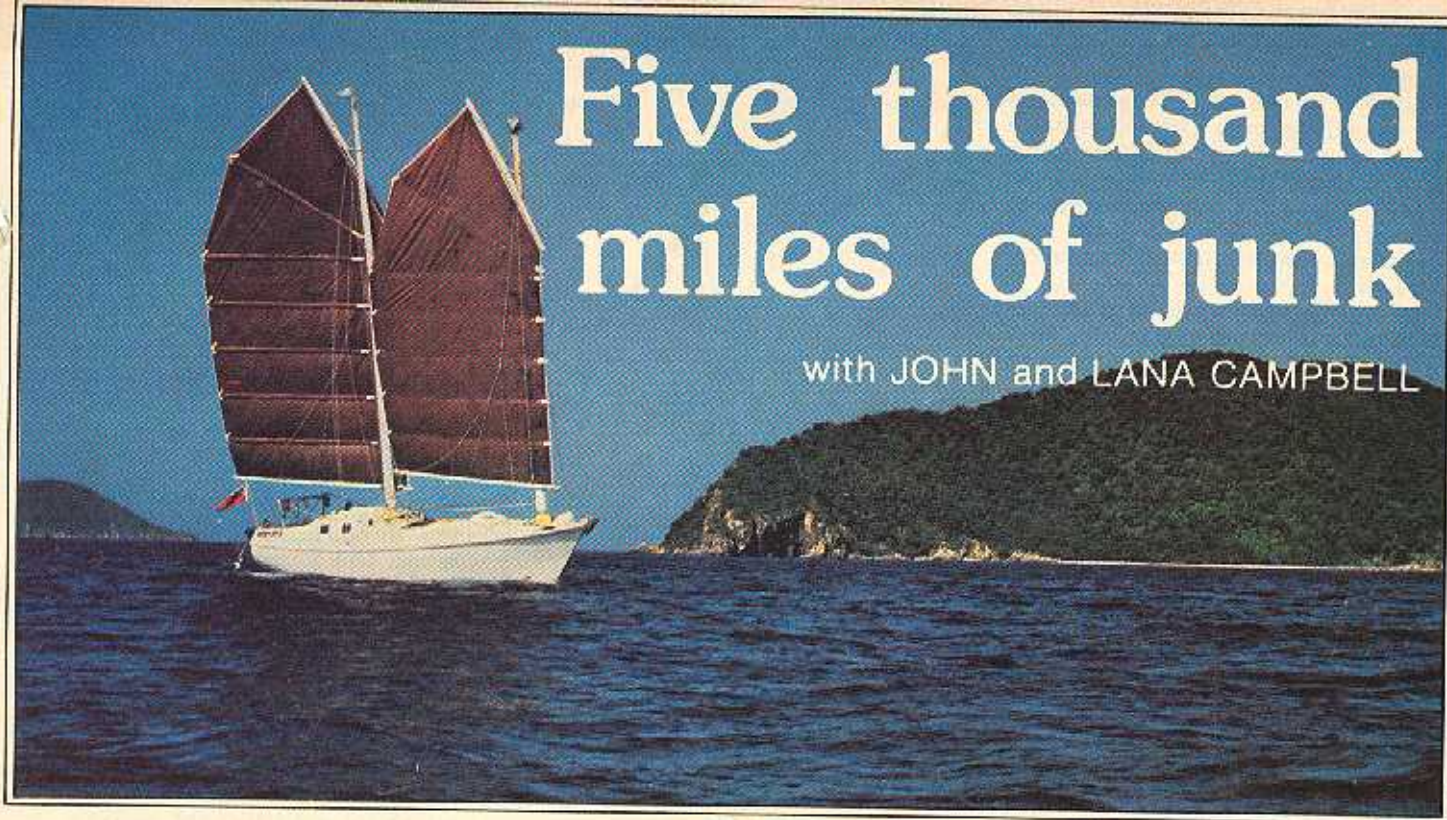


Five thousand miles of junk

with JOHN and LANA CAMPBELL



OUR BOAT, *Papilio Ruĝa*, is a junk-rigged schooner. My wife and I built her ourselves on a 35 foot resinglass hull moulded by Tylers, and rigged her to Jock McLeod's specifications. We built her in England, and have subsequently sailed her to Ireland, Spain, the Canaries and West Indies, and we are at present in the Virgin Islands. Along the way we have been asked many questions about the boat, and particularly about the rig. Almost without exception the first question is, 'How does she go to windward?' I don't know why everybody should assume that a junk rigged boat should not be able to make to windward.

Whilst I would be the first to admit that *Papilio* is not as fast to windward as an ocean racer, I would point out that we do not carry an ocean racer's crew. There's just the two of us. Anyway, we have found her windward performance entirely satisfactory. In addition, we have found one or two unexpected bonuses thrown in as we have learnt new techniques of sailing the boat.

The sails, of course, have full-length battens. These stop the sails from flogging even when they point directly into the wind. Without getting too technical, this has the effect of allowing the sails to be set at a finer angle to the wind without the airflow being disturbed. In practice, this means that it is possible to point the boat very close to the wind, closer in fact than any Bermudan-rigged boat. Unfortunately, the sails then lose

most of their drive so boat speed drops. The skill in taking a junk-rigged boat to windward is in choosing how close to point with a loss in boatspeed, against sailing freer and footing faster. The sails themselves give little indication as to how well or otherwise the boat is being sailed.

In light winds and smooth water, we have found it highly practical to tack our boat through 85° on the compass. Even pointing high it is still possible to pinch up higher to

clear an obstruction or to work over to the weather side of a channel, though one must accept some loss of boat speed.

But in any kind of seaway the flat sails seem to lack the drive to push the boat through the waves, and it becomes necessary to sail a little freer. Thus under average conditions we tack through an honest 100° on the compass; only extreme conditions make us do worse.

The junk rig appears to press the boat less than a so-called conventional rig. This has the joint effect of allowing the boat to sail more upright on all points of sailing, and of minimising the lee-way when going to windward.

In any discussion of windward performance, thought should be given to ease of tacking. With the junk rig there are no headsail sheets to handle, and tacking is usually just a matter of putting the helm over. The boat swings round quietly. There are no flapping sails or flogging sheets. No winches to wind. The boat simply pays off on the new tack.

We have found with our boat that before she gathers way on the new tack, the bow tends to fall off a little. In open water this is no problem and we do nothing about it. In confined spaces, for example tacking around a moored boat, it can be an embarrassment, but we have found that easing the foresail sheet about two or three feet almost completely eliminates the tendency. As soon as the boat begins to gather way, the sheet can be hardened again. Either way, tacking is accomplished with an

The foredeck looks a bit 'open-plan', but with this rig we only go up there to sunbathe



absolute minimum of effort, with nothing flapping about to get tangled or to hurt anybody.

As soon as the wind frees and we can ease the sheets a little, we have found that the boat is faster than most. The fact that the rig does not seem to press the boat allows us to perhaps carry a little more sail area than 'conventional' boats on a reach.

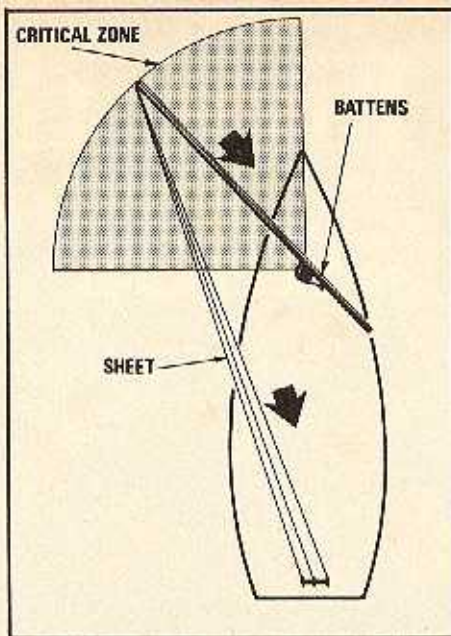
On a run it is possible to let the sails out square to the centre line of the boat, and run 'wing and wing'. This allows a lot of sail to be set very effectively. We have had problems, however, trying to run 'wing and wing' under the self-steering. Schooners of any rig are notoriously difficult on a dead run, and the junk rig proves to be no exception. The large mainsail of a schooner, set far back in the boat has a tendency to make the boat want to round up into the wind.

Anyway we find that the self-steering is unable to cope and that the foresail crashes about in all but light winds: so we have three options if the course is directly downwind. We can steer by hand (horrors!); go off on a broad reach and tack downwind; or close-reef or even drop the mainsail and run just under the foresail.

It is this last option that we mainly resorted to when crossing the Atlantic in the tradewinds. For most of the passage we left the mainsail stowed and ran very comfortably just under the foresail, average 5½ knots for 21 days. At times, we could have used a little more sail area (our foresail is 300 square feet out of a total of 700). Perhaps for long tradewind passages, a junk-rigged ketch would be a better proposition. Has anyone tried such a rig yet? The mizzen could be stowed, and the boat left to run just under the mainsail. The mainsail on a ketch would be much farther forward than on a schooner, so the tendency to round up would be reduced, and stowing the mizzen would not reduce the sail area too drastically.

We did find that the boat did not roll too badly. Perhaps it is because the junk sails set with less twist than Bermudan sails so that less rolling motion is induced. Whatever the reason, we found that running in the trades under just the foresail was almost comfortable.

When squaring the sails off to run, we are careful not to let them go for-



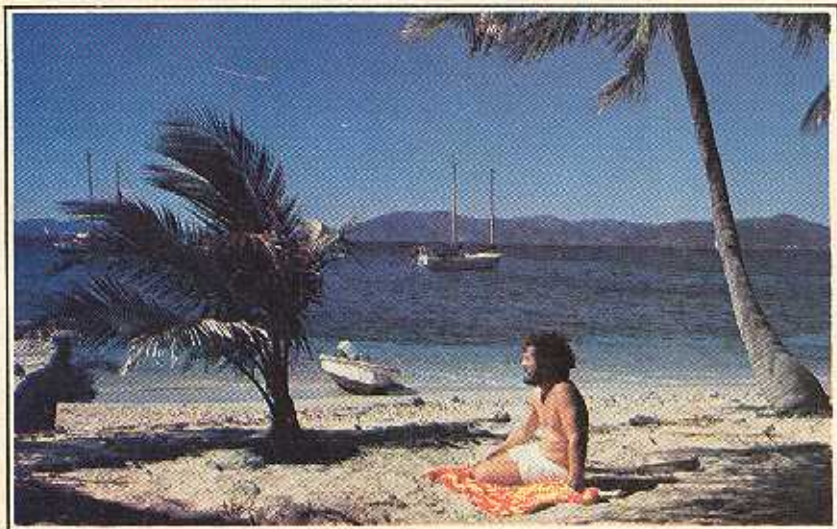
ward of the beam. McLeod calls this area the 'critical zone'. If the sails are allowed forward into the critical zone, the battens will be placed in compression and are likely to break (Figure 1).

It's true, what they say about reefing

I expect that most readers of this magazine know by now that ease of reefing is one of the major strongpoints of the rig. All I can add is that it really does work!

We have all the control lines leading to the cockpit and we can reef, unreef, and hoist or lower the sails from there. The sails set as well reefed as unreefed, and we carry no other sails. In bad weather, we reef down, and never have to drag wet sails below. As a result, the boat stays much drier below. In Biscay, we spent four days with winds of Force 8 and 9, including one day lying ahull. The

*John Campbell on the white sand,
Papilio Ruga on the blue sea — British
Virgin Isles*



boat stayed snug and dry, if not exactly comfortable.

When we made the sails, we followed Jock McLeod's suggestions and ran the seams vertically. Along each batten there is a horizontal patch on the sail as well as the batten pocket itself. If a sail is torn, the damage should be localised to a small square bounded by the vertical seams and the battens. We have put grommets in each seam, above each batten, so should the sail tear badly, or should a batten break, we can 'reef out' the damage by tying two adjacent battens together.

Easy to care for

On most boats, the sails suffer when the stitching chafes, which causes the seams to split. With the junk rig, there is no rigging for the sails to chafe on, and so far, we have not had to re-sew a single seam.

The fact that there is no standing rigging alarms some people and intrigues others. The reason the masts are unstayed is that since the sail is held against the mast by parrels passing around it, the only place that shrouds could be attached is at the very top. It would not be possible to fit spreaders, so the angle between the shrouds and mast would be very small. This would result in enormous compression loads for very little lateral support, and would result in the mast breaking much more easily than if left unstayed. People ask if we are scared by the unstayed masts. Let me say that we are still very aware of them, but we are becoming braver every day!

Our masts are solid poles of Norway Spruce. They bend far less than some of the alloy masts being used by other junk-rigged boats. And I can say that we have not lost a mast yet (touch Norway Spruce!), nor even felt that we were close to doing so. I think that the biggest

danger would come after a major wind shift, if the boat were allowed to run hard while pitching into a head sea. Provided that one is fairly sensible about the whole thing, I think the risk of losing an unstayed mast is no greater than with a stayed mast. At least we have no chain plates to pull out, bottle screws or swage terminals to fatigue and crack, nor rigging wire to strand. What we don't have

can't break.

Our solid masts appear quite heavy, until one allows for the lack of standing rigging. Taking that into account, they are probably not much heavier than a fully rigged 'conventional' mast.

On the other hand our battens are heavy. We are using clear Columbian Pine, 2 inch x 1 1/2 inch in section. These make the sails heavy to raise but from a performance point of view, the weight has not proved too detrimental. In strong winds, when the sails are well reefed down, much of the weight is close to the deck. In lighter winds, the weight aloft does not usually matter too much. In fact, in a cruising boat, a bit of weight aloft is no bad thing. A heavy rig acts as a pendulum, and slows down the rolling rate of the boat. A boat with a high ballast ratio and a light rig can become almost untenable as she rolls, because the motion is so fast and jerky. For comfort it is better to roll a bit farther, but to do it more slowly.

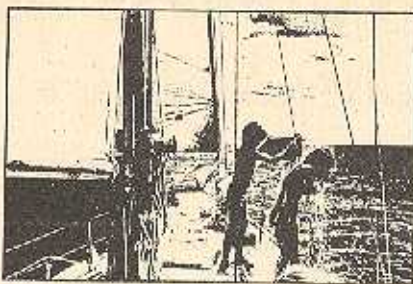
Any drawbacks?

If all this sounds too good to be true, what are the snags? Unfortunately, nothing in the sailing world is perfect . . .

We have found the light weather performance under normal conditions to be very satisfactory. But should a strong breeze suddenly drop leaving a swell running, things get a little desperate. If there is more swell than the wind warrants, then everything crashes about, largely because of the weight of the battens.

It is not practical to fit a foreguy because a guy to each batten would be required. Our only solution has been to drop the sails and roll about waiting for a breeze. Still this has happened to us only twice. We do not have an engine, but I suspect the rig would be excellent for motor-sailing in these condi-

Next Month



Cruising with kids

A blue-water parent for the last five years, Gwenda Cornell says it can be as easy as a . . . b . . . c — if you're prepared to work at it.

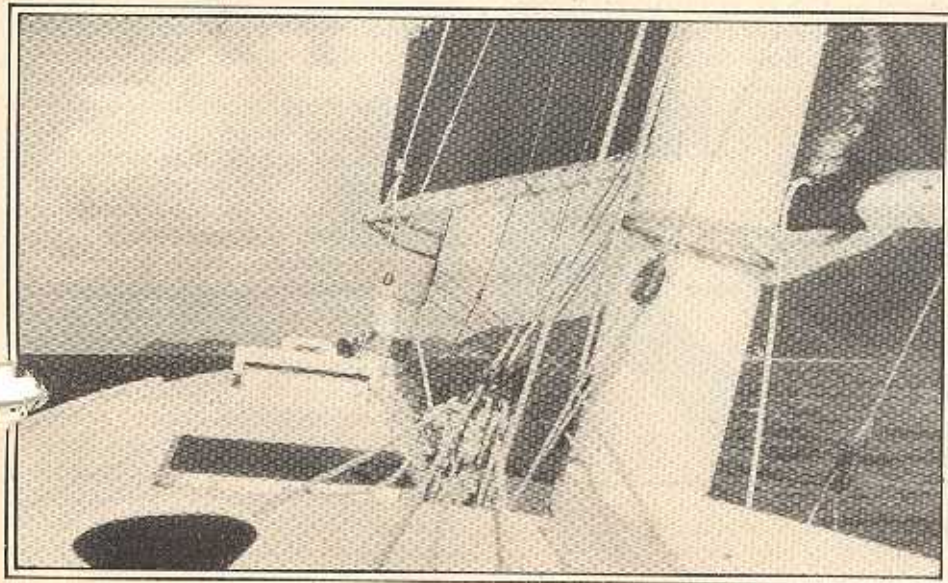
tions. The sails could be sheeted in hard amidships as roll-dampers, and the battens would stop them from flogging even if motoring dead to windward.

An alternative would be to set a ghoster. This could be set flying from the mainmast-head and tacked down near the foot of the foremast. Discretion would be essential with such a sail, as the pull of the sail would be taken by the tip of the unstayed mast, rather than be spread over the length of the mast as the junk sail is.

Hoisting the heavy sails is quite healthy exercise. The halyards are a four-part purchase to lessen the effort, and we have two small top-action winches to get the sails up the last little bit. They are also used when unreefing the sail if it is not practical to luff up. These are the only winches we have.

We have had some problems with the battens and parrels chafing on the masts, but we have reduced it

Detail of the boom at the main mast. Mast lift covered in plastic tube and the boom parrel covered in leather



to an acceptable level: where the battens touch the mast we have covered them with hard polythene. For the parrels we have tried two solutions and find no difference between them. For half our batten parrels we have used a braided Terylene rope 12mm in diameter, of the type often used for jib sheets. This does not chafe too badly if kept well lubricated, and it holds the lubricant well. The rest of the batten parrels are 8mm Terylene, and these we covered with leather. The leather again should be kept well lubricated. For the yard hauling parrel, which holds the yard close in to the mast, we first tried fastening a short length of smooth plastic hose to the rope where it passes around the mast. That squeaked loudly, so we covered the hose in turn with leather and, provided it is kept lubricated, it proves satisfactory.

For lubricating the parrels, the traditional material is tallow. However, tallow is not always easy to buy, and in cold weather it sets too hard to apply. As we left England with snow on the decks, we resorted to beef dripping. Any left over went in the soup! In the tropics the dripping went too thin and has a tendency to smell, so we switched to Vaseline. We managed to buy Vaseline very cheaply in bulk from a man who makes hair restorer!

Reducing the chafe

We started off with the masts painted white. Every chafe mark showed up and white paint dust mixed with tallow/beefdripping/Vaseline makes a terrible mess of the sails. We have now stripped off the white paint and are keeping the masts oiled with a mixture of linseed oil and Vaseline. Mixed half and half, this makes a smooth, creamy mixture which we wipe onto the masts with a rag. The oil has helped close up all the shakes in the masts, and the Vaseline stops it from drying sticky. Chafe is now virtually eliminated.

Despite these limitations of the rig, we are still very pleased with the all-round performance. We are still learning new techniques. For example, it is very convenient to be able to set both sails close reefed when trying to sail the anchor out in a confined space. We can have full control of the boat without too much unwanted speed. We are discovering how to turn the boat, under sail, through 360° in her own length. Above all, though, the ease and speed of reefing without leaving the safety of the cockpit, and the simplicity of tacking have made us lazy, and have spoiled us for sailing with any other rig. ●