GEOLOGY

SPACING OF BEACH CUSPS NEAR PANDJANG HARBOUR, LAMPUNG

by

H.D. Tjia

Department of Geology.

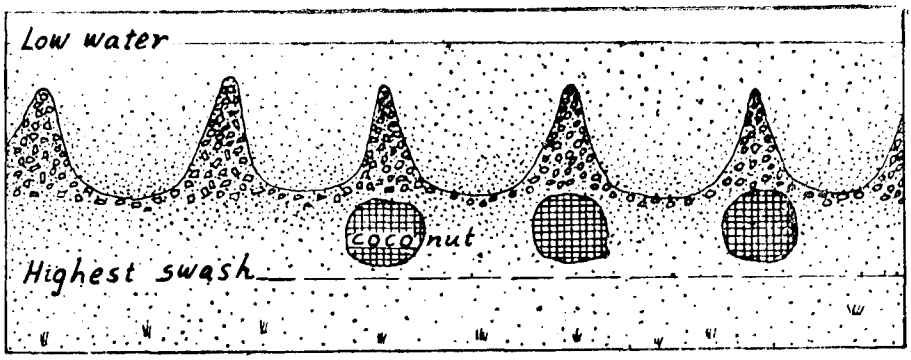
ICHTISAR.

Tepilaut disebelah timur pelabuhan Pandjang, Lampung, Sumatera terdiri dari pasir sepandjang 100 meter dan jang miring lemah kearah laut. Disana terdapat sedjumlah "beach cusps" dengan apex jang berukuran 1,5 m serta jang masing-masing terletak pada djarak 2,5 m. "Beach cusps" tersebut terdapat dimuka pohon-pohon njiur, sehingga penulis mendapat kesan bahwa disana "beach cusps" terutama terbentuk sebagai bajangan kerikil atau „pebble-shadows" dimuka pohon-pohon akibat arus jang kembali kelaut ; mungkin terpengaruh pula oleh kekuatan ombak dan kemiringan lereng tepilaut.

Immediately east of Pandjang harbour, Lampung, Sumatra, there is a 100-meter sandy stretch of shallow and gently shelvir shore; its sandy and pebbly beach slope inclines at about 5 degrees. Along the larger part of this beach occur moderatesized beach cusps which possess bases near and below the highwater level with apices pointing seaward for about 1.5 meter and located 2.5 meter apart (figure). This observation was made on the morning of August 3, 1966, during receding tide. The cusps consist of smaller-sized pebbles (averaging slightly less than 10 cm in diameter or length) of rounded pumice fragments, shells, and shell fragments. Biocalcareous, medium-grained sand composes the remainder of the beach. In the horns the pebbles form piles 25 cm higher than the sandy surface of the intervening embayments. It is interesting to note that where coconut trees stand in the vicinity of the highwater mark, well-developed beach cusps occur on the seaward side. The evidence very strongly suggests that the regular spacing of coconut trees is at least one of the factors responsible for the regular distribution of the cusps. Other factors may have been wave strength and inclination of the beach slope.

The beach cusps are thought to have been formed in the following way. The speed of the highwater swash returning seaward is reduced where there are trees, while between the trees the backwash becomes concentrated in more narrow zones and thus causes erosion and forms embayments. Proof for the extent of the highwater beyond the coconut trees consists of the washed-out appearance of their roots and the limit of the concentrations of shells. In other words the cusps on the seaward sides of the trees are actually

"pebbleshadows". Most workers, like Kuenen (1948) and Shepard (1963, p. 201), report that the spacing of beach cusps is cleary related to the height of the producing waves. In our case it appears that after these particular pebbleshadows have been formed, they interfered with the pattern of breaking waves in such a way as to have other beach cusps formed at almost duplicate distances.



Schematic plan of the distribution of beach cusps near Pandjang harbour, Lampung Bay.

REFERENCES.

Kuenen, Ph.H., 1948, The formation of beach cusps: Jour. Geol. v.56, no. 1, 34-40.

Shepard, F.P., 1963, Submarine geology: New York, Harper & Row Publishers, 2nd ed., 201-202.