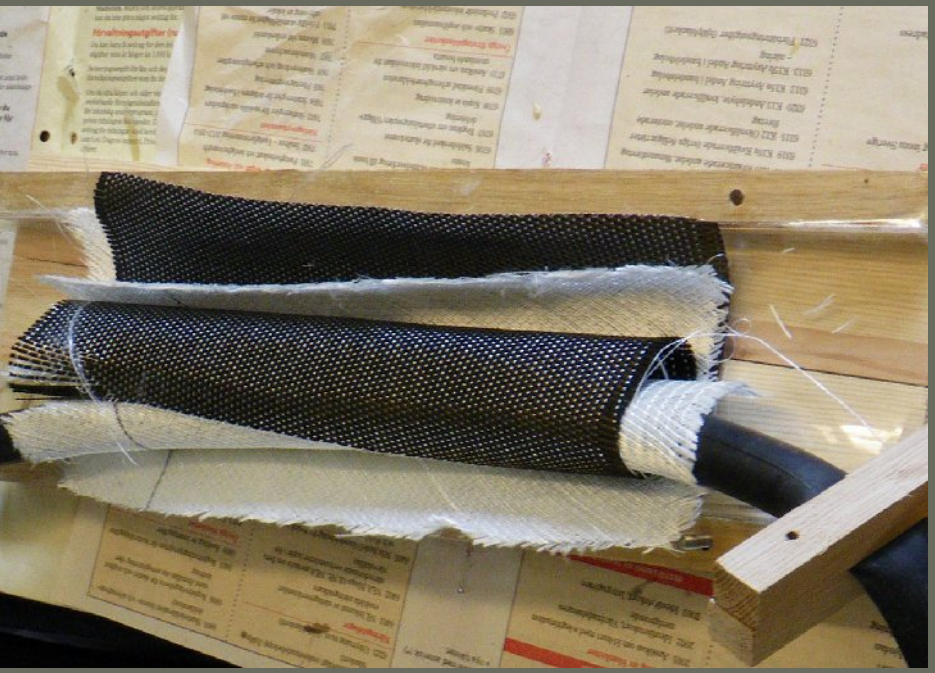
The Plym Method

How to make your own FRP tubes

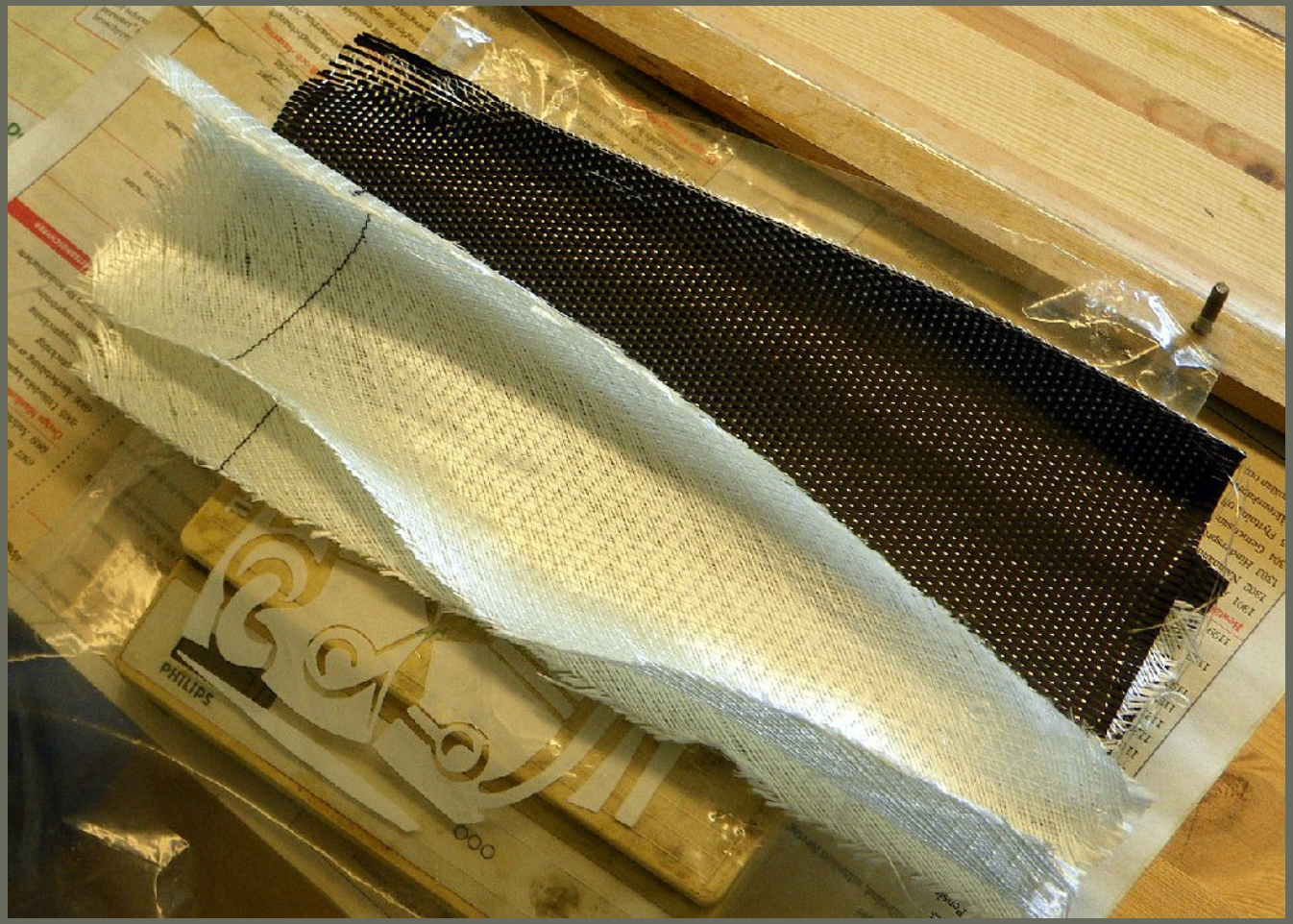
Martin Schöön, May 2013

Ingredients

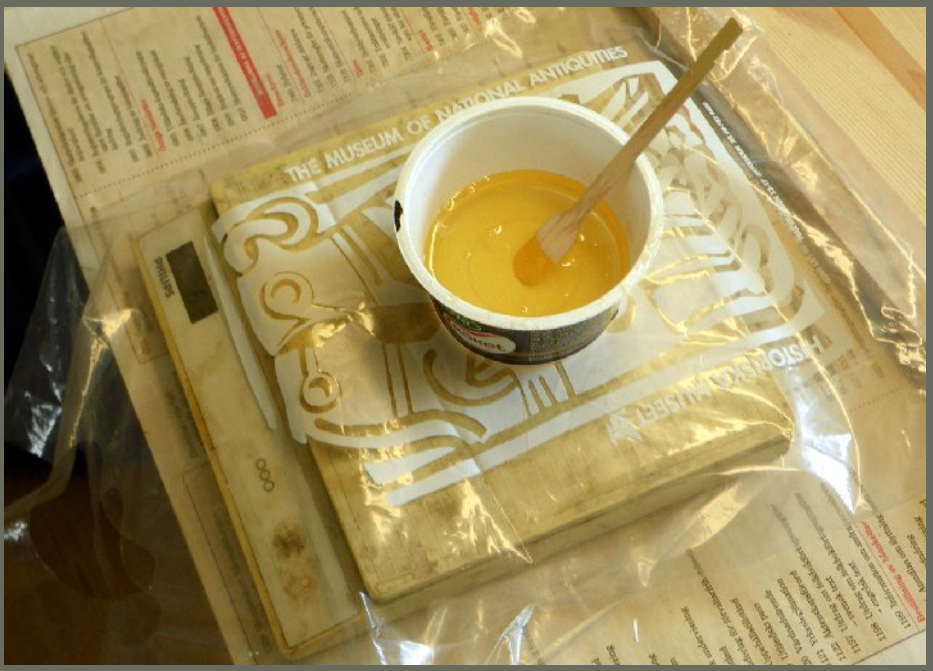


- Reinforcing fibres
- Some type of bladder, a bicycle inner tube in this case
- Mylar sleeve (mostly hidden under fibres)
- Epoxy (not shown)

Weigh fibres



Weigh epoxy

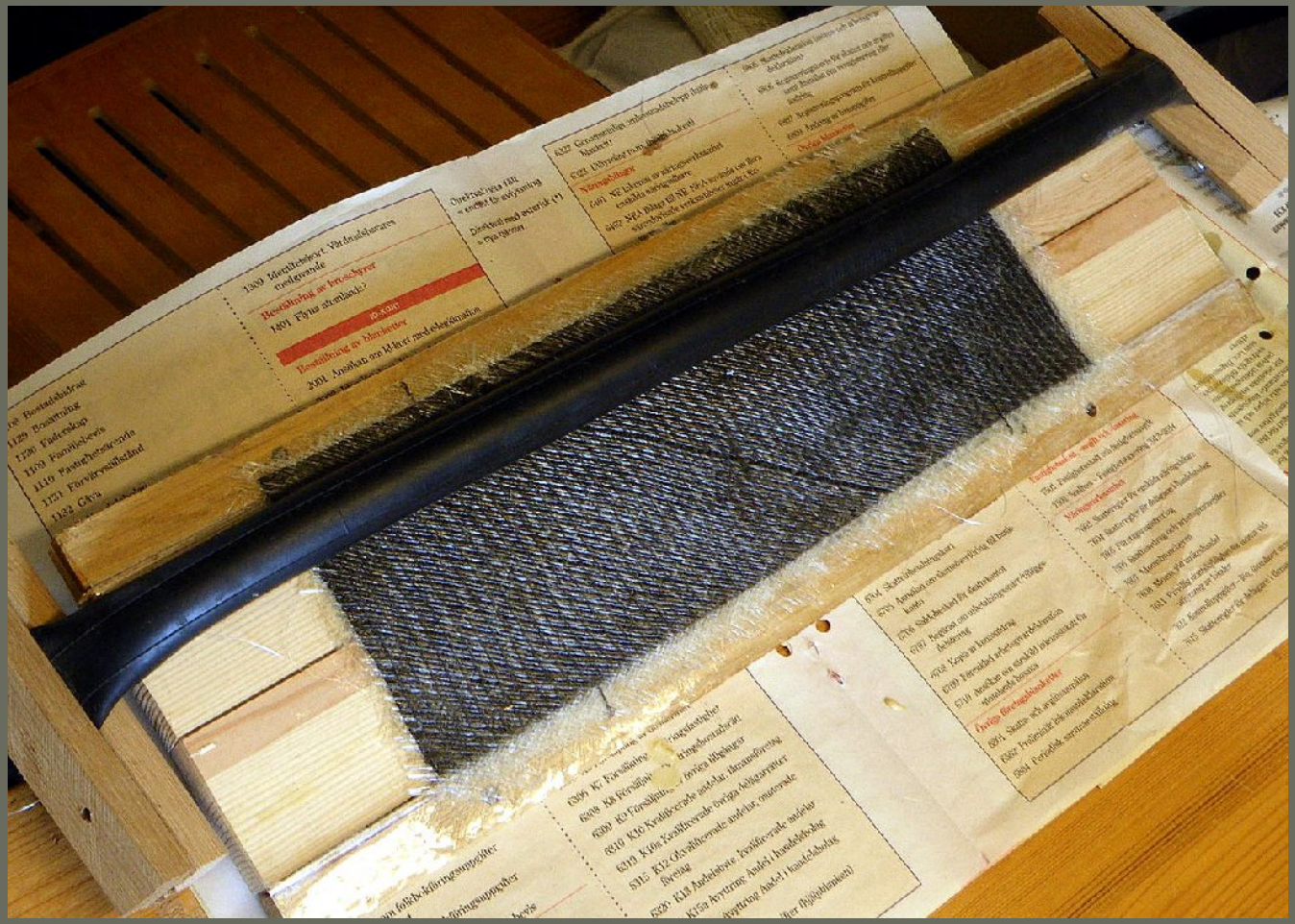


- How much varies with fibre type and weave type but same as fibre weight is a good starting point.

Wet out fibres

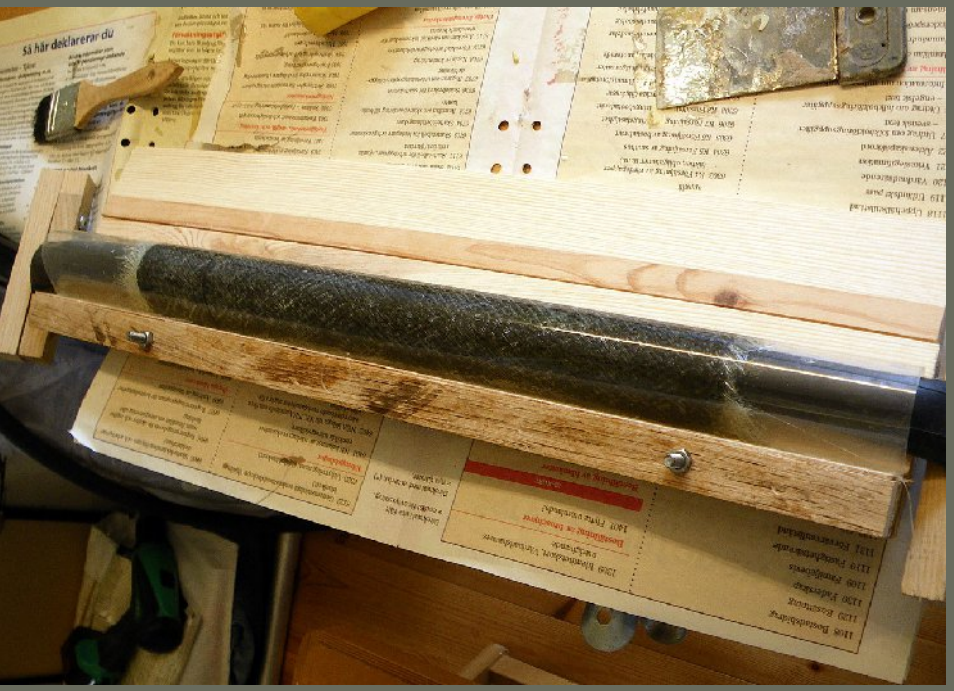
- Here I am halfway through wetting out the fibres.
- Cheap, cut down paint brush works best for small projects like this.
- I use the Mylar sleeve wide open to wet out on.

Barely inflated bladder on laminate



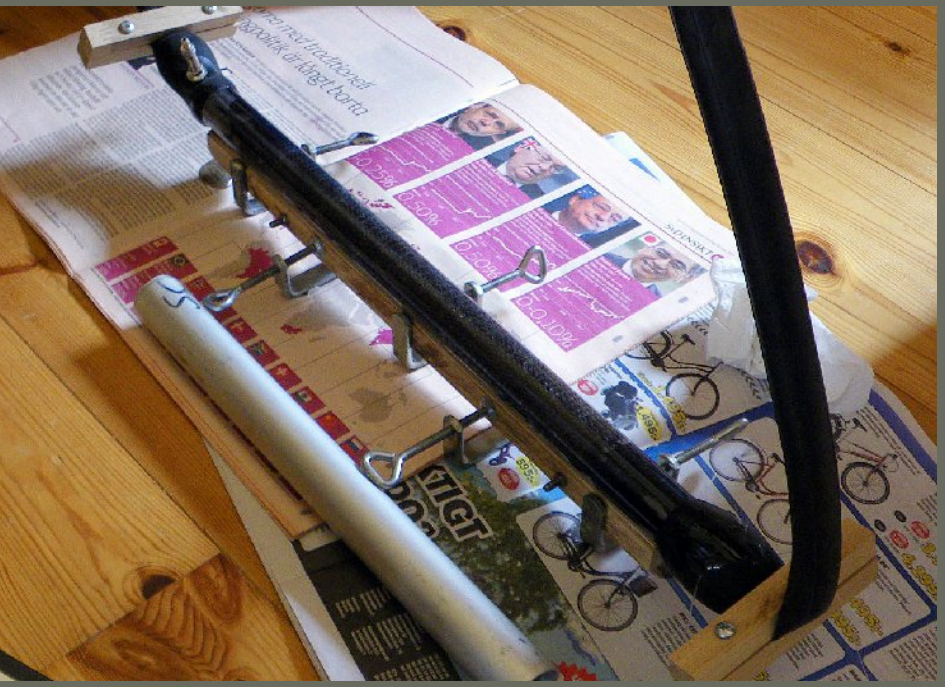
Wrap laminate around bladder

Close sleeve



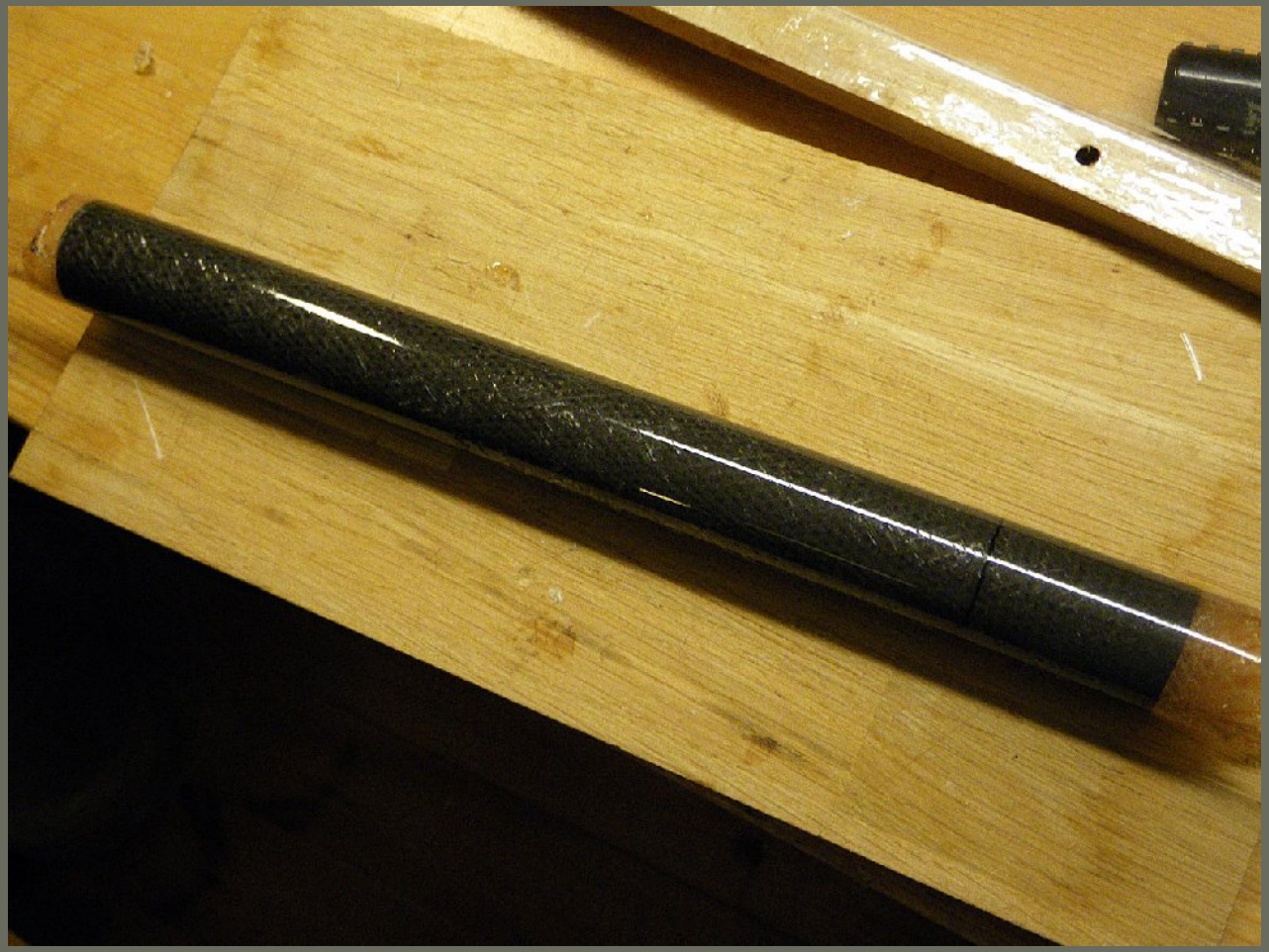
- Make sure not to pinch the laminate.
- Bolts to guide sleeve support.
- Mylar is bonded to supporting members using contact cement.

Add C-clamps and pressure



- There could of course be more bolts instead of clamps.
- The pressurised bladder forces the laminate against the sleeve which is forced to an almost perfect circular cross section.

Once the epoxy has cured



A raw tube!

Some notes

- Fibre cloth must be cut wide enough to allow for some overlap.
- Air and excess resin have a very hard time escaping so the resin/fibre balance and the wetting out must be done with care to achieve really high quality tubes.
- Photos are from my first ever attempt...
- This technique is named after Gustav Plym and is used for manufacturing flag poles.