

Drive building - poor lady – Roddy

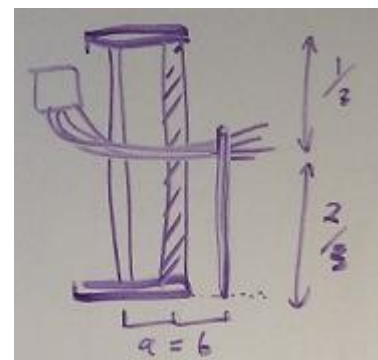
1 – Preparation

Get outer cannula (\emptyset : g , L: cm) and
inner cannula (\emptyset : g, L: cm)
Rim them
Clean the cannula with music wire or steel wire.
Put Vaseline on screw.



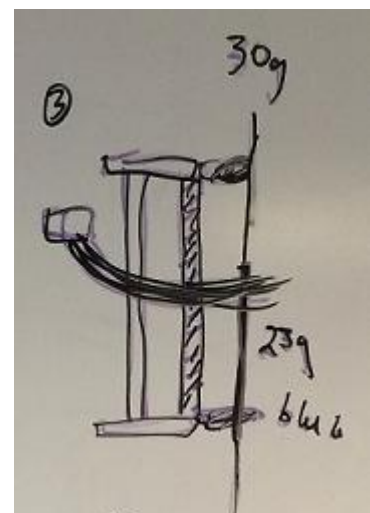
2 – Inner cannula positioning

Put a cannula on the yellow nut.
Cannula should be roughly the same distance away
as the screw from the other bit
Cannula end should be from $\frac{1}{3}$ up to flush with
the bottom of the drive.



3 – Inner cannula blu-tacking

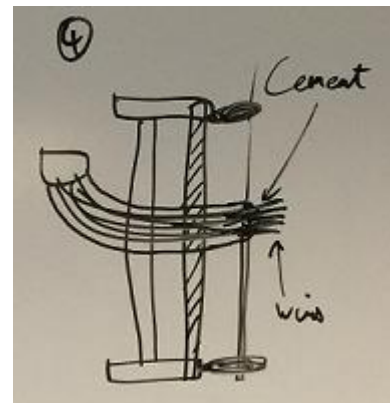
Blu tac each end and nudge it so it's parallel to the
drive (can insert a 30g cannula in it to keep it
straight).



4 – Cementing and wire preparation

Cement at the junction between cannula and yellow bit (keep the outside of the drive clear, do not go too far down)
Wait for cement to dry.

Arrange wires the way you want
Use a scalpel or a wire stripper to remove the insulation at the tips (on a few mm).



5 – Outer cannula insertion

Put outer cannula on.
Insert Vaseline at the top to hold it – a big blob.
You can also use blu-tac.

6 – Tetrodes insertion

For 6 and 7 there are two versions of the wiring technique (one by one or all together).

V1:

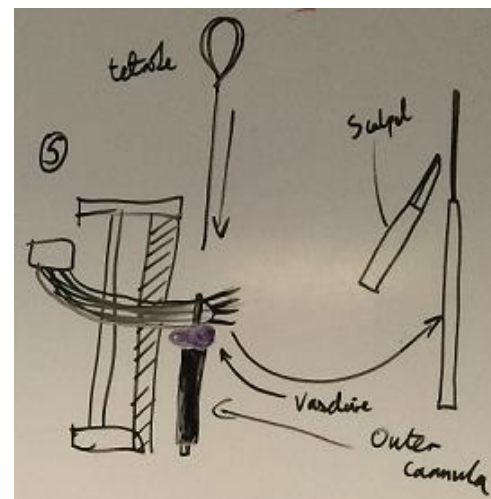
Dip all the tetrodes in alcohol, gather them to make all their loops stack.

Insert all tetrodes in cannula

Superglue them to the cannula

V2:

Insert one tetrode only and go to 7

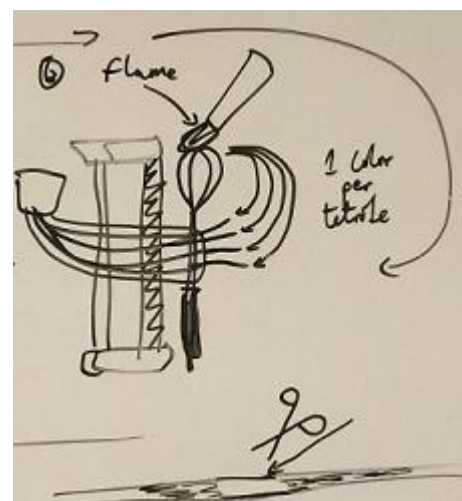


7 – Tetrodes wiring

V1:

Flame all tetrodes: blackness on the wire = carbon burnt left from insulation, silver is the wire part.
Cut the loop of one (in the silver part), take one electrode at a time and twist it around the drive wire (ideally, the insulated part of the electrode should twist around the insulated part of the wire, and the bare part of the electrode should be twisted around the bare wire) should wire (make sure there's contact). Wire all electrodes from one tetrode to wires of one colour.

Then, silver paint the tip.



You can also at the same time silver paint the other tips again (just to make sure)
Leave silver paint to dry.

V2:

Same but only for one electrode at a time, then go back to 6.

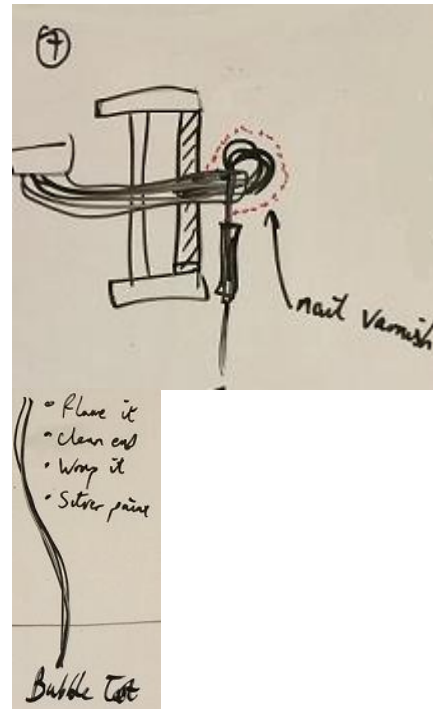
Once all tetrodes have been wired, superglue them to the cannula.

7 – Bubble testing and varnishing

Bubble test the drive

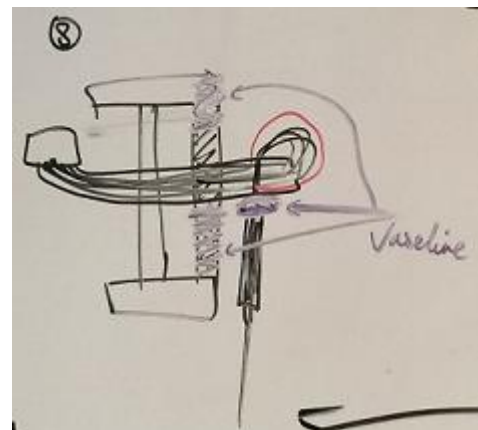
If some electrodes do not seem properly connected, add more silver paint and let it to dry, then test again.

If OK, put nail varnish OR plastidip on tips (lots) (individually, then all of them). Plastidip seems to dry faster than nail varnish.



8 – Protection

Put Vaseline (thin layer) on the whole screw if not already done.

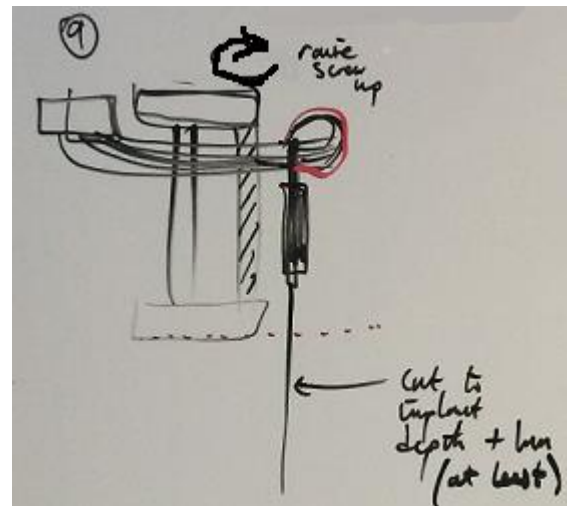


9 – Tetrodes cutting

Turn the screw (clockwise) to raise the cannula up as far as possible

Cut the tetrodes from the end of foot : depth you want to implant to plus something (height of skull plus where you plan to have the foot)
(For Roddy: 3 - 3.5 mm long for dorsal hippocampus, foot on skull)

The outer cannula should be long enough to be below the foot but still long enough to protect the top of tetrodes



10 – During surgery

Before starting cementing, after opening the craniotomy, lower the outer cannula to sit on the brain and put vaseline around it. Add lots of Vaseline at the top of it. The outer cannula should arrive at least at the top of the foot.

Cement the outer cannula up to the bottom of the threaded part.

Cement also the foot and the unthreaded bit at the bottom of screw (but not the screw!!)

Cement around the ground cable to protect it, but keep it flexible to allow drive movement.

It is also possible to add cement around the plastidip / varnished part, just to protect it more from scratching.