

Building a coracle

Let's build a coracle roughly like this:

- Modeled loosely as Severn-Ironbridge.
- Width about 3 1/2' (105 cm), length about 4 1/2' (135 cm), depth about 14" (35 cm).
- The oval of the gunwale modeled by eye. That's how they have been modeled for millennia.
- Nine laths lengthwise, nine laths crosswise.
- But instead of ash laths I'll use laths sawn out of 5/32" (4 mm) birch plywood (door skin).
- The width of a lath could be 1 3/8" (35 mm).
- The gunwale will be made by gluing layers of plywood laths together.
- The boat will be covered with cotton canvas.
- And waterproofed with bitumen paint.
- And one round of protective lath will be attached to the gunwale on the outside of the canvas.
- But I'll fasten the seat, against tradition, level with the gunwale.
- The seat of spruce.
- Three vertical supports under the seat.

A sheet of plywood is first sawn into laths. 28 laths are needed, more than 30 can be sawn out of a single sheet, so one sheet of plywood is plenty.

It makes sense to have the sheet sawn at the lumberyard with a good circular saw. That way the laths will be straight and of constant width.



The actual building starts from the seat, however. A piece of planed spruce, 3 1/2' long, some 8" to 10" wide, and some 3/4" thick.

I made mine by gluing two 5" board together by the edges with epoxy.



A temporary plank or batten is attached on the underside of the seat with small nails. In the middle sideways, and at right angles to the seat. The batten is 4 1/2' long. The mid point of the batten is lined up with the front edge of the seat. This batten will determine the length of the coracle.

A piece of wood, the thickness of the seat, is nailed under the long end of the batten to keep it level with the floor.



Two plywood laths are wrapped around the ends of the seat and the lengthwise batten. This is the first, innermost layer of the gunwale. The laths are cut to such lengths, that the ends land on the ends of the seat.



The ends of the laths are glued and nailed (or screwed) into the ends of the seat. The seat and gunwale are now upside down. When turned right side up the top of the seat will be flush with the top of the gunwale.

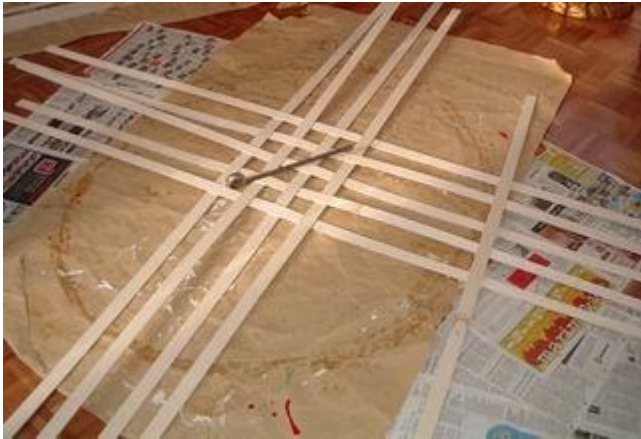


A second and third layer of laths are wrapped on the first layer, glued to previous layers, the ends of the laths are nailed to the ends of the seats again.



After the glue has hardened, the gunwale keeps its shape and the lengthwise batten can be removed.

While the glue is hardening, we can continue with the bottom.



The coracle bottom is woven like a basket out of nine crosswise and nine lengthwise laths. The weaving starts from the middle.



Weaving continues in all four directions in turns. The center to center distance between laths is about 4" (100 mm), so the edge to edge distance between adjacent laths is about 2 5/8" (65 mm).



The completed weaving is attached onto a straight bed of two lengths of two by two. The batten that was used when making the gunwale is cut into two. The two lengths are screwed through into the two by twos, to keep the weaving flat and steady.



Three vertical supports are glued and screwed under the seat. Supports can be round or square, 1" to 1 1/2" in diameter, and made of some light wood. The length of the supports is 12" (30 cm).

The location of the supports is 4" (10 cm) back from the front edge of the seat. The mid support is in the middle (of course), and the two others 8" (20 cm) to either side.



When the seat-gunwale is positioned on top of the basket bottom and vertical supports, the front edge of the seat comes directly above the middlemost crosswise lath. The supports land on the next crosswise lath, the mid support on the mid lengthwise lath, the others on the third and seventh lengthwise lath (sounds a lot more complicated than it is ;-). The ends of the supports are glued and screwed to the lath crossings.

Use a couple of lengths of batten to support the gunwale-ringing horizontal now. The sturdier the support, the easier the building from here on.



Start bending the laths to the gunwale. The laths are bent one by one, starting from the lengthwise and crosswise mid lath, proceeding towards corners. The laths can be attached to the gunwale using small screws. You may need to adjust the laths, so don't make the attachment permanent yet.

The plywood laths don't bend to a tight enough curve as such, but heated with a cheap 1500 W heat gun they become (almost ;-) cooked spaghetti.



No exact measurements can be given for the bends. Make them pleasing to Your eye, that's all.

It is worth making the bends relatively sharp, however. In other words, it is worth making the bottom a wide one. This way the coracle will have higher displacement and stability.

When the basket looks good enough, the lath crossings can be fixed with small blobs of glue, and the lath ends glued and screwed to the gunwale. Once the glue is hard, the screws can be removed.



Every corner of the coracle will have an extra corner lath. Each corner lath touches three crosswise and lengthwise lath crossings. Between the laths, on the inside, and on the outside.
Once all glue is hard, the lath ends are cut along the top edge of the gunwale.



The coracle frame is now wood-ready. One more lath layer has been glued onto the gunwale to cover the bottom lath ends.

At this point it makes sense to treat the frame against rot, impregnate it with linseed oil, and possibly paint it. The most suitable color is natural wood after the linseed treatment, or dark green.

My frame will just be painted with linseed oil twice. Painting it carefully with a color paint would take the best years of my life. Stored indoors away from sun and rain, and used occasionally, it will last for years, if not decades.



The cover could be animal hide, cotton canvas, polyester or nylon, almost any sturdy fabric-like material.

I went to the local fabric shop asking for a 5'8" x 6'8" (170 x 200 cm) piece of some strong fabric.
"It'll be this cotton canvas. It's width is exactly the 5'8" You ask for. Most fabrics are at most 4'8" (140 cm) wide, this is the only extra wide we have."
Great! By accident the measurements of my coracle coincide with the widest fabric available!
"You won't wash it then, will You? It will shrink by some 8 %."

Even greater! I needs to shrink!

The fabric should be attached to the frame as tight and as wrinkleless as possible. There's no need to overdo this, however. Old genuine coracles often seem to be nothing but piles of wrinkles.

The result is probably neatest, if You double the edge of the fabric and staple it to the outside of the gunwale rim. The staples should be stainless.

Here the canvas has been stapled to the gunwale in single thickness.

A traditional builder would, of course, not use staples, but twine or sinew...





The edge of the fabric cut short, then folded out to double thickness, and stapled to the gunwale.

Next the fabric will be wetted, let dry to tighten, and waterproofed.



Since we now know, that this canvas will shrink by some 8 %, we now hose it over. Once it dries, it will hopefully have got rid of some of the wrinkles.



Once the fabric is dry, it is waterproofed with a bitumen emulsion. This particular emulsion is originally meant to be used for waterproofing house foundations made of concrete.



Three coats of the bitumen emulsion, and one more lath ring to protect the outside edge of the gunwale.

And the coracle is ready!

The paddle

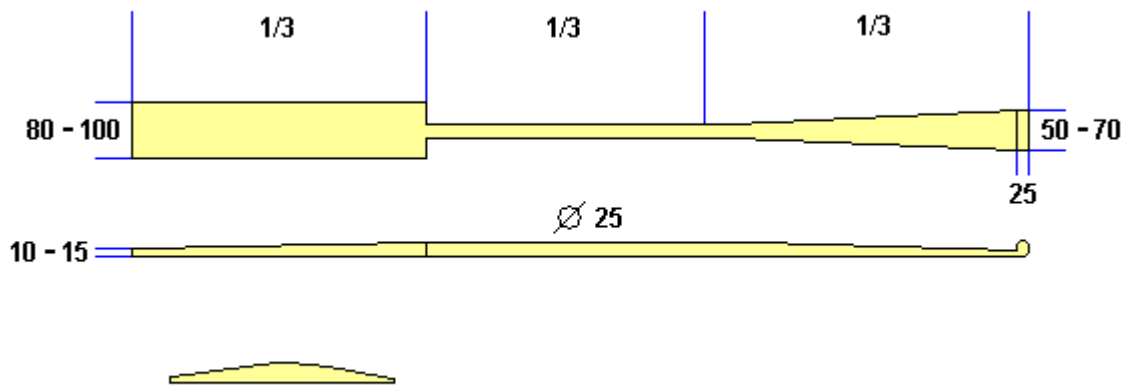
Before the maiden voyage we still need a paddle. It seems, that not only the actual coracle types, but also the paddle types, are river specific. I'm going to mix rivers happily by making a river Teifi-kind-of paddle to my river Severn-sort-of coracle. Why this? Because the Teifi paddle seems like very easy to make, and delicate and slender indeed.



A "more correct" Severn paddle would probably be a "snow shovel" like the one in the picture.

Judging by old photographs a Teifi paddle is something like this:

- The length is about the shoulder height of the paddler standing on the ground. Something like 5' (150 cm).
- Out of this length, the blade makes up $\frac{1}{3}$, the straight, round shaft another $\frac{1}{3}$, and the third $\frac{1}{3}$ is a steadily widening, steadily thinning handle-shaft.
- The handle-shaft ends in a one-sided handle, shaped to fit in the palm of a hand.
- The blade is also one-sided, flat on the underside, convex on the top. Like a wing profile.
- The blade gets thinner towards the tip.
- The blade tip is straight, rectangular.
- The top of the blade, at the shaft, is also rectangular.



A paddle like this is very easy to make out of a 5' length of some 1" x 4" straight grained plank of some lightweight wood.



I made mine out of a piece of aspen.



I sawed the edges of the shaft and handle, then hewed the shape of the blade and handle to roughly correct shape, and finished the paddle with a belt sander. First with 40 grit paper, then 80, and finally grit 100 by hand.

Again, linseed oil is a suitable treatment. I did put some varnish onto the tip of the blade, to prevent water from wicking up the end grain, and for some mechanical protection.

The coracle on the water



This load is light to carry.
A coracle is so light, that it can be carried for miles.

Carrying my coracle along a roadside I noticed one more danger that comes with a coracle.
People are not used to seeing coracles being carried. One guy almost hit me with his car: He could not steer, he was too busy staring at me.



A coracle is paddled from the front with a "figure of eight" stroke.

You may get a better view of this by downloading a [coracle paddling](#) (2.7 Mb) video clip here.

A coracle is tippy, so You better get into it while the bow touches ground, and backwards, as in this [geting into a coracle](#) (5.4 Mb) video clip.

Not so tippy, however, that it couldn't be rocked a bit. And it spins and moves lightly in this other [paddling video clip](#) (12.0 Mb).

The other possible stroke, "reaching forward" may not be as effective as the "figure of eight". At least not with a narrow paddle. Here You see some ["reach forward" paddling](#) (3.4 Mb).



It was soon clear, why some paddles have a long narrow blade, some a short wide blade. A long narrow blade is inefficient in shallow water. Only when the depth is some 2' it comes to its own.

The two "old boys" with their coracles.

Note, that only one of them is wearing a life west ;-))

The length of the carrying strap is critical. If it's too short, it tends to slip up around Your throat. Is it's too long, it tends to slip down around Your chest.

