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30: Development of Coral Reefs and Sea-Level Changes of Western and Southern Parts of Sri Lanka

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The Quaternary period comprises of two epochs: the Pleistocene and the Holocene. The Holocene is an interglacial period which of vital significance to geologists, geomorphologists, paleontologists and sedimentologists. It was during that 10,500 year period many recent soils and coastal landforms evolved.

The area between ten fathom and on hundred fathom isobars in Sri Lanka is a drowned extension of a peneplain. Different types of geomorphic features, such as low-lying ridges, terraces, sandstone reefs, stream channels and coastal forests developed within this area and were gradually submerged by global rise of sea level since the last glacial maximum (18,000 years B.P.). Terrace gravels and Red Beds within the present Dry and Intermediate zones also confirms that the fluvio-marine and aeolian processes had extended over this drowned extension of the peneplain and on the coastal lowlands when the sea level was lowered.

Bathymetric isobars of continental shelf shows the presence of valleys and salients. Most probably those geomorphic features had been formed during the Pleistocene period by fluvial processes about 18,000 yr B.P. subsequently it was submerged. The formation of pre-Holocene sedimentary and geomorphic features which can be seen presently may be due to the above processes.

The sequential development of coral reefs and beachrock (sandstone reefs) in the nearshore zone reveal that there has been climatic stabilization during interstadial phases. Based on C14 dating of emerged shell deposits, emerged and buried coral (position of growth), collected from the southwestern and southern coasts in Sri Lanka confirm that three episodes of high sea levels during the Holocene period.