

'The Hawaiian Canoe'

By Tommy Holmes

II. VOYAGING

An ingenious organic concoction of wood, sap, fiber and leaves perfected by centuries of life and death interaction with an unforgiving sea, the Polynesian voyaging canoe stands as supreme testimony to the Polynesians' resourcefulness and spirit.

With a few exceptions, the voyaging craft were double canoes; most were probably "v" or "semi-v" in cross section to prevent excessive lateral drift. These voyaging canoes were typically not hollowed out from single logs; rather they were built up with strakes or planks on a one- or several-piece keel. The carefully adzed and fitted strakes were sewn to the keel and each other with coconut sennit and then caulked, usually with molten breadfruit sap congealed in water.

Exactly what an ancient voyaging canoe to Hawai'i looked like will never be known. However, borrowing certain

design features common to different voyaging canoes of Polynesia, and avoiding localized adaptations and known foreign influences, it could be that such a vessel looked something like the *Hōkūle'a*, the sixty-foot, double-hulled canoe built for voyaging in 1975 by the Polynesian Voyaging Society. Some scholars, however, maintain that the hulls of an ancient voyaging canoe would have been deeper than those of the *Hōkūle'a*.

Double-hulled voyaging canoes were surely more narrowly spaced than modern catamarans. This was due primarily to the limited ability of the wooden cross pieces and coconut fiber lashing to withstand the phenomenal stress the ocean imposes on a widetrack double-hull craft. Probably as a result of this narrow hull spacing, the sail area was kept relatively small (three hundred square feet on *Hōkūle'a*) as a safety factor to prevent overturning. Furthermore, the strength limitations of the *hala* leaf material made large sails more likely to rip. The sail design of the *Hōkūle'a*, a Polynesian "sprit," seems to have been fairly wide-spread throughout prehistoric Polynesia and is probably representative of the type of sail that an early voyaging canoe might have used coming to Hawai'i.

Considered performance accurate, though constructed with modern materials, the *Hōkūle'a* is able to make a 70- to 75-degree course to windward. While not an outstanding performance by today's standards it is very likely comparable to an ancient voyaging canoe, or for that matter to an early European ship. The canoe in moderate to strong tradewinds is able to average 3 to 5 knots on a course into the wind and 6 to 10 knots on a beam or down-wind leg. An average day's run for the *Hōkūle'a* is about one hundred miles. A run of 130 miles, though, for a twenty-four-hour period is not unusual. Some days have been as high as 150 miles or more.

Conversely, Western-designed vessels, such as those the Europeans used to rediscover the Pacific, were generally a good deal slower than a typical Polynesian voyaging canoe under comparable conditions.

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