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RESTORING TRADITIONAL SEAFARING AND NAVIGATION IN GUAM

by

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Chamorro sailing vessels impressed early visitors to the Mariana Islands more than any other aspect of the Chamorro culture. Hundreds of proas came out to greet and trade with the foreign explorers. These famous European navigators consistently described the Chamorro proa as the best canoe of its type in the world. They called it the “flying proa.” The ancient Chamorros had several names for their proas. The largest was the *sakman* and the slightly smaller proa a *lelek*. Medium-sized proas were *dudings*. The smallest proa with a sail was the *duduli*. Any canoe ready to carry a sail became *ladjak* (sail). The same-sized craft without a sail was a *panga*. An even smaller reef canoe was a *galaide*.

The ancient Chamorro outrigger canoe had a very sophisticated design, and the ancient Chamorros had a successful navigation system, too. Laura Thompson, an anthropologist who studied Chamorro culture, claimed the outrigger canoe best expressed the spirit and creativity of the Chamorros. She felt the “flying proa” demonstrated that the ancient Chamorros were not just gatherers, farmers, and tool-

makers, but also were spontaneous, gleeful, and playful.

The typical outrigger canoe was 26 to 28 feet long and less than two feet wide. The largest proa recorded in the early historical record was 42 feet in length. The long, deep, and relatively narrow hull served as a keel. The average size proa had a crew of five to seven men or women. The smaller canoe hulls were made out of the trunk of a breadfruit tree. *Dokdok* or seeded breadfruit trees were preferred to the *lemmai* or seedless breadfruit trees. Nevertheless, in the details about one large proa the craftsmen constructed the entire hull out of *da'ok* (*Calophyllum inophyllum*). In the Carolines, this wood is sometimes used for the keel, when the proa must be frequently pulled over the rocky reef onto a sandy beach. *Da'ok* is also used for the struts between the outrigger float and the outrigger arms. Carolinians also use *da'ok* for the end seats of the canoe, because this wood has the strength to withstand the stress on the lines attached to them. Usually the Chamorros started with a single dugout tree trunk and built up the sides with planks. They split tree trunks and adzed them into

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smooth planks. Most proas were three to five feet deep. The thickness of the hull was about one inch at the gunwales and up to two inches thick at the keel. *Da'ok* hulls were no more than a finger width thick because this wood is heavier and stronger than the breadfruit wood. The craftsmen lashed the planks together with coconut fiber rope and caulked these sewn seams. They used a coarse braid of coconut fiber rope covered with putty made of powdered quicklime and coconut oil or heated breadfruit sap for the caulking. This sap is a natural vegetable gum.

Master canoe builders used two dugout breadfruit tree trunks sewn together end to end for vessels more than 18 feet in length. The sail yard and boom were probably made of *págu* (*Hibiscus tiliaceus*) or perhaps bamboo. The mast and outrigger arms were likely made of any one of several Marianas hardwoods. The mast had to be strong, and as light as practical. Carolinians frequently carve masts from drift-logs and use the heavier *wei* wood for the outrigger arms. The ancient Chamorros shaped the outrigger float out of breadfruit wood and attached it to the outrigger arms by wood rods. These struts extended from the float to the outrigger arms in a V-shape. It seems likely that the Chamorros used *da'ok* for these rods. The float was about one-third to one-half the length of the canoe. The canoe builder secured the outrigger arms through both sides of the canoe. The mast in the illustration would lean forward when under sail. Also, there was a deck built on the outrigger arms. It was likely made of *paipai* (*Guamia mariannae*).

Although the ends of the hull were the same, the sides of the hull were different. The outrigger side of the hull was more rounded. The lee side opposite the outrigger was nearly flat to offer resistance to leeward drift. This asymmetrical hull counteracted the drag of the outrigger float.

The ends of the proa curved upward. Thomas Cavendish, who visited the Marianas Islands in 1588, reported that there were figureheads on the ends of the proas. The wooden busts had hair tied in one or two knots at the crown and resembled the Chamorros.

Nevertheless, early drawings of Chamorro canoes depict undecorated ends of the canoes.

The proas were either red, black, or white. They made the white paint from a mixture of coconut oil and quicklime. The red paint got the color from red clay. Soot and charcoal from burnt coconut husks provided pigment for the black paint. Paint could also be made with *lemmai* sap. Both of these types of paint were very shiny and had a varnished look. They used a pounded section of a coconut husk for a paintbrush.

The outrigger and its float kept the proa from turning over easily and served as a weight to counterbalance the canoe against the force of the wind on the sails. The ancient Chamorros suspended the float from the ends of the outrigger arms. When sailing, the outrigger arms and attached float must remain on the windward side of the canoe. They built a platform for passengers and cargo over the outrigger frame. It is not clear in the historical record if the ancient Chamorros had a lee platform like that of the Carolinian canoes still used today. Nevertheless, since they had contact with the Carolines and the lee platform is so useful, it seems likely that the Chamorros had them, too.

The "flying proa" has a single lateen (triangular) sail. The Chamorro proas, so impressed Magellan, that he named Guam and the nearby islands, *Islas de los Latinas* (The Islands of the Lateen Sails). Unfortunately, he later changed the name to *Islas de los Ladrones* (The Islands of Thieves) because a group of Chamorros took one of his small boats.

The lateen sail stretched between an upper yard and a lower boom. The uppermost yard fitted into a socket at the bow. The mast served to hold the yard and sail aloft. The mast leaned toward the bow. The bottom end of the mast fitted into a socket at the middle of the length of the canoe just a little off center, favoring the outrigger side of the hull. The mast did not go to the bottom of the hull. It rested over the outrigger side of the hull. Chamorros called the rigging lines, *talin gapu*.

Women wove the pandanus sails called *guajak ladjak*. During rainy weather, the sailors lowered and covered the sail. If the sail became

wet it was too heavy to use and would tear apart. A triangular-shaped sail allows a boat to sail close to the wind. This means that the sailor will have to tack less when sailing to a windward destination. The narrow hull, more rounded to the windward, and nearly flat to the lee side, also helped the ancient Chamorros sail fast and close to the wind without drifting off course.

Chamorros steered their small sailing canoes with a hand held paddle. Carolinians use *Neisosperma oppositifolia* wood to make paddles. In Chamorro this wood is called *fagot*. It seems likely that the ancient Chamorros used this hard, light wood, too. Along the reef they sometimes poled the canoe along. They steered larger proas with a staff attached to the upper end of a long board. This served as a rudder. Care had to be taken to keep the outrigger toward the wind. The pressure of the wind on the sail tended to raise the float out of the water. If the outrigger was to leeward, the float would be driven under the water. This caused the canoe to capsize. The sails, when trimmed perfectly, allowed the outrigger float to skim along the surface of the ocean. If the wind on the sails raised the float out of the water, the navigator holding the sail by a sheet, let the wind spill out of the sail, or if maximum speed was desired, the crew moved out along the outrigger arms to counteract the force of the wind.

When sailing to windward, a sailor had to be careful. The outrigger must be kept to windward in order to tack, the sail had to be moved to the other end of the canoe. So what had just been the bow became the stern with each tack. This shunting required helmsman to be ready to move to the “new” stern. The helmsmen, with the help of two or three others, moved the sail from end to end. A fifth man bailed water out of the hull. An experienced sailor held the sheet to the sail and constantly trimmed the sails. In very strong winds the sail could be reefed by brailing up the boom. This reduced the area of the sail exposed to the force of the wind.

Although families went sailing for pleasure, there is nothing in the historical record to indicate that women regularly sailed proas. Fathers began to teach their sons to sail at the age of

four or five. Boys, 14 years old, knew how to sail. By the age of 16 or 18, young men set out to sea alone. In the Carolines, navigators without male offspring, sometimes taught their daughters to sail and navigate so that when they have sons, this knowledge can be passed on to the navigator’s grandsons. Some early explorers described the ancient Chamorros as the best seamen yet discovered.

The people, we have come to call Chamorros, were among the first to settle the open-ocean islands of Micronesia. Radio-carbon dating and analysis of core soil samples suggest that they settled the Mariana Islands prior to 2000 BC. This precedes the earliest dates for settlement in Polynesia, too. The earliest settlement in Polynesia is generally thought to be in Tonga about 1100 BC.

The “flying proas” were very fast. One account estimated their speed at an unbelievable 20 miles per hour. A four-day voyage to Manila is on record where the sailors averaged an incredible 12.5 knots.



Figure 1. Model of an Ancient Chamorro outrigger sailing canoe based on a drawing from the George Anson Expedition in the Marianas Islands in 1742 (Photograph courtesy of the Richard Flores Taitano Micronesian Area Research Center)

The ancient Chamorros probably used something similar to the “flying proa” of the historical record as a means to colonize the Mariana Islands. Besides adventuresome missions of discovery and subsequent settlement, the proas were used for trading, deep-sea fishing, visiting, and war. The ancient Chamorros

also used them for fun. They raced their canoes and used them for family outings.

Proas were not docked in the water. Even though the canoes were painted, the water would eventually rot them. Nor could the canoes be left in the sun. The sun would crack the wood and dry out the vegetable gum caulking. When the canoes were not in use, they were beached and covered with coconut leaves, or placed in a shed, or in large boathouses. Some canoes were stored under the raised floor of *latte* houses. They even suspended some canoes under the elevated floor of their canoe houses.

NAVIGATION

Sailing was the a dangerous activity for early humans. With all their skill in building canoes and developing a trustworthy navigation system, they could not always be sure of success. Uncontrollable forces, like wind, bad weather, currents, and hidden reefs could upset their plans. The ancient Chamorros believed that humans could increase their control over these natural elements and improve their good fortune by trusting their ancestral spirits and following spiritual rituals. Many of these rituals have been lost. Other Micronesians' sailing customs are still practiced. They observe strict measures to insure success. As the canoe is built, there are special ceremonies to satisfy supernatural forces. Besides careful observation of the signs that predict weather, there are also religious ceremonies prior to a voyage. Carolinians trust the knowledge of their ancestors and this gives them the courage to voyage long distances in the open-ocean.

Navigators from Polowat and Satawal in the Central Carolines have best kept the knowledge of traditional seafaring alive. Today, through the graciousness of Manny Sikau a master navigator from Polowat Atoll, in the Federated States of Micronesia's Chuuk State, some men and women in Guam are learning traditional navigation, proa building, and canoe house construction. He is teaching the *Fanurb* School of navigation to the University of Guam's Traditional Seafaring Society members. Dr. Vicente M. Diaz, and Alberto Lamorena V began this process in the mid-1990s with the help of

Soste Emwalu, from Polowat. Chamorro pioneers, Rob Limtiaco and Gary Guerrero, studied navigation and canoe building in Polowat.

Under the tutelage of Manny Sikau, young men and women in Guam are memorizing the stars that make up a star compass. They are learning the location of the islands in the Western Pacific, and the important sea marks such as banks, whirlpools, and sea life that are associated with each of them. With the help of Pam Eastlick at the University of Guam's Planetarium, Manny Sikau teaches the directional stars, and which islands they indicate from various locations throughout a voyage. He teaches novices that in the traditional navigation system a voyage is divided into segments called *etak*. Conceptually, the navigator imagines that the islands are moving and not the proa. For each segment of the voyage a reference island falls under one point on the star compass to the next. The angles that various ocean swells hit the canoe are observed when the proa is on a proper star compass heading. These angles are maintained to keep the proa on course, during the daylight hours. The reflection and refraction of these swells off-islands, flotsam, the cloud formations above islands, and the paths of land-roosting birds help expand the target for the destination island.

With the help of Manny Sikau and the people of Polowat, the Traditional Seafaring Society of the University of Guam purchased the QUEST, a 22 foot Carolinian outrigger sailing canoe. Two members of the group along with nine skilled sailors and navigators from Polowat sailed to Guam in May of 2001 on the QUEST and a 30 foot proa, the HALEMETAW. This 505 mile leg of the voyage took seven days with an 18 hour layover on the uninhabited island of Pilelot. Other members of the Traditional Seafaring Society then sailed from Guam to Saipan in June. The QUEST returned to Guam and the HALEMETAW returned to Polowat from Saipan. In 2002, with modern sailing craft, the Traditional Seafaring Society voyaged to Pagan in the Northern Marianas. In December of 2002, typhoon Pongsona destroyed the Traditional Seafaring Society's canoe house at the Paseo in Guam

and seriously damaged the QUEST. Members of the Traditional Seafaring Society spent most of 2003 repairing typhoon damage, so they could attend the 9th Annual Festival of the Pacific in July of 2004. They had hoped to build a proa in the Marianas and sail it to Palau, but because of the typhoon, they were not able to complete that project. Hopefully, a Chamorro “flying proa,” either built in Guam or by Noel Quitugua in Saipan, will find its way to the 10th Annual Festival of the Pacific in 2008. Another possibility is to carve a Chamorro style canoe in American Samoa, the site of the next Festival of the Pacific. The Traditional Seafaring Society rebuilt their canoe house (*Sáyan Tasi Fache Mwan* – Vessel of the Sea Meeting House of the Great Spirits) in the Spring of 2006. It is located at the Paseo de Susanna, along the Hagatna Boat Basin channel. We are also building a small Chamorro paddling canoe in 2006.

CONCLUSION

It is interesting to note how different ancient Chamorro and modern watercraft are. Today people try to overcome the forces of nature by building strong, sturdy boats. Sometimes the forces of nature are too strong, and modern boats are broken beyond repair. The ancient Chamorros designed their proa in harmony with nature. They lashed it together. It could give instead of breaking. If it did break, it would do so at the lashed points, so it could be repaired, even at sea. Modern man tends to view nature as an enemy that must be conquered. The ancient Chamorros saw that they were part of nature and chose to live in harmony with nature. Modern ecologists are beginning to appreciate this fundamental principle.

The ancient Chamorros had a navigation system that allowed them to sail out of the sight of land and return. Some men were named *Faulos-gna*, which translates as “fortunate navigator;” others were named *Agad-gna* (deft in the art of steering a canoe). The ancient Chamorros used the wind, waves, and stars to navigate. Birds, clouds, swells, and even phosphorescence in the water could lead them to a safe landfall. Not a hundred years but thousands of years before Leif Ericson (AD 1000)

or Columbus (AD 1492) sailed the Atlantic, the Chamorros and other Pacific peoples were sailing in the open-ocean waters of the Pacific. In 1742, George Anson, a British commander, recognized just what an extraordinary invention the “flying proa” was. He admitted that any nation, no matter how skillful and intelligent, would be proud of such a technological accomplishment. These proas sailed better and faster than any in the world at that time. They passed the other ships like a bird flying by. Antonio Pigafetta, Magellan’s chronicler and an eyewitness, said that in 1521 the red, white, and black Chamorro proas jumped from wave to wave as if they were dolphins. With the expertise of Master Navigator, Manny Sikau from Polowat in Chuuk State, Federated States of Micronesia, the effort, sacrifice, and dedication of his seafaring students, and with the indomitable Micronesian spirit, we are reviving this proud tradition in Guam.

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Lawrence J. Cunningham, EdD. is a Research Associate at the Richard Flores Taitano Micronesian Area Research Center, University of Guam and faculty advisor for the Traditional Seafaring Society. He is the author of *Ancient Chamorro Society*, 1992; and co-author of *A History of Guam*, 2001, *Guam: A Natural History*, 2001, and *Micronesian Texts for the K-12 Reader: A Selection Guide*, 2002. In 2001, he voyaged in a traditional outrigger canoe from Polowat to Guam.

Ward Kranz, a key member of the University of Guam Traditional Seafaring Society, teaches Japanese at George Washington High School, in Guam, builds outrigger canoes, and is a student of Micronesian navigation and history. In 2001 he voyaged in a traditional outrigger sailing canoe from Saipan to Guam.

The grandson of Ikuliman, Manny Sikau, is an ordained master navigator from Polowat, FSM. He is co-author of “The Persistence of Central Carolinian Navigation. *ISLA: A Journal of Micronesian Studies*, 2(2, Dry Season 1994). He has taught classes at the University of Guam in traditional navigation and canoe house building, and is the master navigator of the university’s Traditional Seafaring Society. In 1972, at the age of 13, he voyaged in a traditional outrigger canoe from Polowat to Guam. In 2001, he repeated this trip, as the captain and navigator. Currently, he is directing the building of a Chamorro style paddling canoe.

