s, 1852) – forms which are primarily associated with mangrove vegetation (K e e n, 1960). For example, their abundance in the coquina in the midst of the Vegas preceramic period (C-14 dated as 5000-6800 BC) with more than 95%, and during the early Valdivia ceramic period (C-14 dated as 2450-2650 BC) with more than 45% points to an extensive distribution of mangrove in the past in southwest Ecuador. In this regard, it should be stressed that the habitat of the forms mentioned above is specific for the mangrove vegetation.[3)] At present time, southwest Ecuador has semi-arid characteristics. Rainfall is rare. A seven year weather cycle has been suggested for the area (M u r p h y, 1926; R u d o l p h, 1953), but this cycle is known to skip occassionally. The form *Anadara tuberculosa* (S o w e r b y, 1833) is known locally as "concha prieta" along Ecuador coasts, and is a rare table delicacy on south coasts. Early observations made by Prof. R.E. Coker on "concha prieta" (as quoted by D a l l, 1924) are interesting:

> Concha prieta. Mouth of river Tumbez, and near Capon, from muddy floors of mangrove swamps. Among the first phenomena to catch one's attention on entering the mangrove swamps is a sound, heard repeatedly on every side, as of nuts falling in water or soft mud. Tracing the sound with some care, it is found to come from the watery hollows in the mud occupied by concha prieta, and is presemably made by the sudden closing of the valves under water by the mollusc.



Anadara (Anadara) tuberculosa (Sowerby 1833)



Cerithidea pulchra (C.B. Adams 1852)

Observations made on present day mangrove vegetation of tropical western America point to the need of extensive rainfall, and silting for their existence (W e s t, 1956). In these regions where mangrove vegetation exists, a fainfall of 200″-400″ is known to occur. In the context of these observations, it may be suggested that in southwest Ecuador, certain areas were suitable for mangrove vegetation, and during these times there would have been an increased rainfall. One of the mechanisms that could have caused this rainfall increase seems to be the shift of meteorological fronts from their present locations towards a more southerly position.

The existence of these pluvial periods in the Andean

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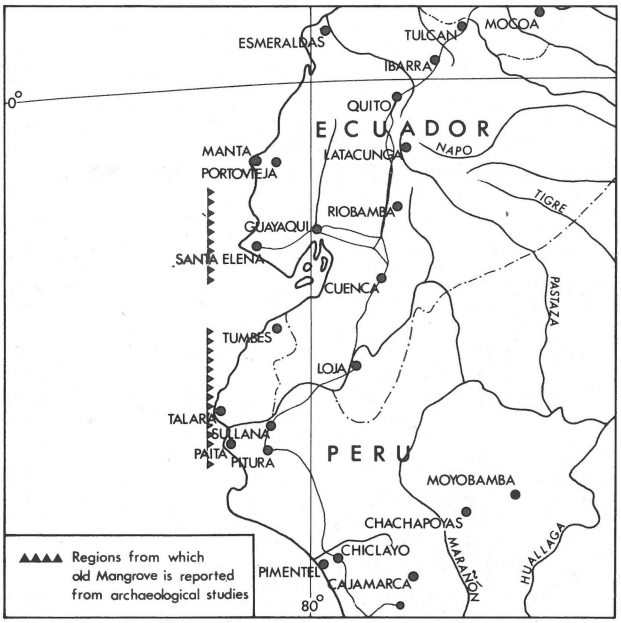

regions is known from pollen profiles and lake fluctuations (v.d. H a m m e n and G o n z a l e z, 1960, 1965). We hope that people interested in the quaternary period as well as archaeologists may find these observations useful.

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FOOTNOTES:

[2] Archaeological field observations by Columbia University, NYC, teams in 1964 and 1967. Temple University, Philadelphia made observations in Ecuador in 1971. These studies were made in the Santa Elena Peninsula and Colonche Valley in southwest Ecuador. J. Richardson, of University of Pittsburgh did observations in northern Peru.

[3] See K e e n (1960). Field observations from the present day mangrove at Palmar, Playas, and Maglar Alto, all located in coastal Ecuador confirm this.