KIA KIA – Flying Proa

by Chris Hughes

Chris Hughes Flying Proa Kia Kia

Designed and built by: C. Hughes, "Windover," Grange Crescent, Crawley Down, Sussex.

L.O.A.	20 ft	Sail Area	105 ft^2
L.W.L.	18 ft	Weight	170 lbf
Beam OA.	11 ft		

INTRODUCTION

As a result of spending several years in the Central Pacific, I had had the opportunity of seeing and sailing the single-outrigger canoes still very much in use in the Gilbert Islands. On returning to this country the urge to build a similar type of craft became too strong, and hence *KIA KIA* was evolved. The idea was to retain the basic overall configuration, my reasoning being that this layout had emerged as a result of hundreds

of years of development, but to use modern glues, plys and metal fittings in place of the system of planking and coconut-fibre lashings used in the Islands.

Basically, a main-hull length of 20 ft was considered to be the minimum size for this type of craft. Other factors affecting the design included a sixteen foot long garage and the necessity for the utmost in simplicity in construction, biased by a certain amount of experience in the repairs of wooden gliders and a distinct lack of funds.

MAIN HULL

Most Micronesian canoe hulls possess a certain amount of lengthwise curvature to offset the drag of the outrigger. As I had little idea as to how much was required, and as a result of other factors, the hull was built in three separate water-tight sections connected together by stainless steel fittings so that the ends could be fixed at any angle required to give the boat the correct trim. The basic shape is a flat sided deep V section of about 30 degrees, constructed from three main longerons of 1 inch square spruce planked with inch thick ply with light formers spaced about 1 ft 3 in apart. The deep V avoids the complication of a centre-board and gives a very strong hull for beaching. The central part of the hull is 12 ft long with a beam of 16 in, giving a beam at the water-line of about 10 in. The only complication to the three triangular sealed boxes was the two 9 in deep footwells set near the centre of the main hull to give a more comfortable sitting position for the crew.

FLOAT

This was in the form of an 8 ft long triangular sealed box made from 1 in sq spruce and 4 mm ply with built-in laminated curved pieces to connect on to the straight outrigger booms.

BOOMS

Each was made from two 1 in sq pieces planked top and bottom with 4 mm ply. An additional ¾ in thick stiffener had to be added later. Each boom was connected to the

main hull by two 3/8 in dia brass studs, and stainless-steel plates were used to connect the booms to the float.

SPARS

All were made from Douglas fir cut to about 1 in dia.

SAIL

This was home-sewn from 5½ oz cotton giving about 105 ft^2 area.

RIG

The conventional pacific lateen rig was retained, reversing being carried out by moving the foot of the sail from end to end in the normal manner, this being done originally by crawling from end to end to perform the manoeuvre. However, the latest arrangement consists of a continuous rope attached to the foot of the luff-pole and passing through a pulley at each end of the boat. the foot of the luff-pole being allowed to rub along the lee side of the main hull. The pole is pulled up against a stop at each end and the rope held in position by a jamming-cleat. Two normally slack stays prevent the mast from leaning too far each way, and there are two sets of main-sheets, one passing round the front of the luff-pole while the other is in use. The end-changing procedure can be carried out single-handed without having to move from the mid-ships position.

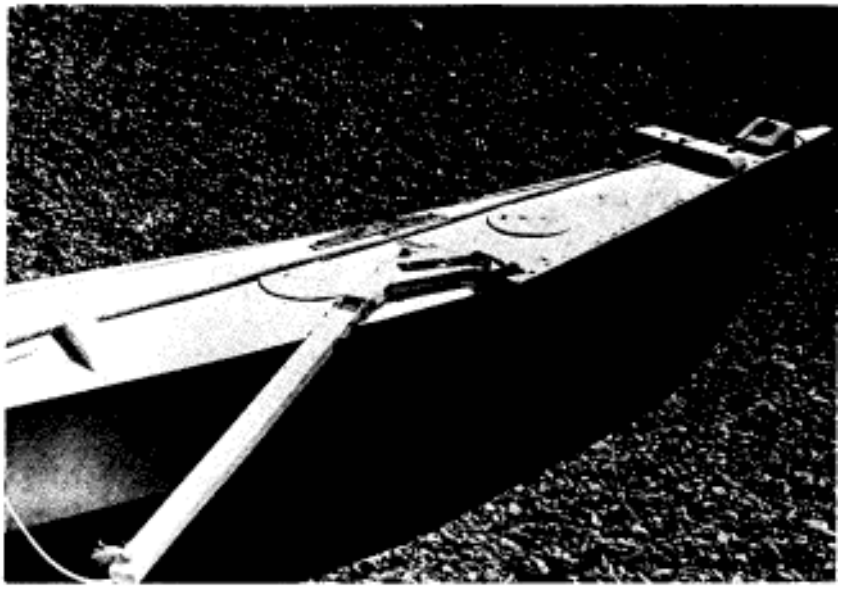
STEERING

Initially steering was achieved in the traditional way with a trailing paddle which had to be moved to the opposite end when reversing. Later it was found that the three-part main hull construction could be modified to provide a system of steering by moving the trailing end. As the boat normally tends to swing towards the outrigger, the ends were hinged down one side of the hull allowing about 30 degrees of movement away from the outrigger. A tiller system has been arranged to allow locking of the front end while the rear is used for steering. For normal trim, about 10 degrees of rudder is required. further adjustment being possible by moving the crew fore or aft. So far, this system has proved highly satisfactory.

HANDLING

Once it has been realised that the boat must neither tack nor jibe, there is little difficulty involved with the handling. With the float held firmly in the water the boat is exceptionally stable, and when changing ends, **it seems to possess a stability which holds it cross-wind while the operation is being performed**. *[My emphasis - SF]* It is only when the outrigger is being flown that difficulties arise because the boat tends to sail in a straight line. As I have found difficulty in shifting my own weight with sufficient rapidity, it is necessary to control the position of the float almost entirely by playing the sheet. In general. the longer the outrigger booms, the easier it is to control the float position. Initially the overall beam of *KIA KIA* was 11 ft, but due to a slight

mishap. the boat is now being sailed with 1½ ft less beam, and although the float tends to be more twitchy, the sailing qualities seem unimpaired. To keep the overall weight to a minimum, the float was made as light as possible and therefore it is necessary for the crew always to bear down on it except in very light conditions. When sailing single-handed, I find that it is possible to operate the tiller with my heel while handling the main-sheet with both hands to obtain the best control. With two up. the most satisfactory solution is for one person to operate the tiller while the other controls the main-sheet and vice versa.



In general the boat is under-canvassed and it is only when the conventional dinghies are beginning to struggle that KIA KIA begins to move. In channel chop it gives rather a wet ride, not only due to the outrigger booms clipping the tops of the waves, but also, particularly on a very broad reach, due to the tendency for the float occasionally to dig in. As the main hull is bow-down surfing down one wave, the float may be still trying to ride up the other side of the wave causing the float to nose in. To reduce this effect, the float was cut in half and reconnected with several degrees of sheer.

SUMMARY

Although *KIA KIA* is nowhere near the end of its development and is therefore not fully a practical proposition, it does possess some very enhancing features for a 20 ft long twin-hulled boat, such as:

(i) A ready to sail weight of about 170 lbf.

(ii) The ability to be housed along side a car in a 16 ft garage.

(iii) It is unsinkable.

(iv) It can be righted following a capsize.

(v) It can be assembled, launched, sailed, dismantled and loaded on to the roof-rack of a car by one person.

(vi) Seems to be very fast.

(vii) It is extremely simple to construct and

(viii) It has cost, to date, including modifications, something less than £40. *[1969 money. Equivalent to say £400 in 1999. SF]*

So far I cannot claim any amount of racing experience and there is no doubt that totally new tactics will have to be evolved. For example, the ability to "shuttle" at the starting line produces some intriguing ideas on gamesmanship. Next year I am hoping to develop this side of the qualities of *KIA KIA*, which even now rarely fails to stagger the conventional dinghy man.