

# The Myth of the Bad Tack

by Arne Kverneland

## Could it be that the parasitic drag of the mast is the problem here?

Over the years with sailing my junkrigged boats, I have received variations of these two questions *many* times:

- “How does she sail to windward?” (..Answer: Quite well, thank you, after I added camber in the sail)
- “But how about the port tack, that mast must surely ruin the camber and airflow and thus the performance on that leg?”

Good questions, both of them.



.. Johanna at the Stavanger Djunkesamling in 2008: Which tack is the bad one? ...

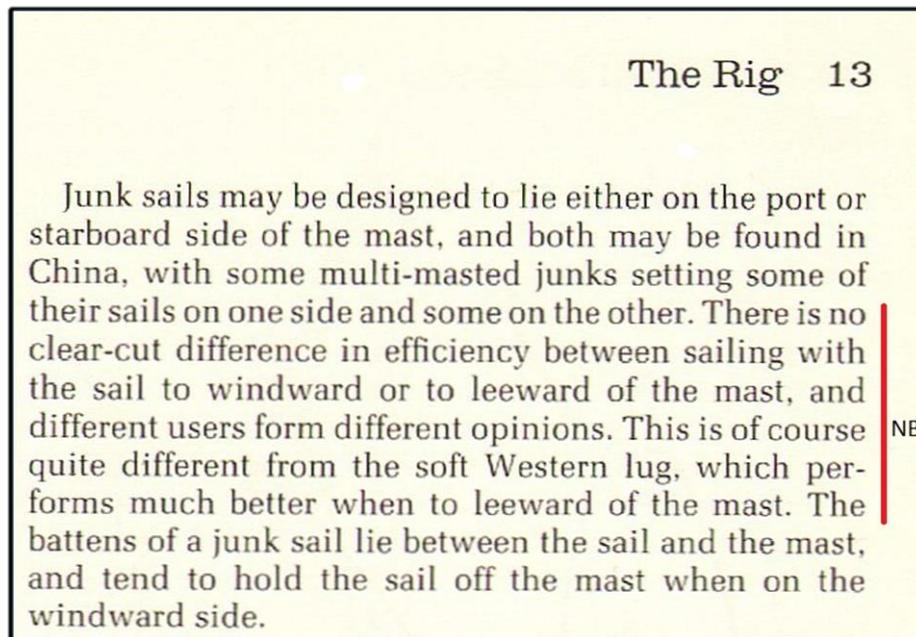
### In the beginning...

Since the beginning of my reading about, and then playing with junk rigs, there has always been people discussing *the bad tack*: Most of them seems to take for granted that the boat will sail better to windward with the sail flying on the leeward side of the mast.

Before switching to JR in 1990, I sailed for twenty years with conventional rigs, that is, Bermuda rigs mostly. All of these had stayed masts, which allowed them to be rather slim. The masts were without exception sitting at the luff of the mainsails, so their impact on performance was the same on both tacks.

Lug rigs (Western) have seen little use in Norway and I still have yet to see one in real life. Therefore, when contemplating the conversion of my first boat to JR, I had no idea of what to think about this. My first sail was to be flat, so I felt it would not matter that much.

This is what Hasler and McLeod wrote about it in PJR:



..from PJR, p.13...

Both Hasler and McLeod had lots of sailing time with flat junk sails when they wrote PJR, so they knew what they were talking about. When trying it out myself, I came to much the same conclusion: The upwind performance was similar on both tacks - *and it was not good.*

### **Fast forward ...**

With the new blue sail on *Malena* (1994), fitted with 8% camber in the panels, I too worried that the mast on the leeside would ruin the camber on that (port) tack. Even if I had not read anything about junkrigs or lugs, my quasi-technical instinct would have put the warning lights on. However, after having tacked my way around the fjords all that summer, I concluded that the anticipated problem did not materialise.

More sailing in *Malena* and later in *Johanna*, *Broremann* and now, *Frøken Sørensen*, has me thinking that my cambered junk sails actually perform a bit better on the port tack. I have discussed this with Ketil Greve ( sailing in the *Marie G*, an X-99 w. JR), and his findings are the same as mine.

### **How? ...**

How can that be? How can the boat sail closer to the wind on the tack, which more often than not is described as “the bad tack”, with the mast distorting the camber? It surely cannot improve the camber, can it?

After some head-scratching, my theory is rather that the parasitic drag of the mast does more harm when standing proud at the weather side of the sail, than when “buried” in the lee of it. Have another look at the two photos of *Johanna*: The “sail area” of that mast alone is 1.6m<sup>2</sup>, which is 3.3% of the full sail area. I have now checked the mast-area-to-sail-area ratio of all my junks and it varies between 3.1 and 3.8%. The drag of these sticks, fully exposed to the wind when sitting on the weather side, cannot be good, and certainly not when sailing fully close-hauled with 2-3 panels reefed away.

**A myth or? ...**

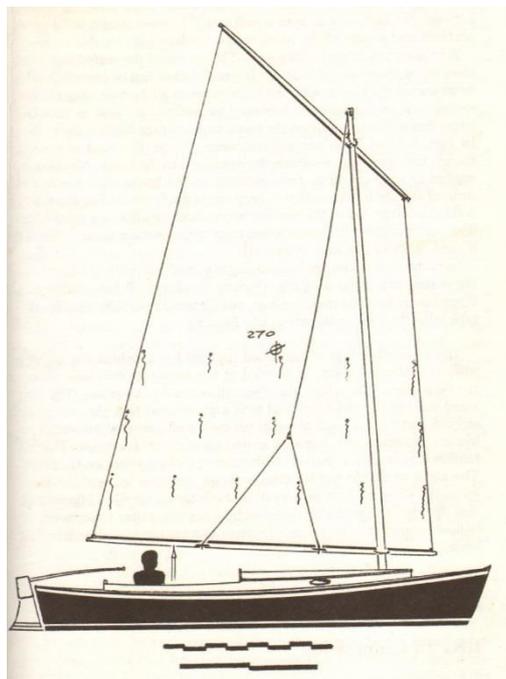
The problem is that what I call *The Bad Tack Myth* is strong. Here is what David Harding write in the last PBO (Sep2014) when comparing Edward Hooper's split-junk-rigged Splinter, *Amiina*, with a Bm-rigged sister:

Another development is one we wrote about in PBO November 2011: the split junk, or 'junk with jiblets', developed by Slieve McGalliard on his Westerly Longbow. With cambered panels as well as mini-jibs forward of the mast, Slieve's rig offers several advantages over the conventional junk. For a start, its split configuration means that the panels are no longer effectively (and inefficiently) divided into two on port tack when the battens are on the windward side of the mast. It also allows the 'jiblets' to work in clear air.

This all made sense to Edward Hooper, who wanted a small, easily-handled performance

..from PBO Sep 2014...

I wonder how many rigs Mr Harding has sailed on the *bad tack*. Are balanced lugsails that common in UK - or could it be another example of “.. *Everyone knows that...*” ?



..a balanced lug rig, nicked from Phil Bolger's "100S MALL BOAT RIGS"

**Conclusion...**

I hereby declare the *Myth of the Bad Tack* for busted, at least for the low-balance junkrigs I design:

My sails are at least as good upwind with the mast on the lee-side of the sail (..or rather a bit better, me thinks...).

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