

Kau Moala the Tongan Navigator

from Captain Brett Hilder

THE whole question of Polynesian navigation is highly controversial. Dr. David Lewis's paper 'Ara Moana: Stars of the Sea Road', in the July issue of this *Journal*, prompts me relate the story of Kau Moala in somewhat greater detail and to assess his achievements and motives, largely from his own account of his voyages.

Kau Moala was a Tongan Chief renowned for his epic feat of navigation which probably took place in the years just before 1800. The details come to us from a young English castaway named William Mariner, who spent several years in Tonga and knew Kau Moala personally. When Mariner got back to England his experiences were compiled by J. Martin and published by John Murray, London, in 1817. The work is generally known as 'Mariner's Tonga', the full title being *An Account of the Natives of the Tonga Islands*. The story of Kau Moala's famous Odyssey is given on pages 307–322 of volume I of the second edition, published in 1818. Mariner gives the Chief's name as Cow Mooaly.

The story starts with Kau Moala going from Tonga to Fiji to engage in some warlike adventures to enhance his prestige, as many another Tongan Chief had done before, and as several did later. After two years of fun and mischief he decided to return home, and set out in his large double canoe.

The only sight he got of Tonga was the island of Vavau, in the extreme north-west of the group, but he was unable to reach it owing to adverse winds, which would have been the south-east trade wind. This seems to dispose of the belief that Polynesian canoes could sail to windward, especially against the Trade, which adds its weight to the general oceanic current. Being unable to reach any Tongan island, Kau steered for the Samoan Group, about 300 miles to the north. He failed to see any of the islands, and was blown away to the west, fetching up at Futuna, about 300 miles from Samoa. The natives were unfriendly, and broke up his canoe. After a year he was able to repair the canoe, and set off again to the west, and made a landfall at Rotuma, a very isolated island 238 miles from Futuna. From Rotuma he set off for Fiji, taking some Rotumans with him, who may have given him the course to steer. On this trip he was blown off course by the winds, but managed to make some part of the extensive Fijian Group. Here he rejoined the local wars for a time, and ultimately sailed back to Tonga after an absence of many years.

Kau Moala has since been credited with an all-embracing knowledge of the areas he visited, including the courses to steer, the set and drift of the currents, the times of the best winds for each voyage, and the ability to tell his latitude at least from the stars in the zenith. Dr. Lewis says that such navigational feats are more comprehensible on Gatty's 'home-centre reference system'. This requires not only a mental record of the courses and distances to each island from Tonga, which is quite possible, but also the solution of an oblique angled triangle to calculate the correct course from one distant island to another. Kau Moala did not claim to have steered precise courses to Futuna and again to Rotuma. Having failed to reach Vavau against the wind, and having failed to find Samoa, I believe that the motive for his westward courses to Futuna and Rotuma was to get back to Fiji. As the Futunans were unable to direct him to Fiji, as they had no

knowledge of it, he pushed off westwards again and chanced upon Rotuma, where the natives were more useful.

In his epic voyage the greatest feat of navigation attributed to him was setting a deliberate course for Futuna from an unknown position to leeward of Samoa. Had he not sighted Futuna he would have faced a further run of 900 miles on the same course before he got to the next islands, the New Hebrides. He had already covered over a thousand miles since he left Fiji, so I can't believe that he intentionally made for Rotuma.

The Odyssey of Kau Moala is cited as proof of the navigational prowess of the Polynesians, enabling them to undertake planned migrations to unknown lands. The question of deliberate migrations versus the theory of accidental voyages hinges upon two subjects: first the motive and intention, and secondly the type of navigation available at the time. When a Polynesian sets out with his family and steers east to the new land promised by Rangi, his voyage and his navigation are deliberate, but I maintain that his eventual landfall, if any, is accidental in terms of conscious navigation.

Both from Polynesian legends and historical observations we know quite a few of the motives underlying long canoe voyages. One of these was exile, and we know that some exiles were given a course to steer, even if it led to no known island. This would at least give the exiles some comfort and some confidence to start with.

I am sure that confidence, or rather over-confidence, formed part of the motivation in most cases. For every living Polynesian could look back at his ancestors and rightly claim them all as successful navigators. For all of them had obviously found an island at the end of each voyage. The many who didn't succeed, didn't become ancestors; nor did these failures get a mention in the oral legends of the race, except the few who took off leaving a family behind.

Part of the confidence shown by Polynesians was based on any sailing directions they could obtain, and part on their ability to detect the nearness of land, and its direction from them. This ability is quoted as a help to a final landfall and Dr. Lewis gives them a radius of 30 miles to make things easy.

When a migration was being planned, it generally included a whole tribe, Chiefs and priests and all, who had been defeated in war, or otherwise disgraced into departure, but given the mercy of time to prepare for the voyage. In some of the traditions we hear of the party forcefully abducting a navigator when they had none of their own. The Polynesians also had the support of their gods, especially if they were defeated by the adherents of a newer god, like Koro.

Apart from exile and forced migration, many smaller parties, mainly of men, set forth on long trips from other motives. These included trade, fishing and food-gathering from uninhabited islands, the prestige of foreign travel, war on other islands to exact tribute, enforced voyages to other islands when out fishing and unable to regain their home island, and perhaps pure exploration.

All these motives are known to us from the legends. But the same legends are very silent on the precise methods of navigation so freely attributed to them because they did settle on so many distant islands, and therefore 'must have had accurate methods of navigation of which we have no conception'.

The advocates of this philosophy fail to realize that the Polynesians had no conception of the world beyond their own islands, nor of the zenith as such, no angular measure for latitude or bearings, no units of time or distance except as a day's sailing, and no instruments of measurement.

Dr. Lewis quotes me as saying that determining the closeness of a star to the zenith is difficult. From the deck of a Polynesian canoe in the open sea, or aboard his worthy transatlantic yacht in the same environment, I would say that it is impossible. Dr. Lewis should try it out himself instead of quoting Gatty and Frankel. The latter, in a mathematical paper in *Navigation* (U.S.A.) 9, 35, claims that the big migratory canoes could be steered by the stars to an accuracy of one single degree, and his incredible Polynesians could also judge the zenith distance of a star to the same accuracy. The zenith in the Gilbert Islands, as mentioned by Dr. Lewis, is the star Rigel, although that star is eight degrees south, and the same star is also regarded as the zenith in New Zealand, although Rigel is about 30 degrees north of the Maoris. The declination of Rigel does not approximate the latitude of any of the more important islands or homelands of the Polynesians, and I don't think that there is any evidence at all in their legends that the zenith was ever used. All the sound evidence we have is that stars were used near the horizon for steering, and I believe that the Polynesians had no other use for the stars in navigation.

Most writers on the subject have suggested possible ways in which the Polynesians could have measured the latitude, and used it, as we learnt to do from the Arabs, by using the Pole Star. These suggestions are then seized upon first as 'probable methods' and later as 'precise methods' used by Polynesians. Many writers on the subject make the mistake of including the Micronesians in with the Polynesians, but they are two separate races, and the Micronesians, who penetrated into the Western Pacific as far as the Gilberts and no farther, arrived about a thousand years after the islands had been settled, and brought a more sophisticated culture with them from Asia. They had a primitive form of map, made of sticks and strings and sea shells, their canoes were of highly refined design, and the area in which they navigated had several advantages over the broad area of the Pacific in which the Polynesians lived. The Gilberts, after being occupied by Micronesians, who appear to be of Mongolian descent, were later believed to be reconquered by Tonga-fiti people from Samoa. But the fact remains that the Gilbertese are Micronesian, and their navigational lore should not be automatically thrown in to fill the comparative void of Polynesian knowledge and practice.

One of our most difficult problems is the question of how New Zealand came to be settled by the Maoris. The legends of each tribe always mention the people whom they found living there. This showed that various settlements were made at different periods, and even the earliest surviving inhabitants were a race of Polynesians, known as the Moriori. These settlements may have been of small numbers, who could have multiplied sufficiently to produce the modern numbers. Apart from the classical migrations of the leading tribes, the legends also mention occasional canoes arriving on the East Coast whose crews were promptly killed by the Maoris. There have been no reports of castaway canoes arriving since European settlement, so we have no evidence as to the origins of the castaways. I find it difficult to see how a canoe could drift accidentally to New Zealand, owing to the prevailing winds and currents, but of course there are periods of variable winds which must account for the occasional cases.

Dr. Lewis says that no lost canoe would go so far from the tropics as the latitudes of New Zealand, and therefore we are supposed to believe that the large islands were settled by a deliberate fleet of migrants, using navigational aids known to them but to no one else, as well as having a useful knowledge of the oceanic meteorological conditions prevailing. But surely the islands would have

to be discovered by accident in the first place, and such a voyage could happen again and again through the centuries. Even if a navigator got back eventually to Tahiti, I doubt that he would have any reliable idea of the course to steer for New Zealand, or have any methods of fixing its position by the stars.

Dr. Lewis makes navigation appear very easy in his diagrams. In truth the vastness of the ocean between the island groups is overwhelming, and many of the islands in the clusters like the Gilberts, the Ellice, the Phoenix and the Line Islands are so small and scattered that it is possible to sail through them without sighting any, even in daylight. Many long drift voyages have started from short voyages of 30 miles between neighbouring islands. In his last paragraph Dr. Lewis says 'they had suitable ships and adequate navigational methods'. Most of these suggested or assumed methods have been invented by Europeans, all too late to be of any use to early Polynesian navigators, to whom we must give all the more credit for sheer courage, determination and endurance.

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