



Crab Claw Sail in bimini mode

Trilobyte 16: Sailing and Cruising the Prototype

by Dave Zeiger

So it's May in Southeast Alaska. Snow's gone and it only gets frosty on odd and early mornings. That week in February we spent building *Trilobyte* is but a chilly memory. Since then we've spent days working on the rig.

The rig! Polynesian Crab Claw Rig has always been tantalizing. Marchaz found up to a 40% efficiency gain over jib-headed sails. The problem has been difficulty in tacking. Traditional craft set the sail on the downwind side of the mast, and it either stays there while the boat switches ends, or the burly crew of warriors tacks it every several hundred sea miles. I'm over-simplifying, but the gist is that it hasn't been practical for small monohulls.

But then some *genius* came up with the idea of setting a yard between the limbs and centered atop a short mast. A universal joint at the masthead lets the sail roll over the centerline when tacking. It rolls over the yard to raise and recline the sail. It sheets around the mast as we're used to. That's three count 'em *three* axes of control! What's more, the rig is *automatic* in the Hassler

sense (complete control via running control lines... you don't have to 'hand' the sail). Such rigs beautifully extend Phil Bolger's *Birdwatcher* concept (the basis for *Trilobyte*'s design).

Our prime objective for *Trilobyte* is to simplify to the point of a three to seven day build time 'in the field'... build, rig and sail next day (this assumes that some elements, such as the sail, are prefabricated). The rig, then, has got to be likewise simple, and preferably low-tech.

Theoretically, there are five control lines for Modified Crab Claw Rig: two sheets, two yard downhauls and a tack downhaul. After a due period of trial and error, drilling and plugging, we achieved control from three lines: two sheet/yard downhaul combos and the tack downhaul.

Additionally, we've not sailed before with Chine Runners (horizontal 'winglets' extending out from the midships chine which increase the efficiency of the hull's lateral plane). Matt Layden has used them in his cool little cruising sharpies up and down the Atlantic Coast. It's seemed to me that sharpie rocker would induce drag in the runners, so I was excited to adapt them to *Trilobyte*'s barge hull with its flat run amidships.



Note Chine Runners High n' Dry

Anke self-righting *Trilobyte*

Shakedown time! A couple of trips around the harbor and a nearly windless overnighter to a nearby island got the learning curve started. Time to load for cruising and take off.

The first trip is a week with no motor and little wind. We get our first long haul with both of us rowing on our way to Sandy Cove. Checking the GPS, we make 4.5 knots in sprints, 4 knots with moderate but maintainable effort and 3.5 knots rowing at an easy, 'all day' clip. The locks are far enough apart that the oars don't interfere, so there's no need to coordinate. That is, until time to ship them. We get our first taste of something similar to the 'sword dance' as we haul them in and stow the seven foot oars (don't worry... we get it down).

As we watched the moon rise over the encircling mountains, it suddenly struck us that this was not only where we spent our first night together, but it was 15 years ago *tonight*... we'd been so busy we'd forgotten our anniversary!

This might be a good time to mention the accommodations. *Trilobyte 16* has a roughly 8 ft x 4 ft cabin with 3 ft 4 in headroom under the decks, and large, open bays at either end. About the same floor as a pup-tent with generous vestibules, but much greater volume. The windows 'open

out' the walls for a spacious feeling and the sole is cushioned and carpeted for ease on the knees.



View looking Aft



View looking Forward (No heater, yet)

Next day we got our first real sailing trials in 15 knots of wind. After the usual keystone routines, the sail handled well. Tacking was nigh on impossible, a disappointment. Turns out that the combination of high windage, light weight and small upright lateral plane was too much. Chine runners, held high by the barge hull, barely get a grip when the hull goes upright while facing into the wind. They're effective when heeling on one tack, but an 'off-centerboard' has been added for tacking, and to maintain lateral resistance while row/sailing upright.

After a week of dinking around, we picked up Kate and a motor for a four day run to Goddard Hot Springs. While only fourteen miles from town (as Raven flies), half the route opens on the Gulf of Alaska.



Kate and the Gulf

The motor was a used Mariner 5 horse... too big, really, but available. Mounted on a transom bracket, we made 4 knots at a bit less than half throttle, getting 0.33g/hr over the weekend. In steep four foot swells, we got our share of cavitation as we 'kicked up heels' over the crest, but made reasonable progress and were soon out of it.

Three adults (and Scups, the dog) is cozy, but if you all like each other it's a lot of fun. I was surprised to find that we could still row double (the 'sword dance' took even more agility). Sleeping can be two side by side and the third with head opposite and legs up the middle. If you're one of those who can't be touched at night, I wouldn't recommend it.

We soaked at the Springs (Kate especially likes the natural pool up above the redwood tubs), ate like kings and explored our way back to town. A highlight for me was threading the 'back way' through Frosty Reef. The Reef has a couple of ways through violent breakers, but we'd never dared the back way in. With a light following wind we sailed through the fiercely rocky gap, about as wide as we are long. It opens abruptly into the sheltered waters behind the reef, and at the mouth of a little cove. That knowledge came in handy one black and windy night in *Luna*, but that's another story.

We delivered Kate in town, dropped the motor and headed back out for three weeks, once again Hot Springs bound. As I mentioned, the linear distance is short, but Sitka Sound is a great cruising ground. We've cruised the south side extensively for a year, now, and haven't poked into the *half* of it! It's rocky with sandy pockets, intricate micro-archipelagos, waterfalls and forests teeming with wildlife (hurkin' big bears!). Rockfish are easy to jig up any time of year. Dangers if you want the challenge, backwaters if you want to drift and dream.



Winds range from flat calm (more often than not in the summery months) to right nasty gales. Most days have a few hours of light breezes, and often you'll get an afternoon westerly in clear weather. The chine runners give us a good grip, though in light winds we have to induce heel with crew weight. We made it a rule to close the leeward oarport covers, and would often leave both oars angled up and out the open windward ones.

Handling our Crab Claw Rig took some getting use to, but is very simple. Hauling the tack downhaul raises the sail to more vertical attitudes, slacking allows it to recline. The leeward sheet is the 'active' one, hauling its limb down and in. Then the windward sheet is hardened as a stay on the upper limb. There's no reefing, per se... just roll the sail toward horizontal, directing force upward and converting heeling moment to vertical lift. The limbs spring inwards to absorb the shock of gusts.

To center the sail, pull the upper limb down until the sail is level. The sail is usually pointing off one way or the other, so one yard end will be ahead of the other. Pull the lead sheet against tension on the other to square the yard (and sail). Make fast and, if stowing, shockcord the sail at mid-head to create the 'delta wing' shape. This acts as a riding sail, bimini and rain catcher. It can be left standing to about 20 to 25 knots before it becomes too obnoxious.



Beating

Reaching

Running



Does Life get any better?

Once again, the Hot Springs were wonderful. On the way home one of those gales was forecast, so we ducked into Mielkoi Cove. Wow! Sail in through one of five or six narrow passages into a microcosm of the whole sound. Miniature mountain ranges, islands, basins, harbors and rivers come and go with the tides. We were snug as bugs in there and well entertained until things blew over.

Heading back into the sound we met ten foot swells left over from the winds and crashing over the many rocks on that stretch. When your eyes are only a couple of feet above sea level, that's pretty impressive stuff! The sea otters and seals seem to think we're pretty odd intruders, too. The oars easily overcame swell and surge (though we had to time our strokes to the water).

Our shakedown ended with about a 20 knot reach/run off the rocks of Japonski Island before turning in to the sheltered channel and home to *Luna*.

So... we had a great month of exceptionally easy and comfortable camper cruising in *Trilobyte's* prototype. What we learned has been integrated into the design. We look forward to further adventures on the outer coast. We'll be building again here and there around the world. Keep you

posted!



*Mt. Edgecumbe, our local Fujiyama, in the distance.
Sail's sheeted in a bit far.*