

Settlement of Dvaravati cities beyond the Late Holocene marine regression in lower central plain of Thailand

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The fertile lower central plain of Thailand has been occupied by many generations of people with different cultures from Dvaravati kingdom (6th to 13th century), Ayutthaya kingdom (14th to 18th century), Thonburi kingdom (18th century), to Rattanakosin kingdom (18th to present). The Dvaravati kingdom is believed to have developed from prehistoric times, adopting prehistoric art, which was later influenced by Indian styles, and also adopting and improving moths and embankments for defence around their cities. These cities were circular and surrounded by two moths and one earthen embankment. Dvaravati is regarded as the oldest kingdom of the region evidenced by some ruined ancient cities left as a unique architecture. These ancient cities are located and arranged in a curved line from Ratchaburi and Nakhon Pathom to the west, Suphan Buri, Lop Buri, and Saraburi to the north, and Nakhon Nayok, Prachin Buri, and Chachoengsao to the east. These cities have been regarded as seaside cities by some researchers.

Geological evidence suggests that there was a marine invasion into the lower central plain with sea level about four meters above present mean sea level at about 6,000 years B.P. forming a large bay. This 6,000 year old shoreline had been assumed by some researchers to be the shoreline where the Dvaravati cities were situated inferring that the Dvaravati cities were seaside towns. This is unlikely as the ages of the shoreline and cities are very different, the shoreline is 6,000 years old while the cities are less than 1,500 years old.

There is no doubt that the remnant shoreline is much older than the Dvaravati cities. From 6,000 years B.P., the shoreline gradually regressed until about 4,000 years later it stood at a level much lower than four meters, leaving a strip of wetland mainly occupied by sedges, especially *Typha angustifolia*, between the two different aged shorelines. Then at about 1,500 years B.P. Dvaravati people began to build their cities beyond the 6,000 year old shoreline. The reason why Dvaravati people did not build their cities along the younger shoreline was because the land there was too soft, wet and unsuitable for settling their communities due to the marine and flooded sediments with swamps trapped between the two shorelines. Our research is still ongoing collecting information to describe geomorphologic landforms, natural vegetation, plantations made by people, and to explain the paleophytogeographic setting and way of life of the Dvaravati people on the basis of sedimentology, palynology, chronology, and archaeology.

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