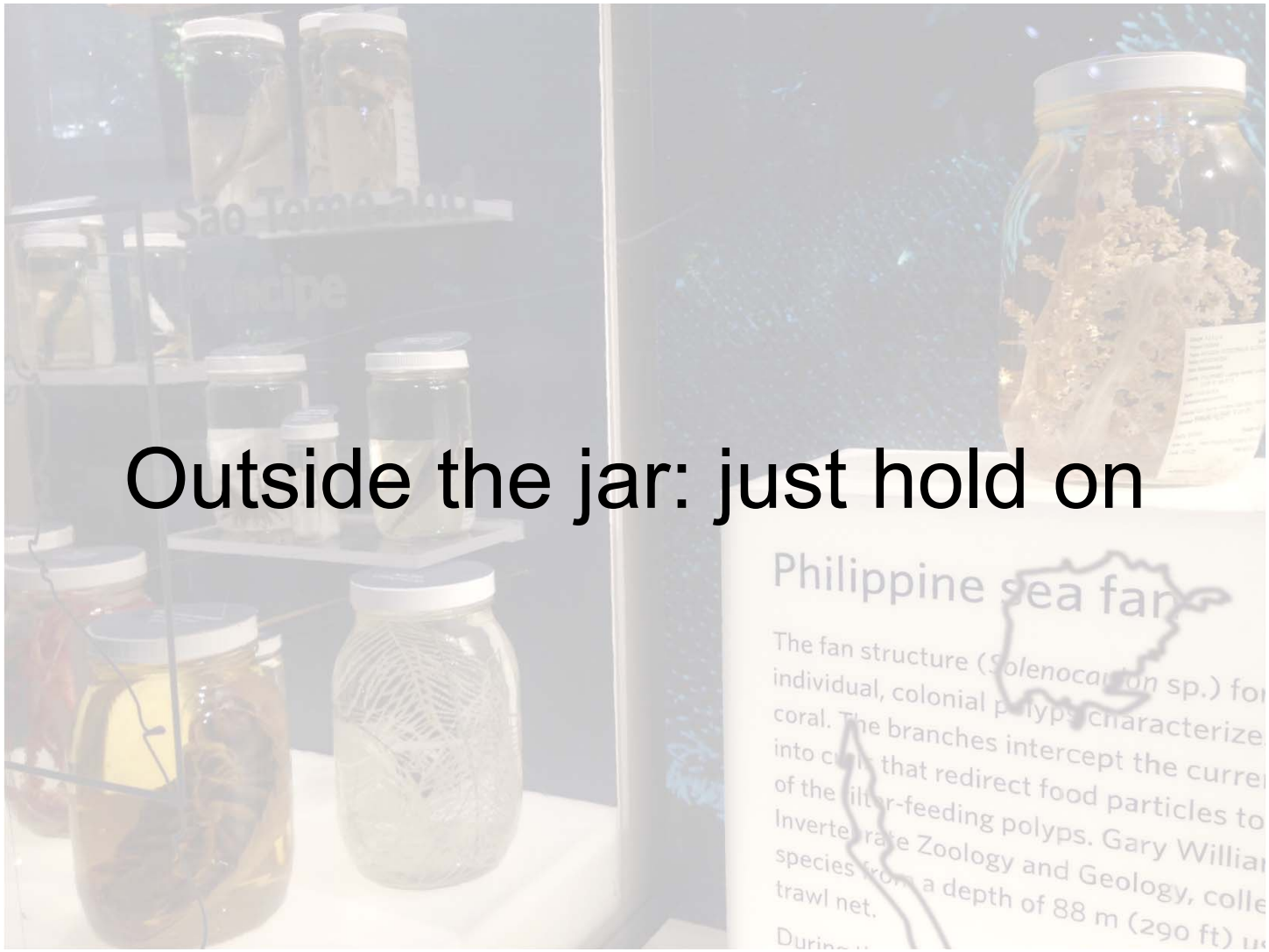
Mount Making Successes and Failures for Fluid Preserved Vertebrates (and One Nudibranch) at the California Academy of Sciences

Ian Hart 26 September 2018

Natural history research relies on fluid preserved collections

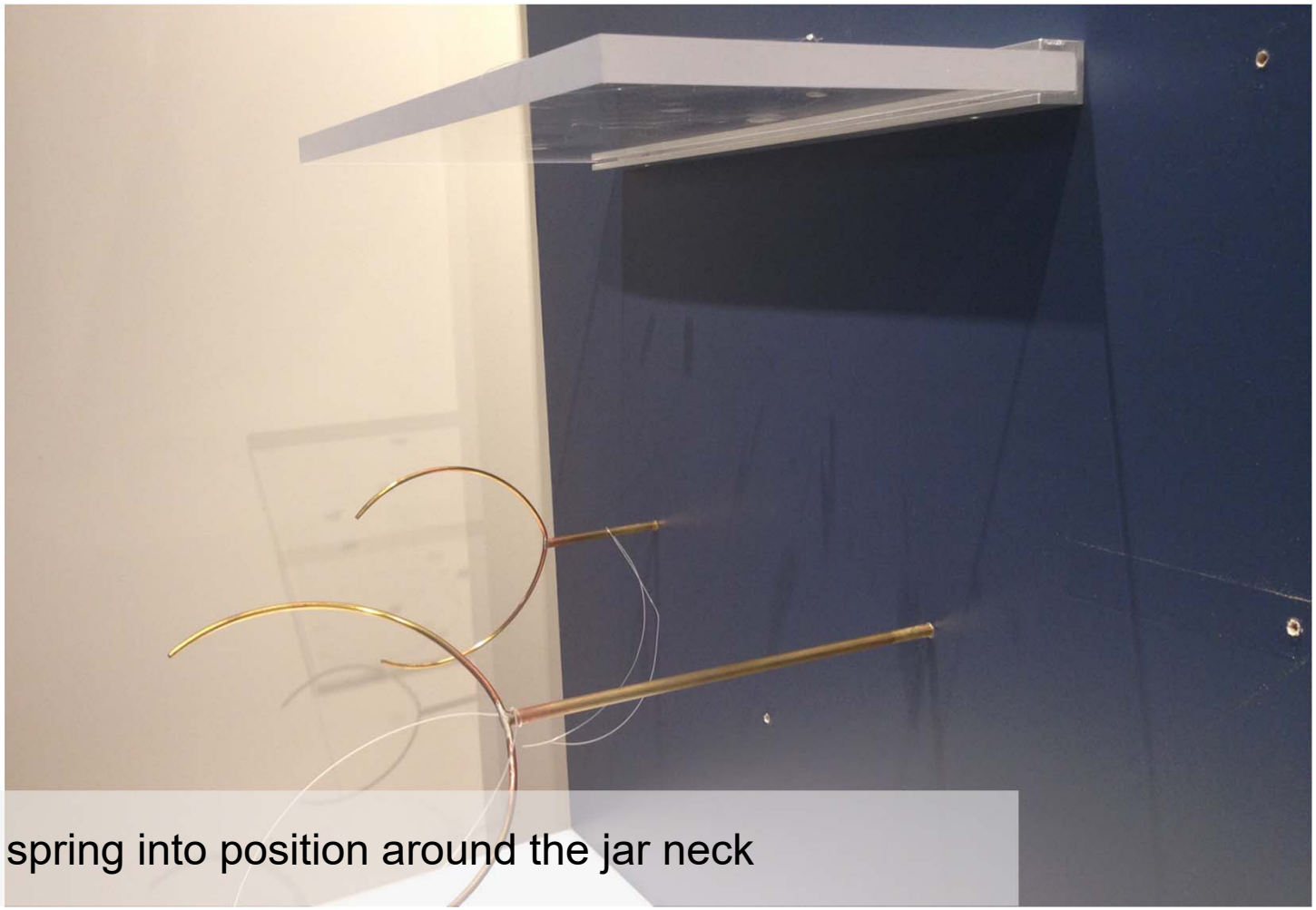
Important considerations

- Outside the jar
- Inside the jar
- The jar itself
- The jar and its environment

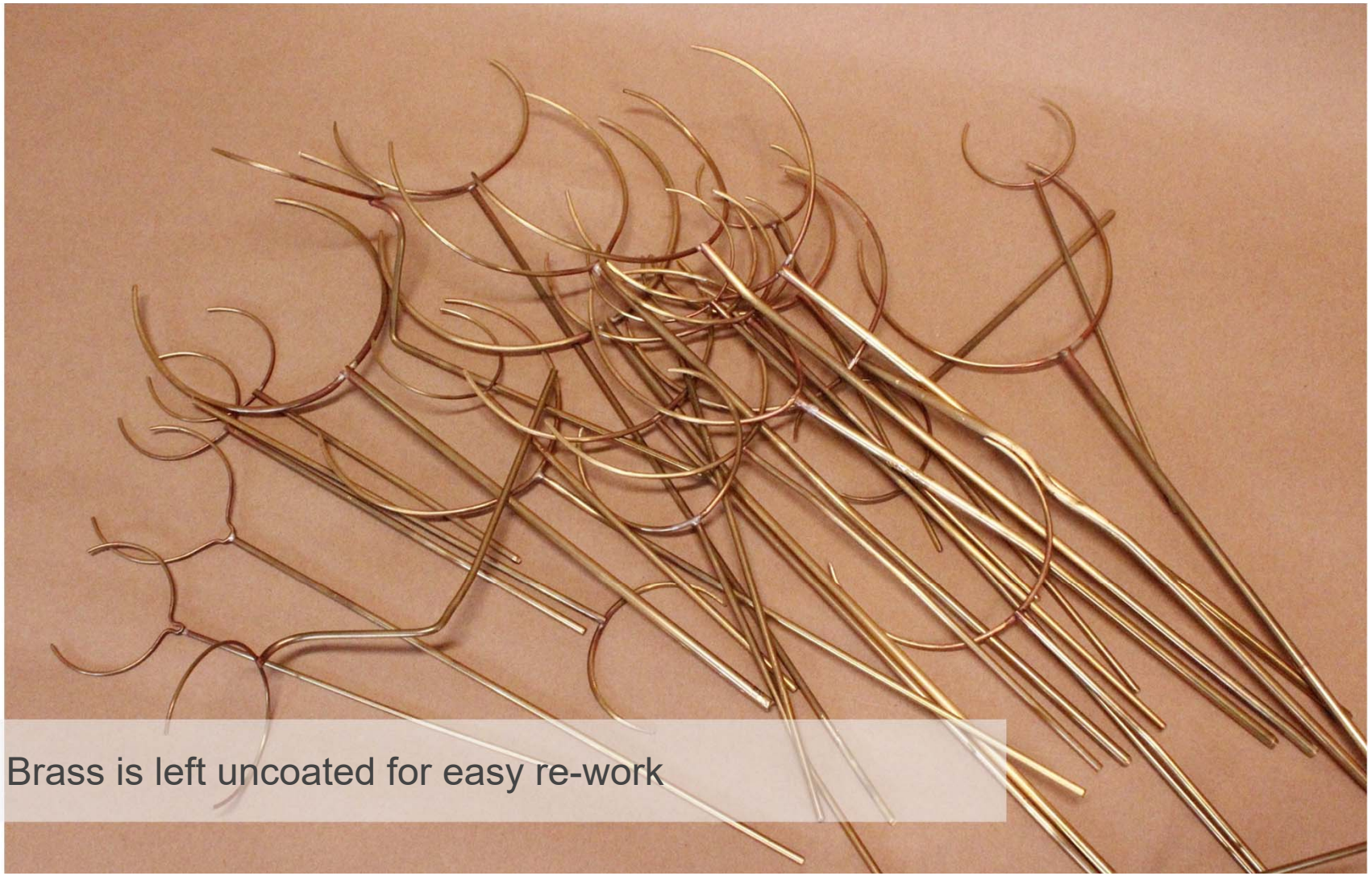


Outside the jar: just hold on

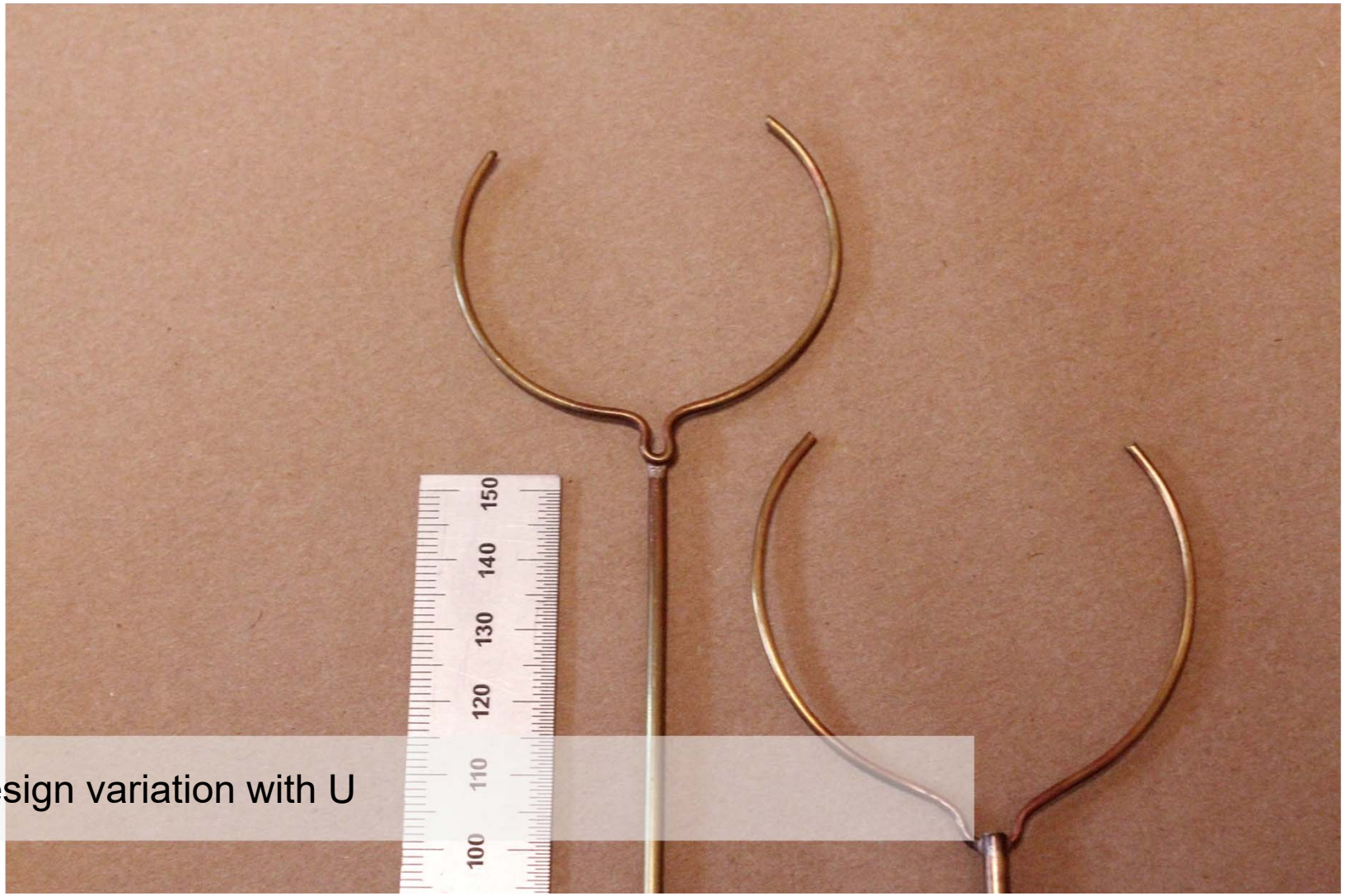
Typical jar mounting approach



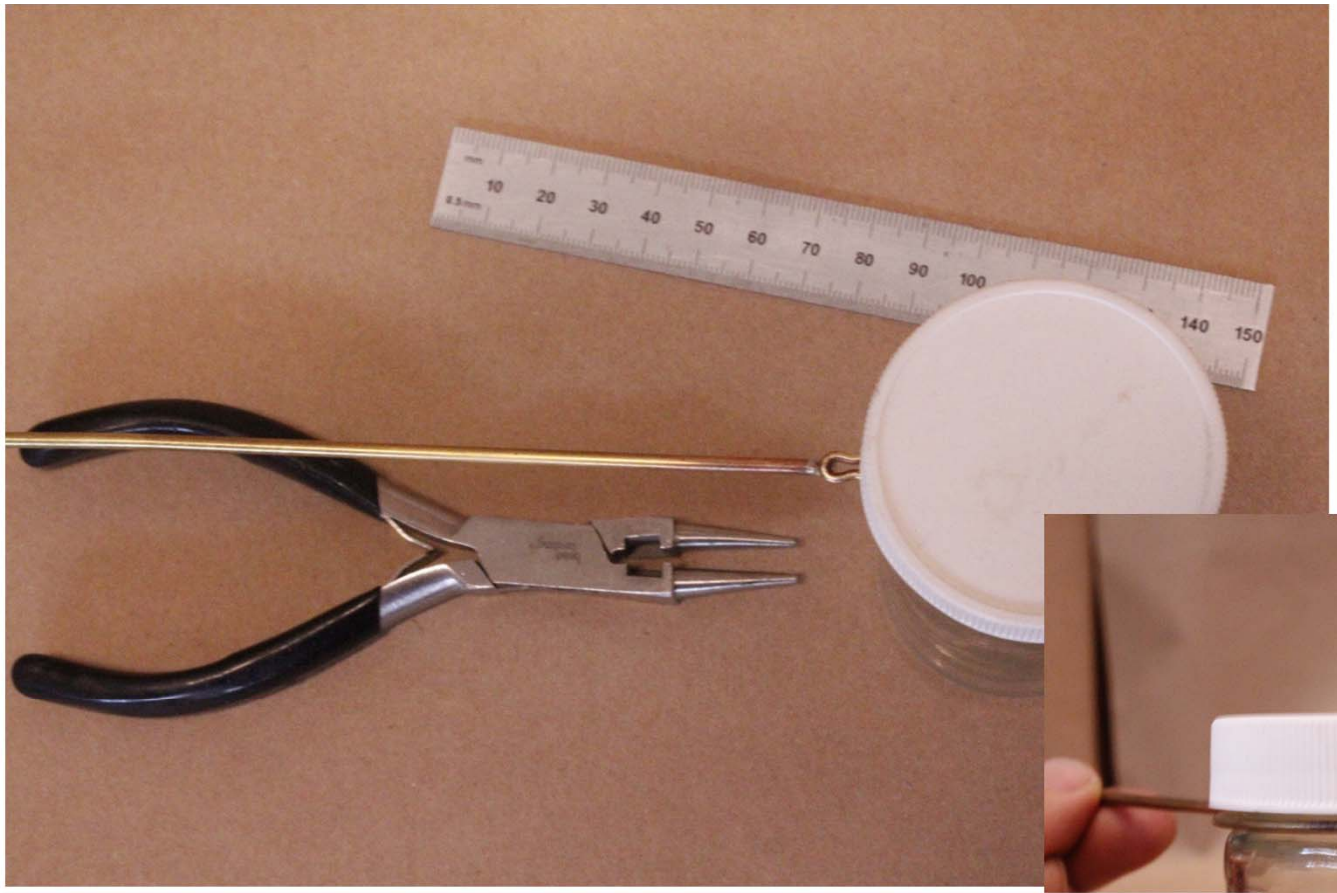
Arms spring into position around the jar neck



Brass is left uncoated for easy re-work



Design variation with U



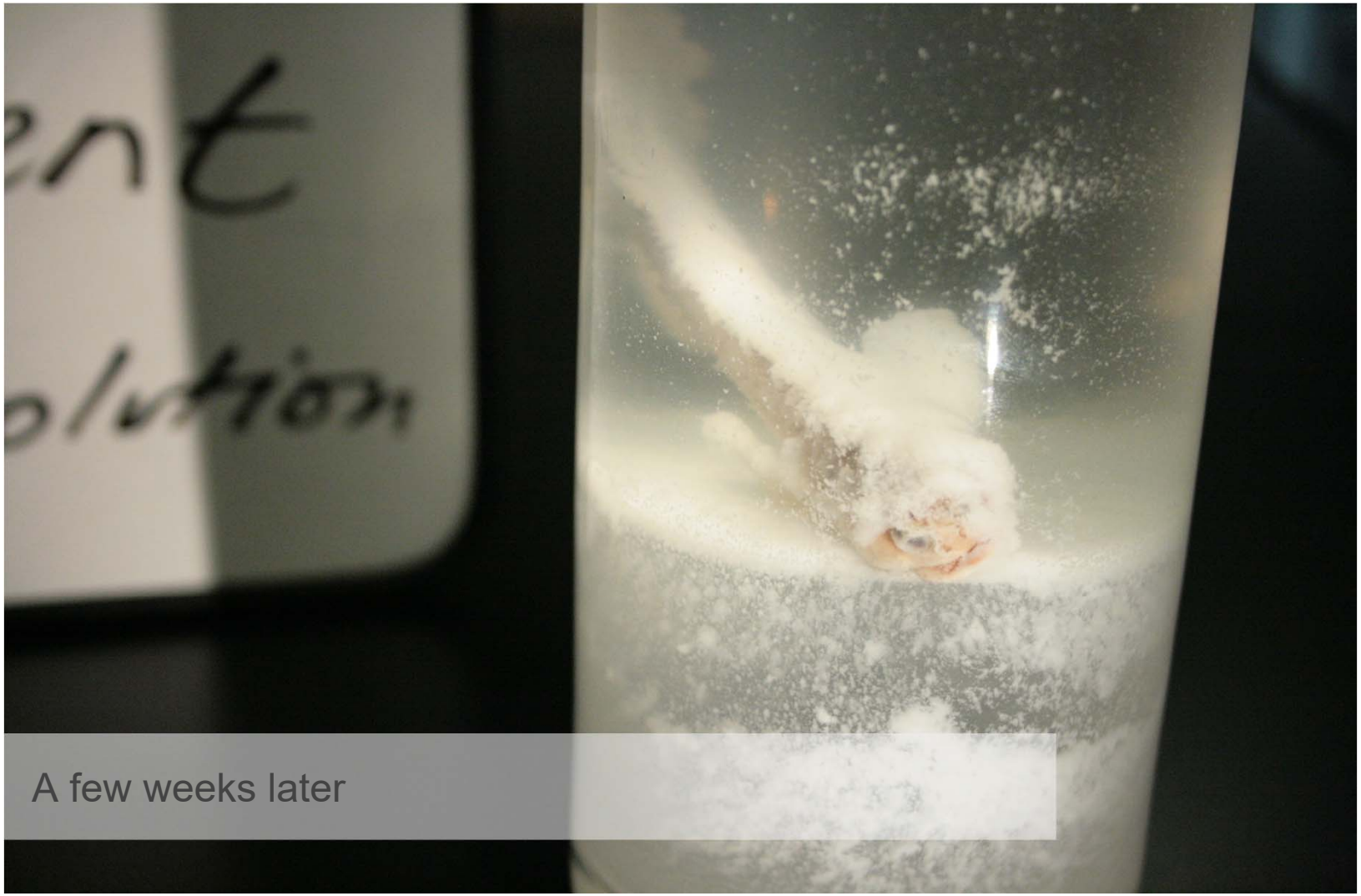
Squeeze the U to close the arms

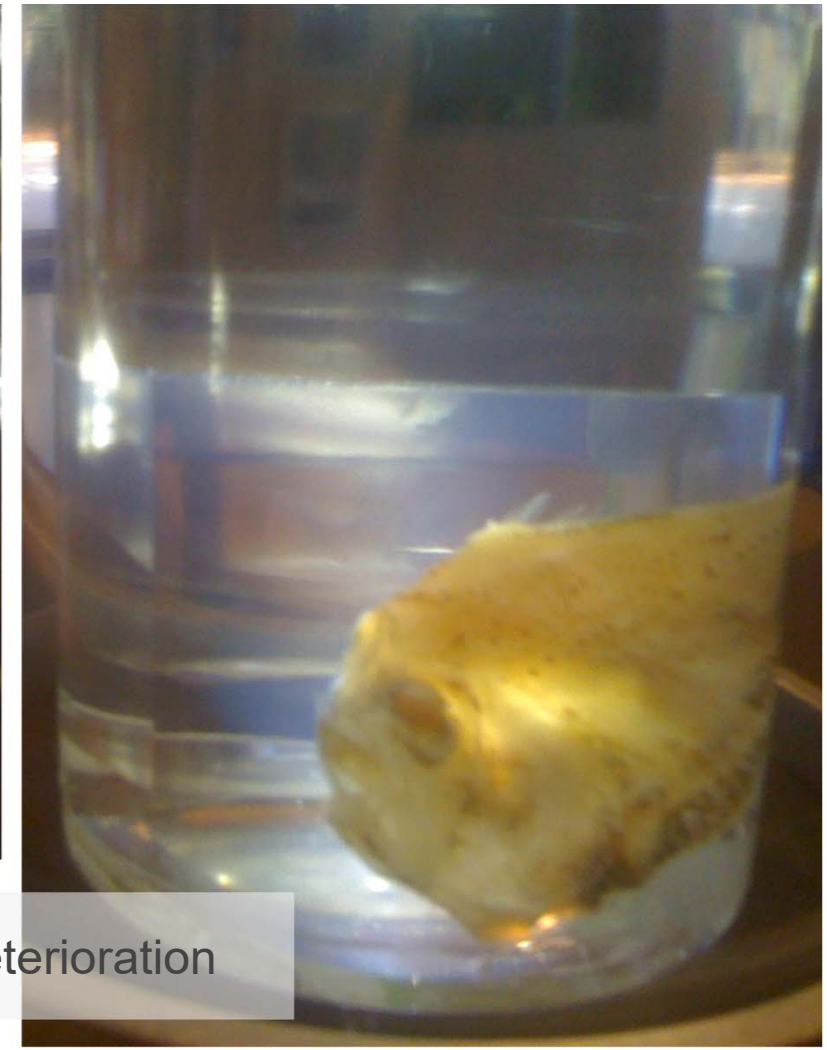
Inside the jar: bad prop, good prop

Collections preserved in 70% ethanol

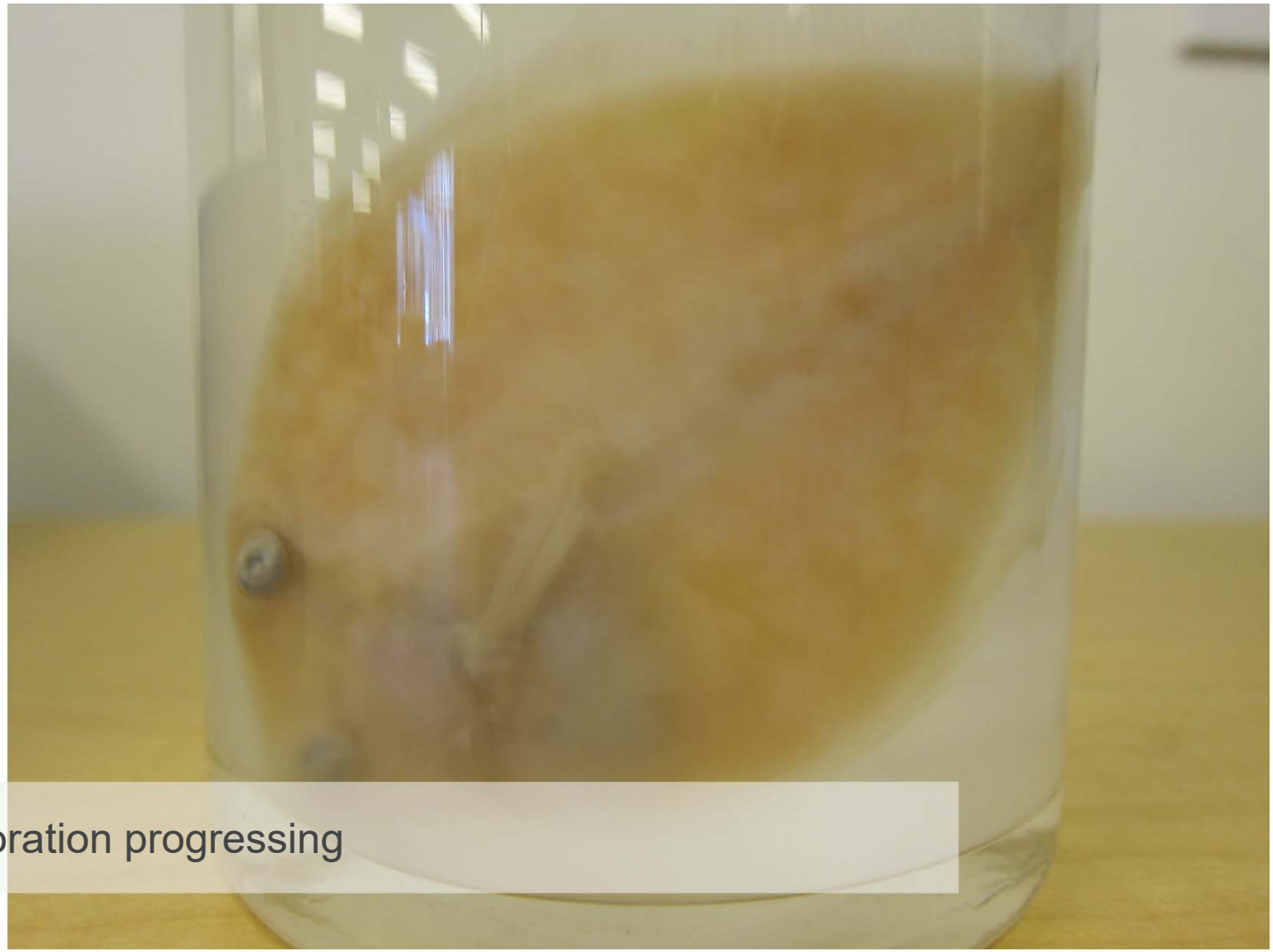
Smaller specimens were propped on acrylic (PMMA) blocks

After 4 1/2 years, clouds and precipitant in a jar

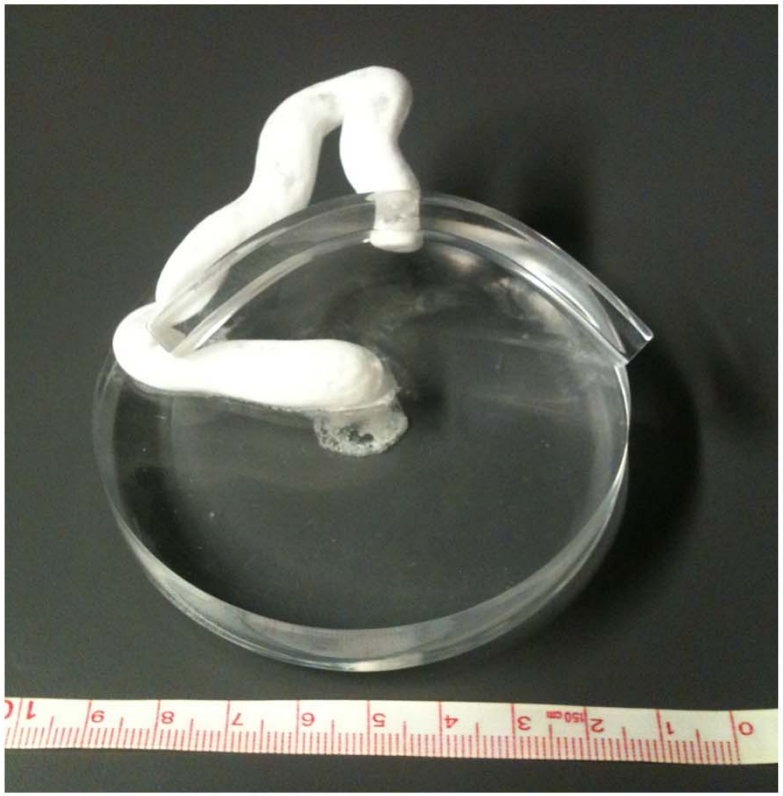

A few weeks later

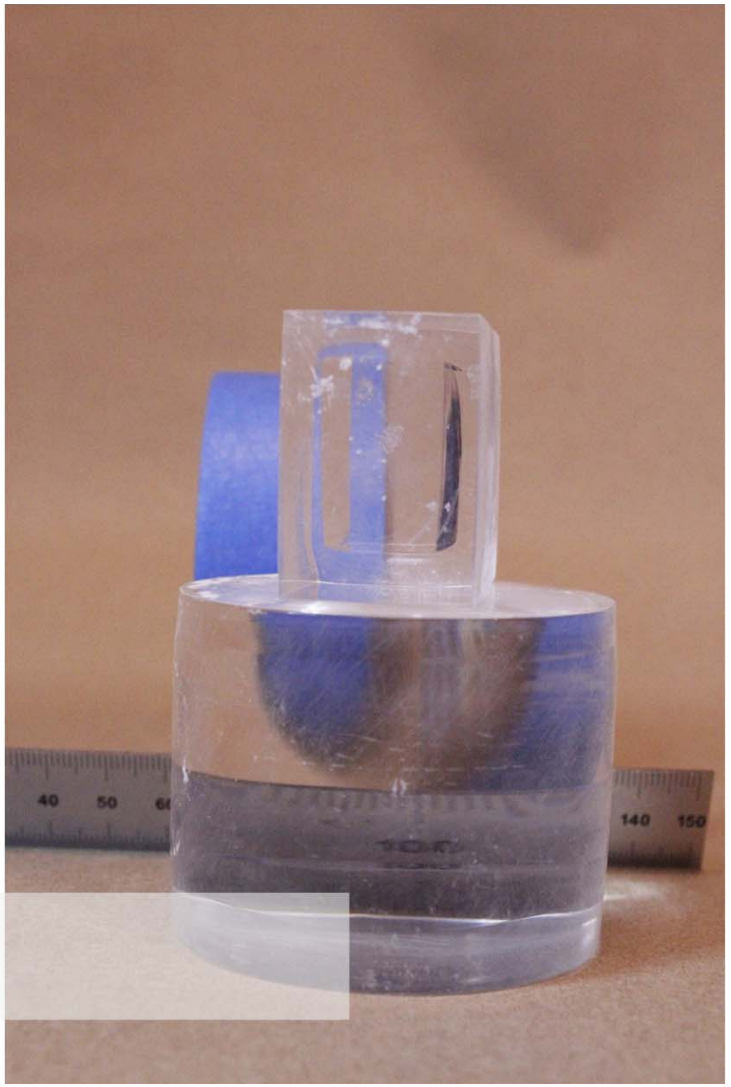


Acrylic blocks beginning to show signs of deterioration



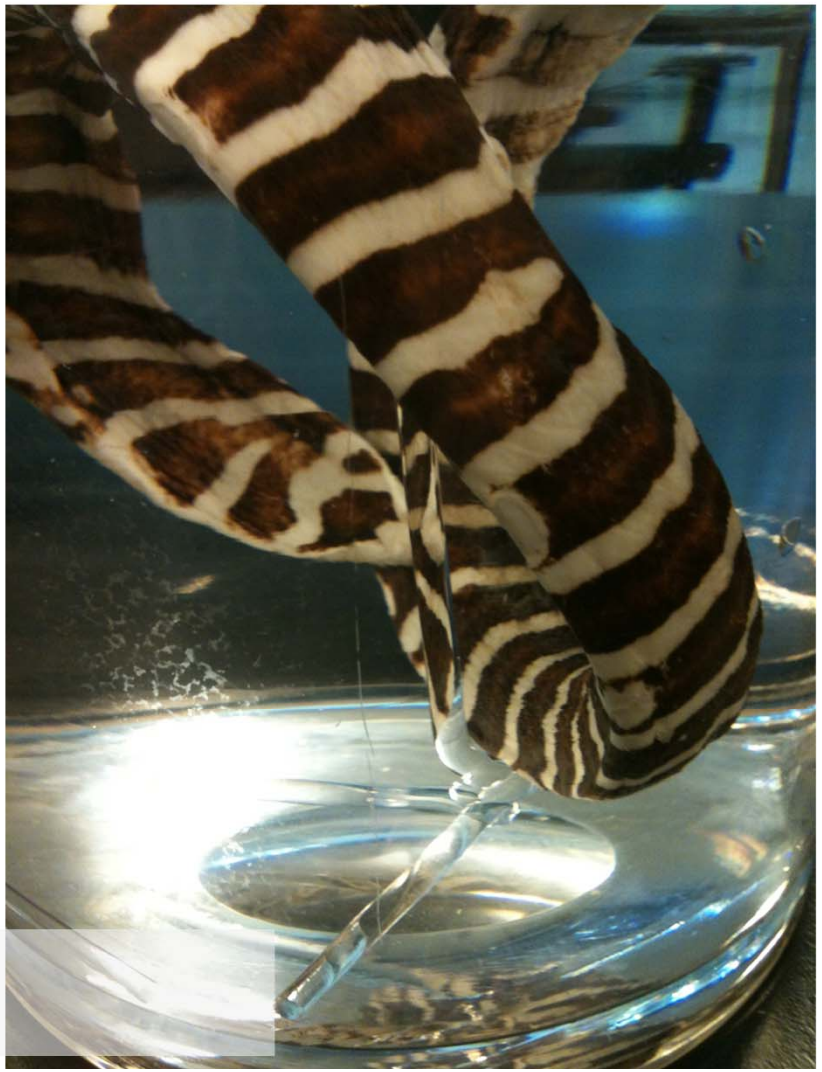
Deterioration progressing



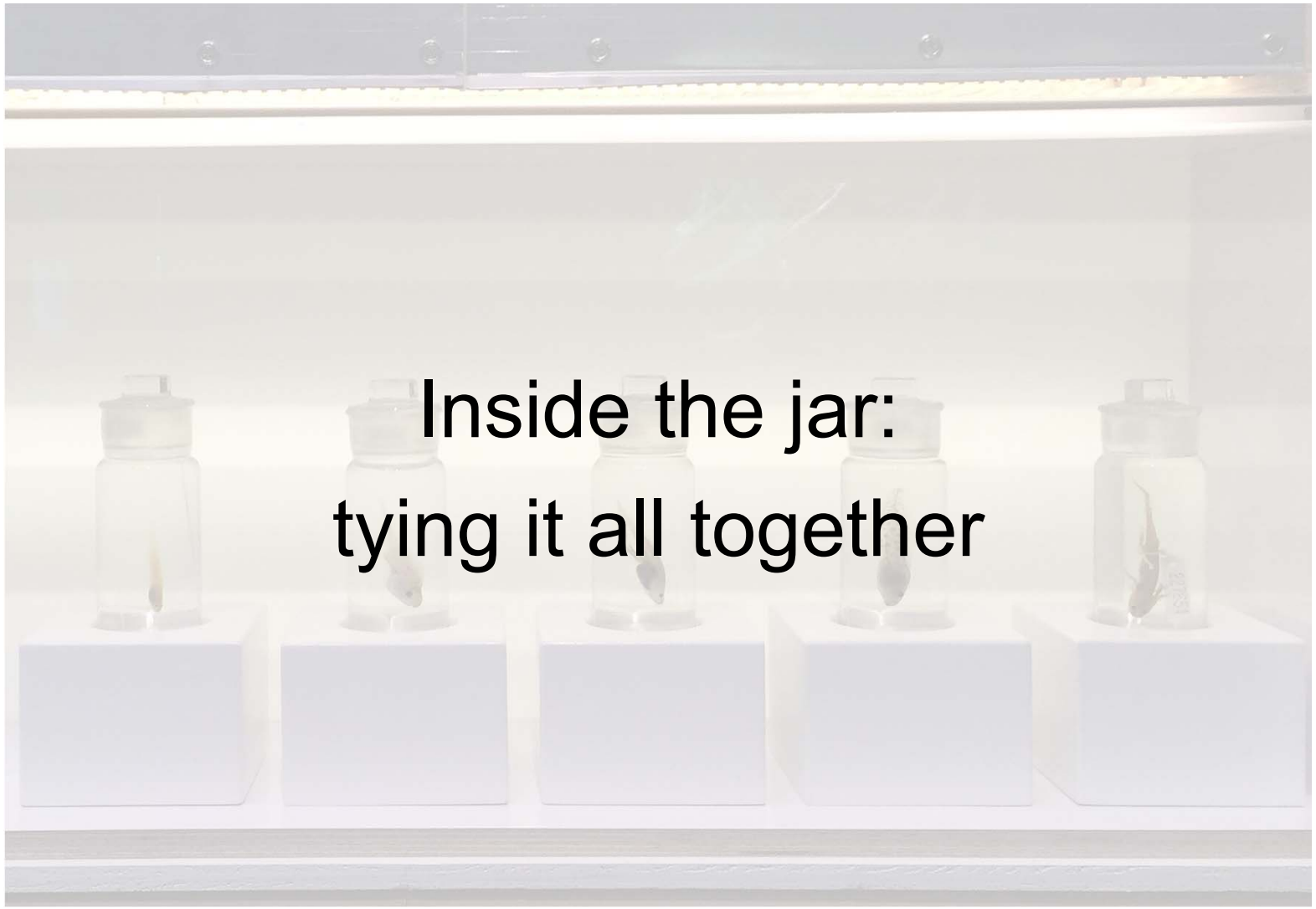


Bad props

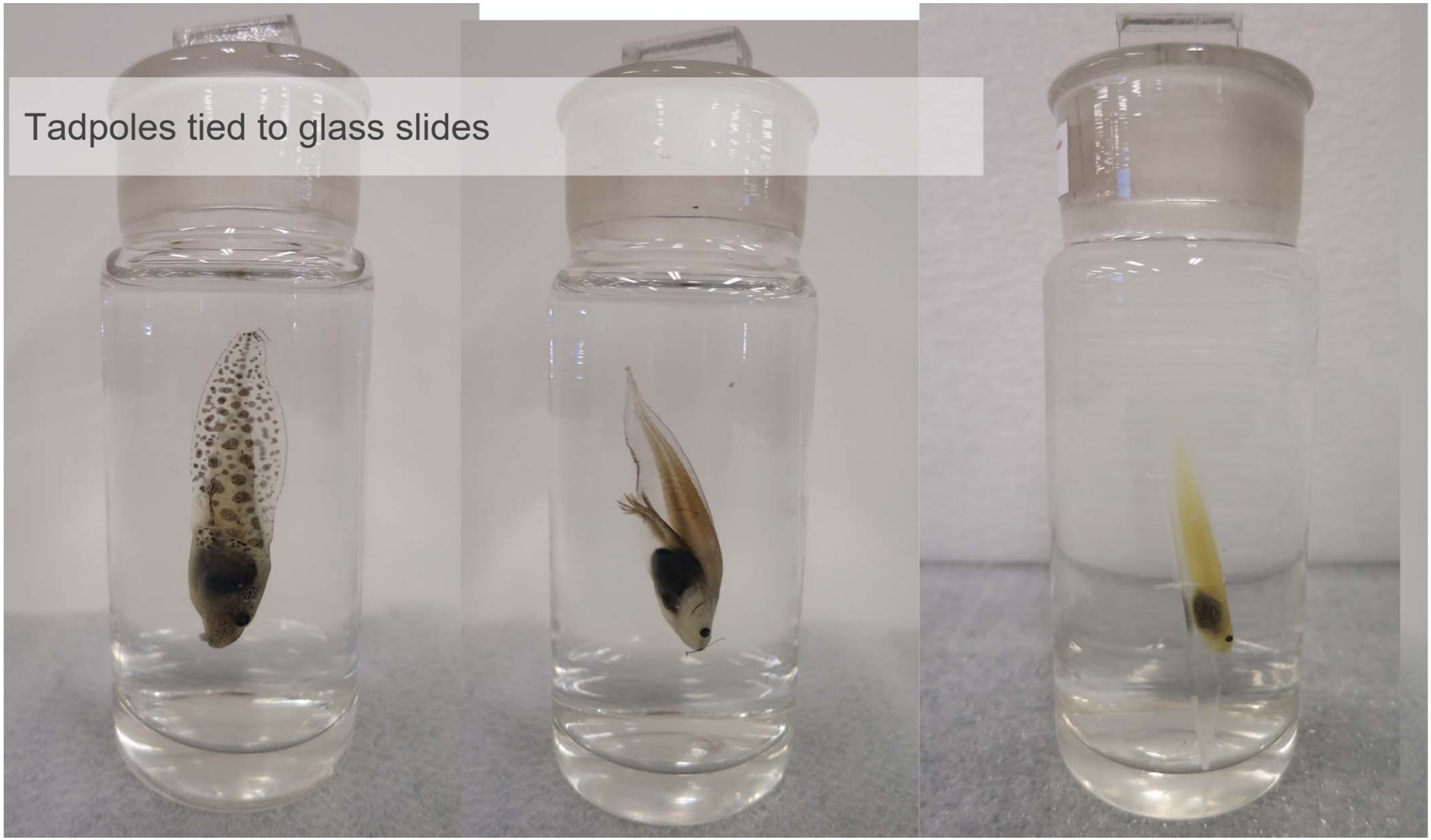
Good props



Flame-worked rod experiment


Inside the jar:
tying it all together

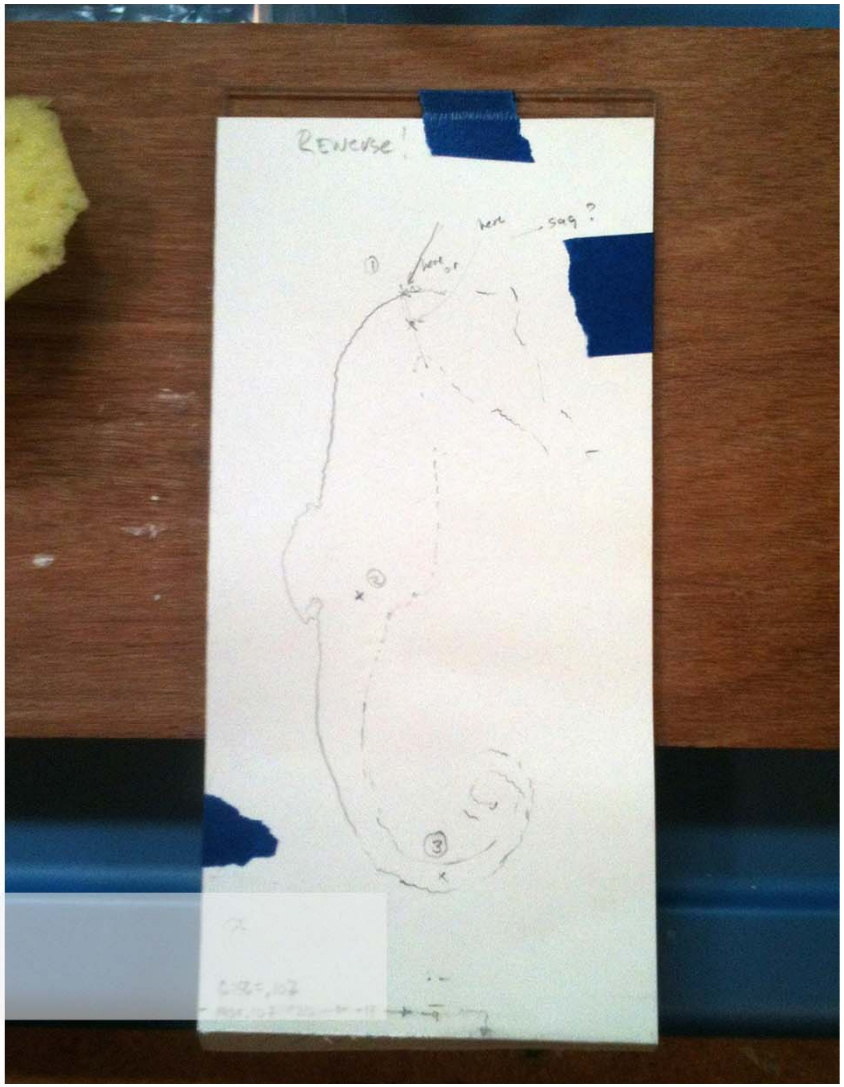
Alignment was important for these specimens

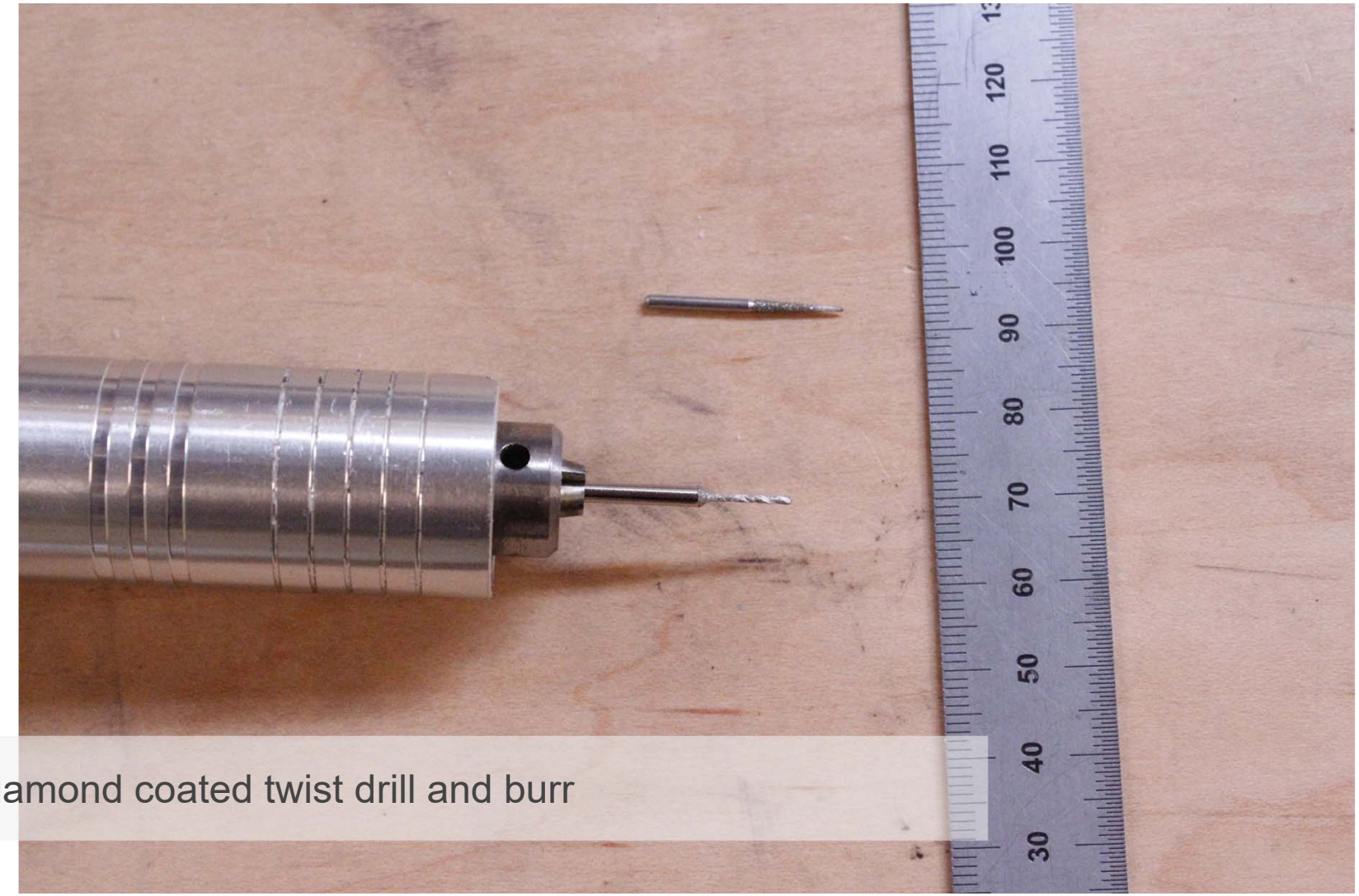

Tadpoles tied to glass slides


Filament stitched and knotted

Non-cinching filament loops knotted on the back of the slide

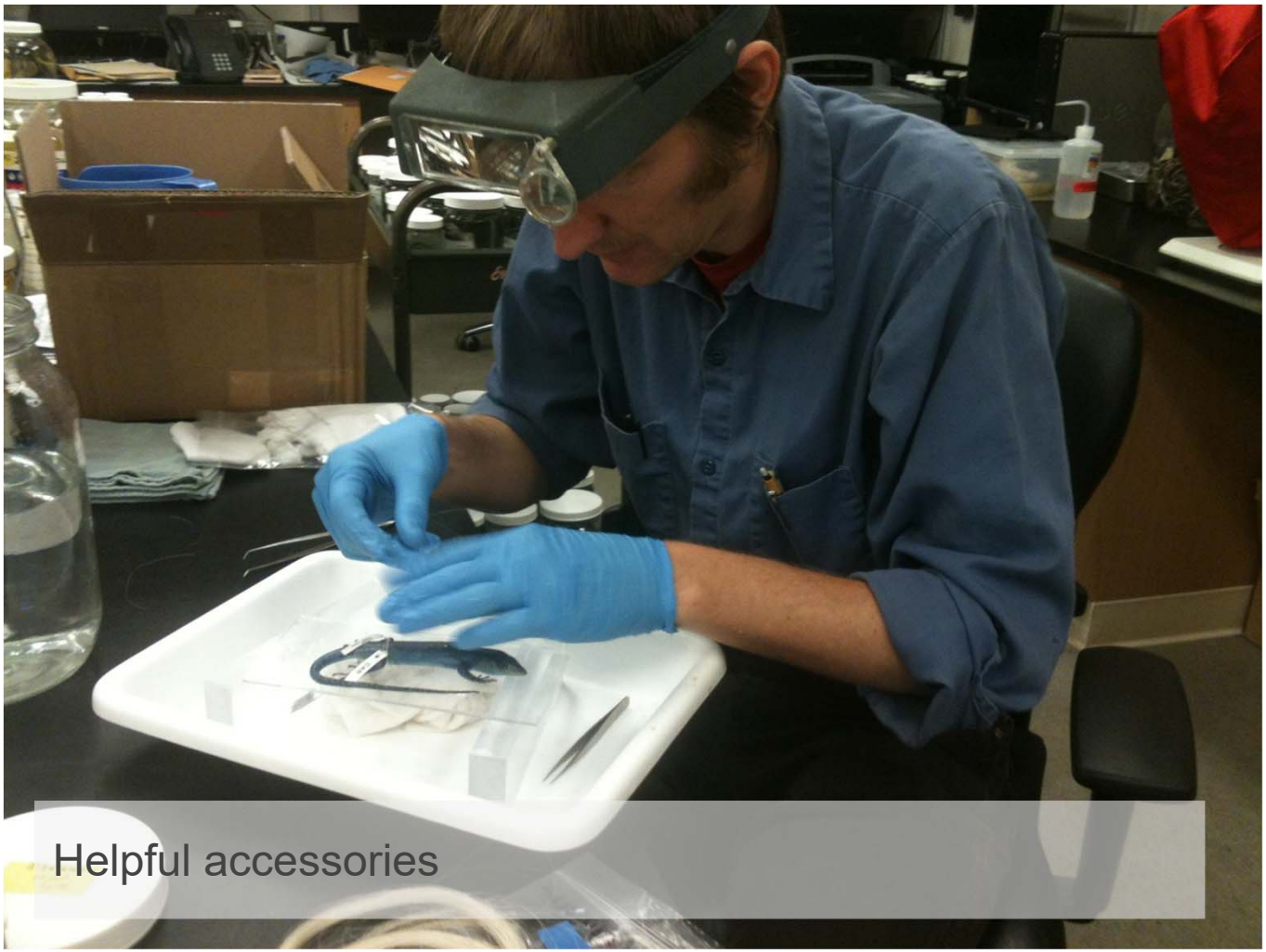
Drilling templates



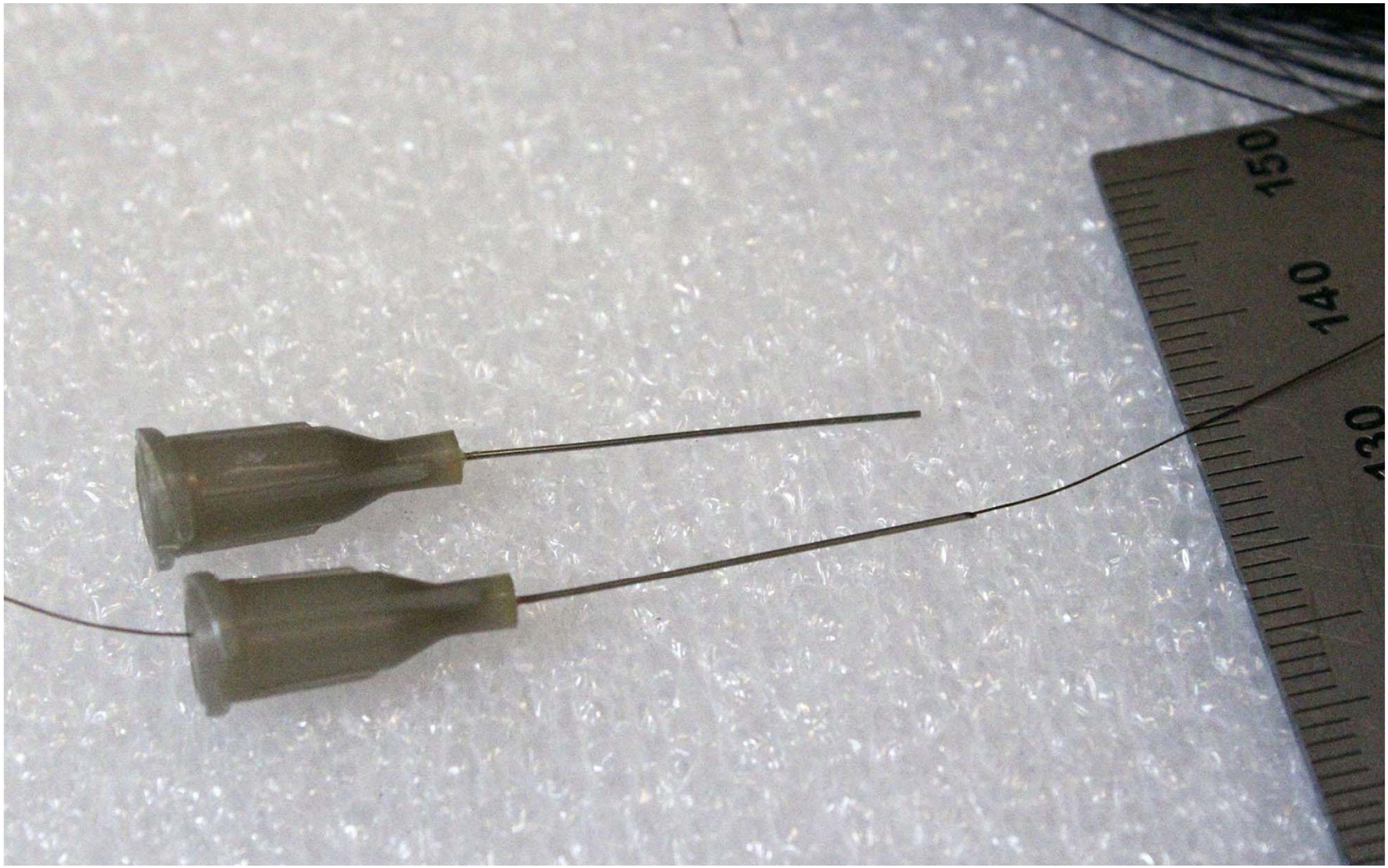


Diamond coated twist drill and burr

Horse hair is our filament of choice



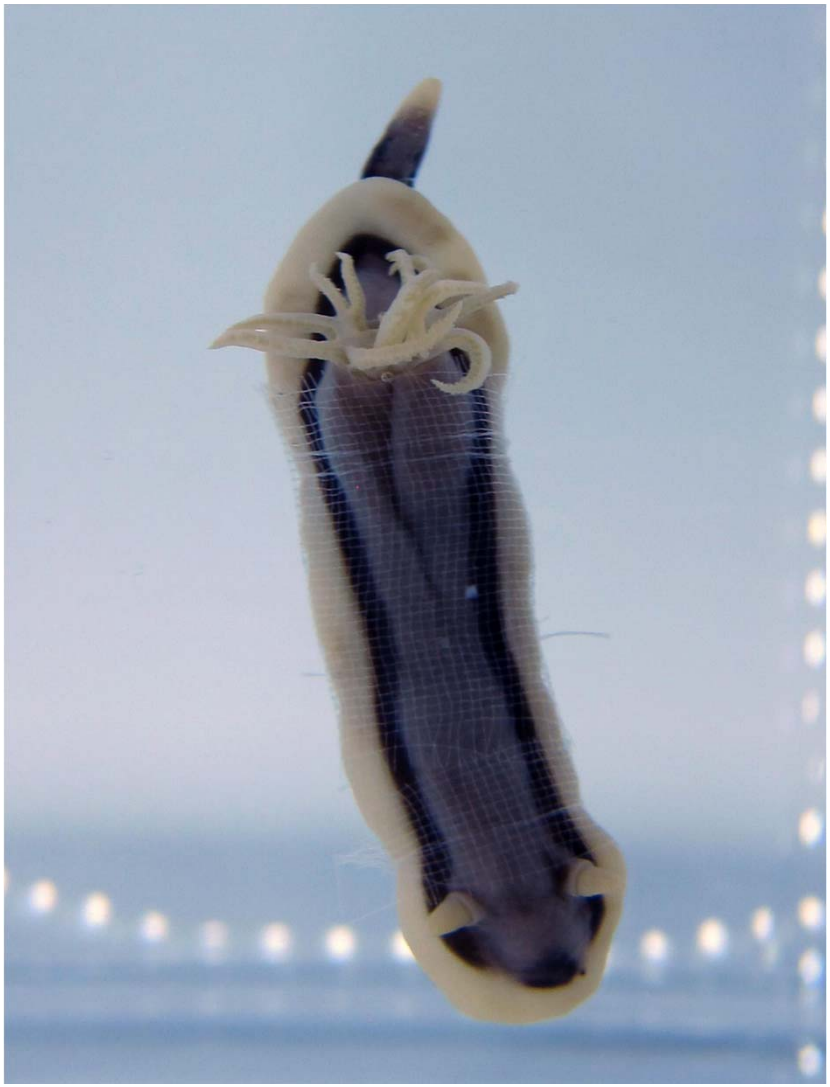
Helpful accessories

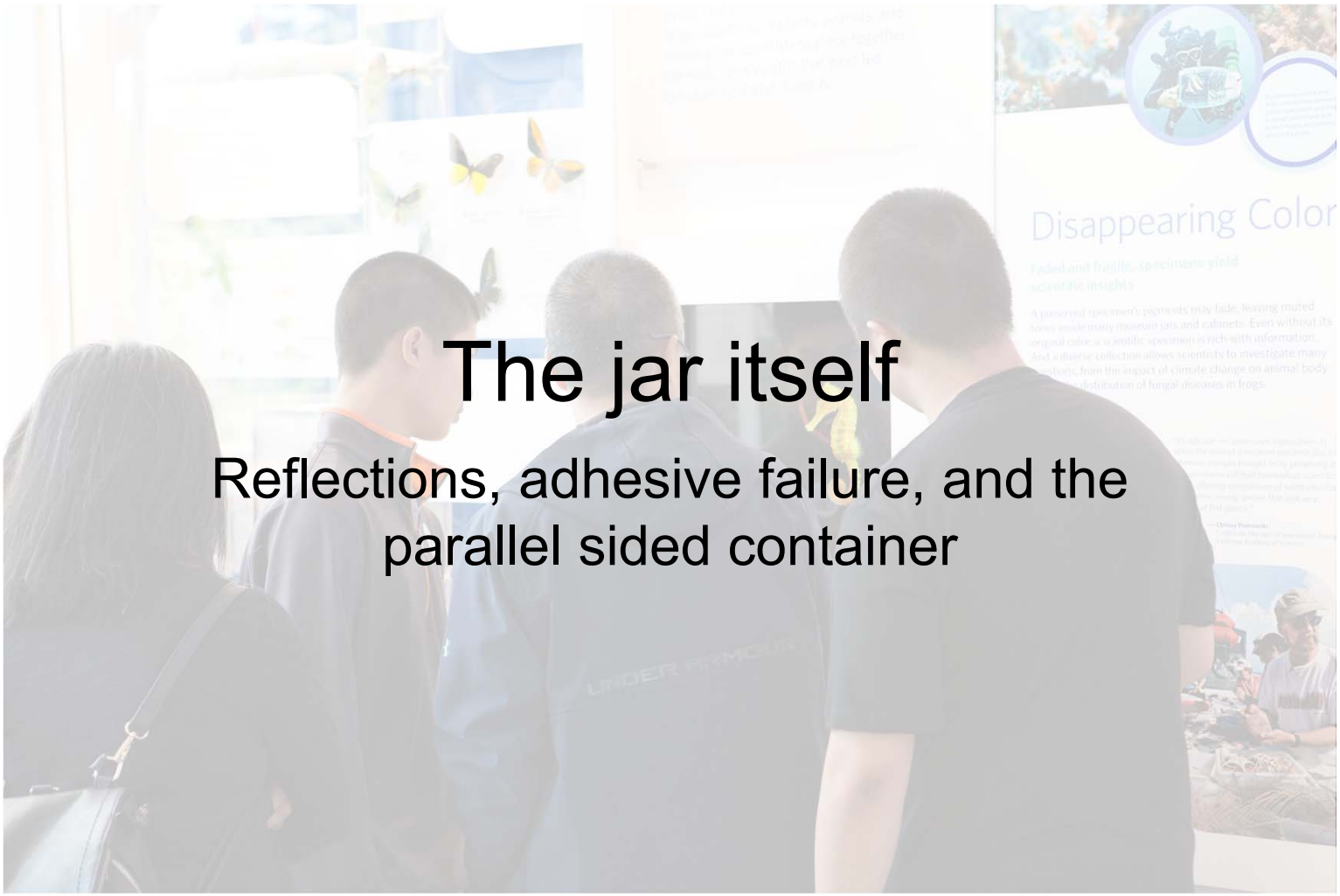

150
140
130

Crepeline stocking for a small soft specimen

Thin hair silk attaches the stocking to the larger horse hair line underneath

In a jar





The jar itself

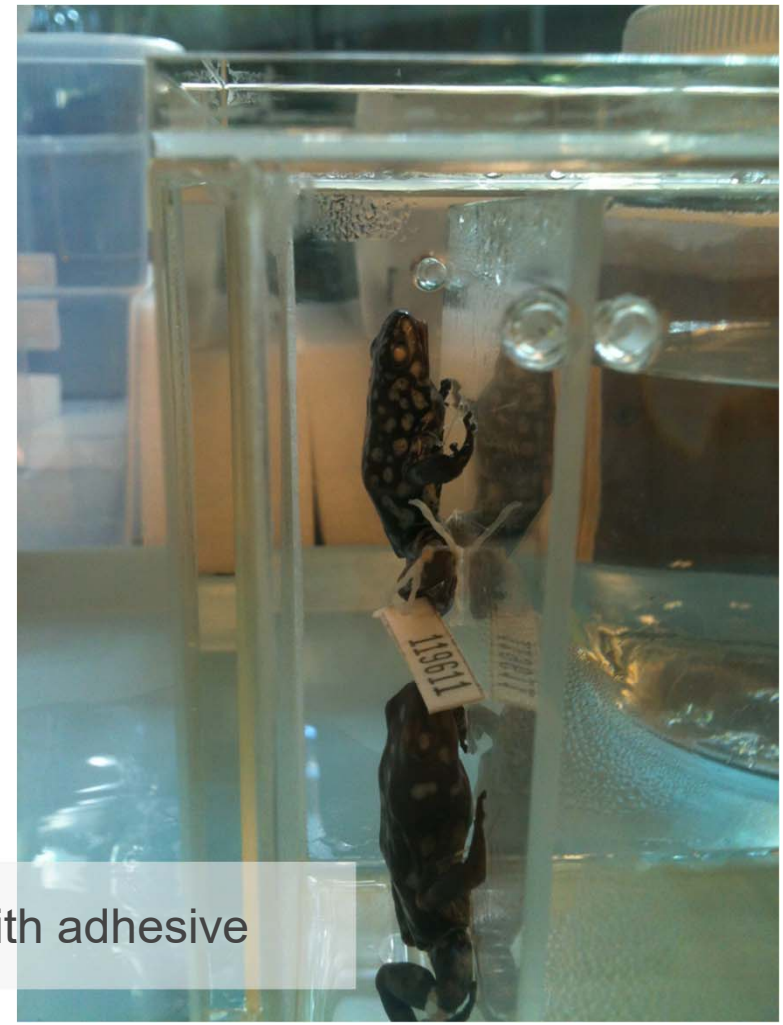
Reflections, adhesive failure, and the parallel sided container

Specimen cabinet window is a transparent interactive video screen

Media maps onto specimens in containers behind

Distracting reflections on cylindrical jars confuse the view

Plate glass jars diminish distracting reflections



First set of plate glass jars was bonded with adhesive

PRODUCT DESCRIPTION

LOCTITE® 349 UV Adhesive provides the following product characteristics:

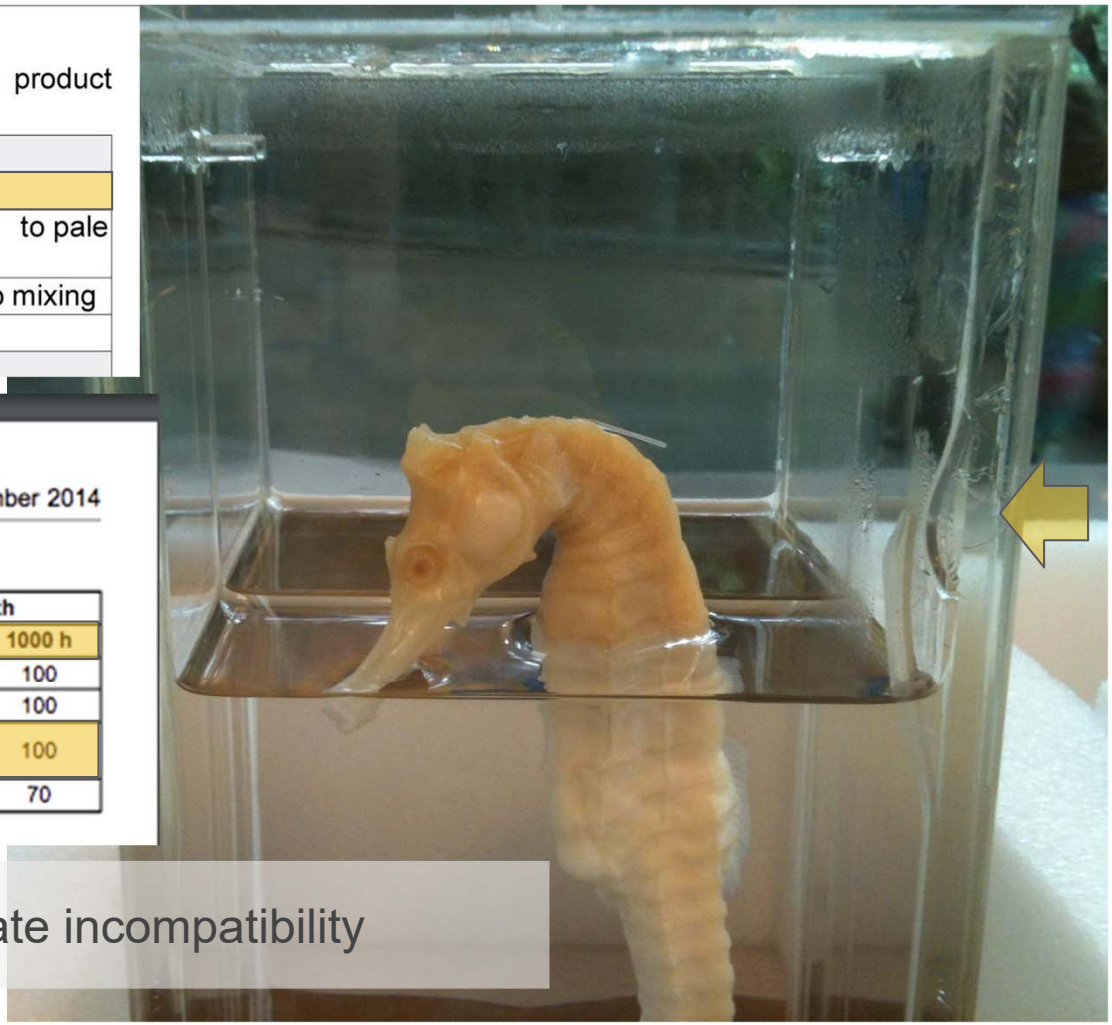
Technology	Acrylic
Chemical Type	Modified Methacrylate Ester
Appearance (uncured)	Transparent colorless to pale yellow liquid[LMS]
Components	One component - requires no mixing
Viscosity	Medium
Cure	Ultraviolet (UV) Light

TDS LOCTITE® AA 349™, September 2014

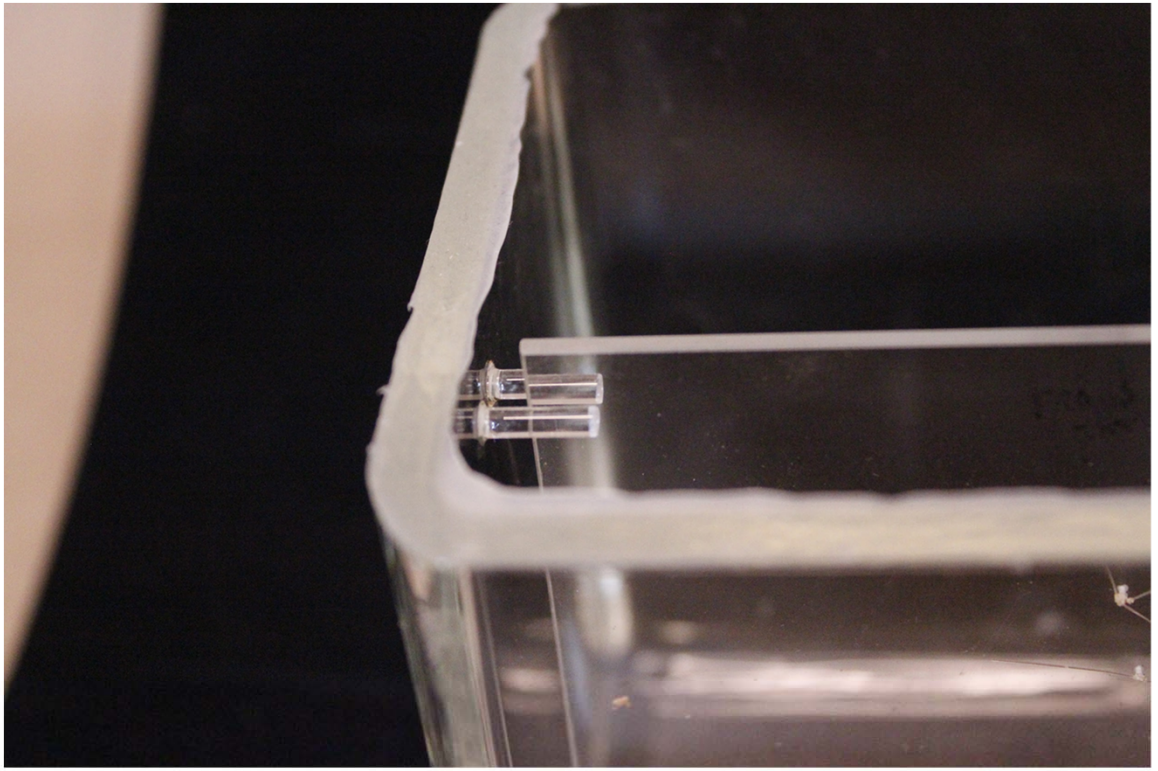
Chemical/Solvent Resistance

Aged under conditions indicated and tested @ 22 °C.

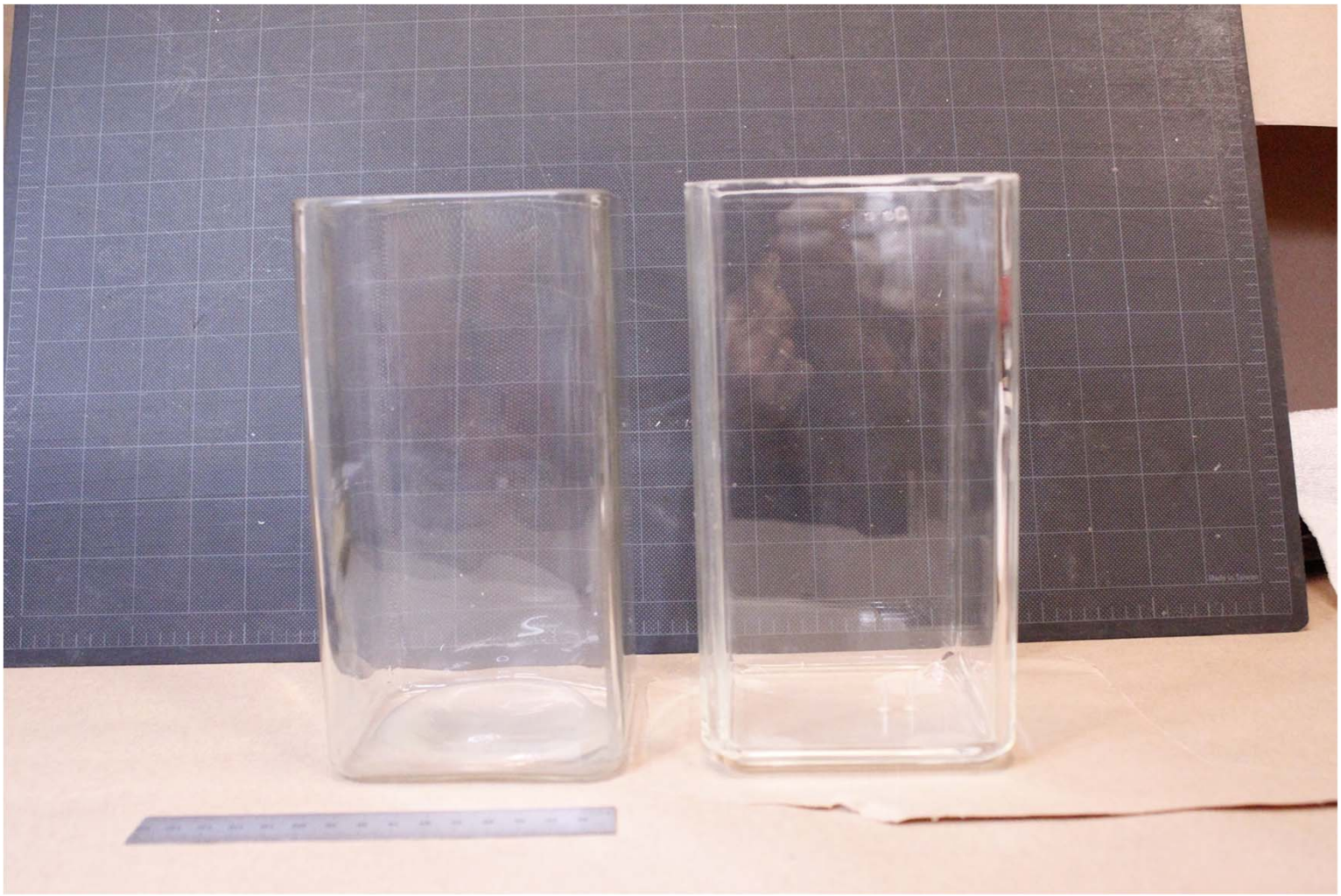
		% of initial strength		
Environment	**°C**	**100 h**	**500 h**	**1000 h**
Gasoline	22	100	100	100
Freon TA	22	100	100	100
Industrial methylated spirits	22	100	100	100
Heat/humidity 90% RH	40	100	100	70

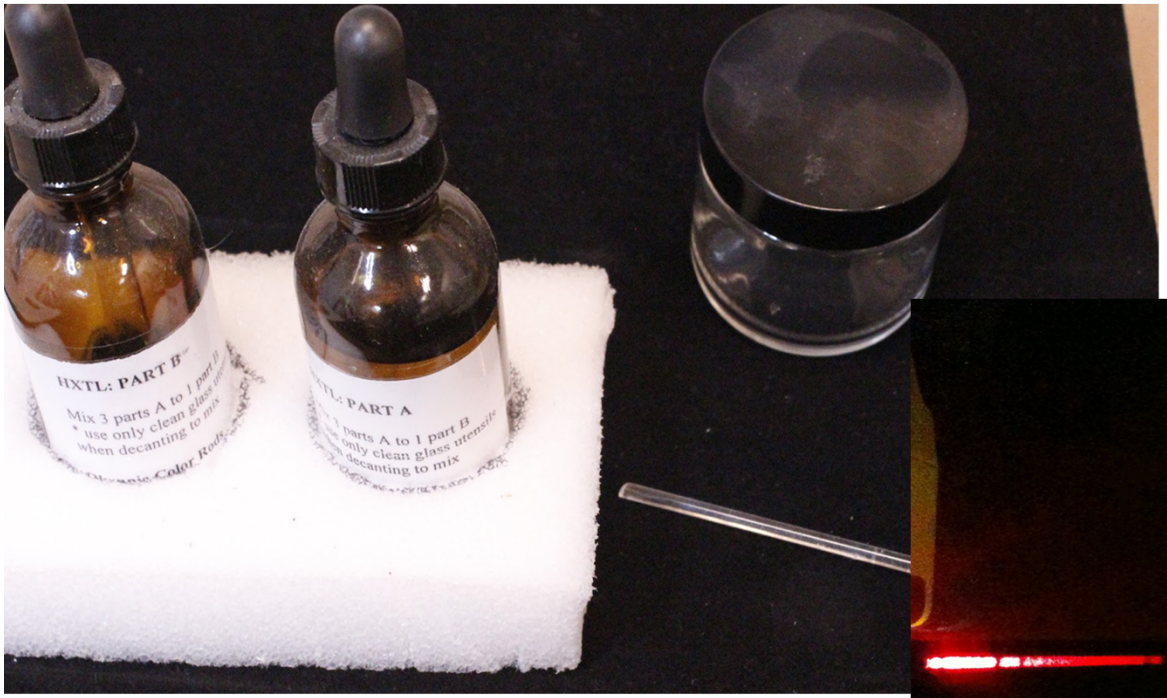


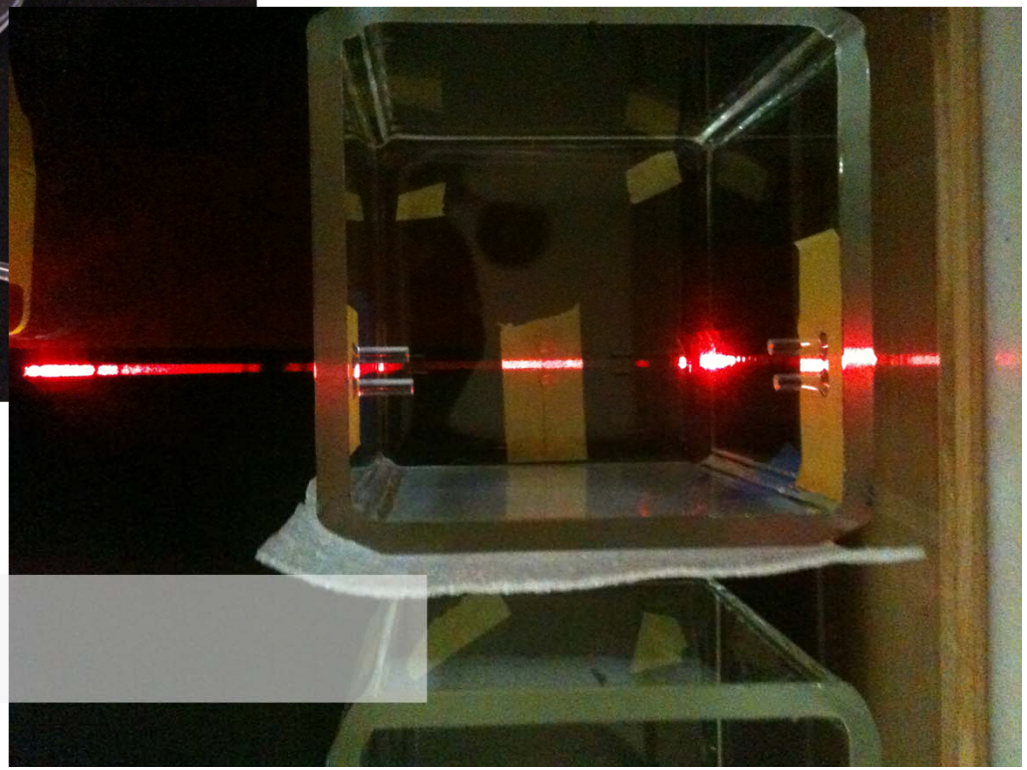
Adhesive data sheet didn’t indicate incompatibility



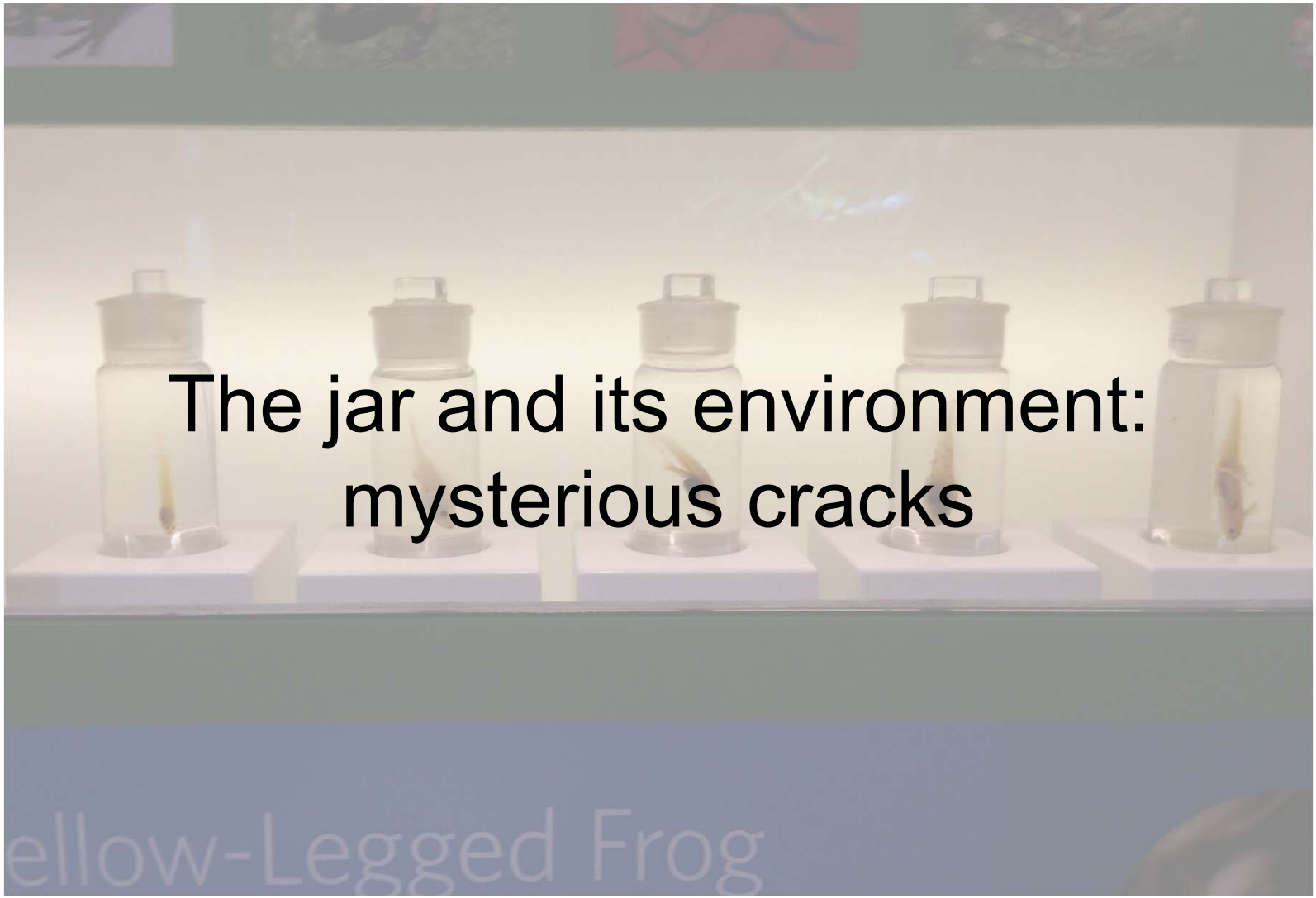
Slides need guides in containers with parallel sides



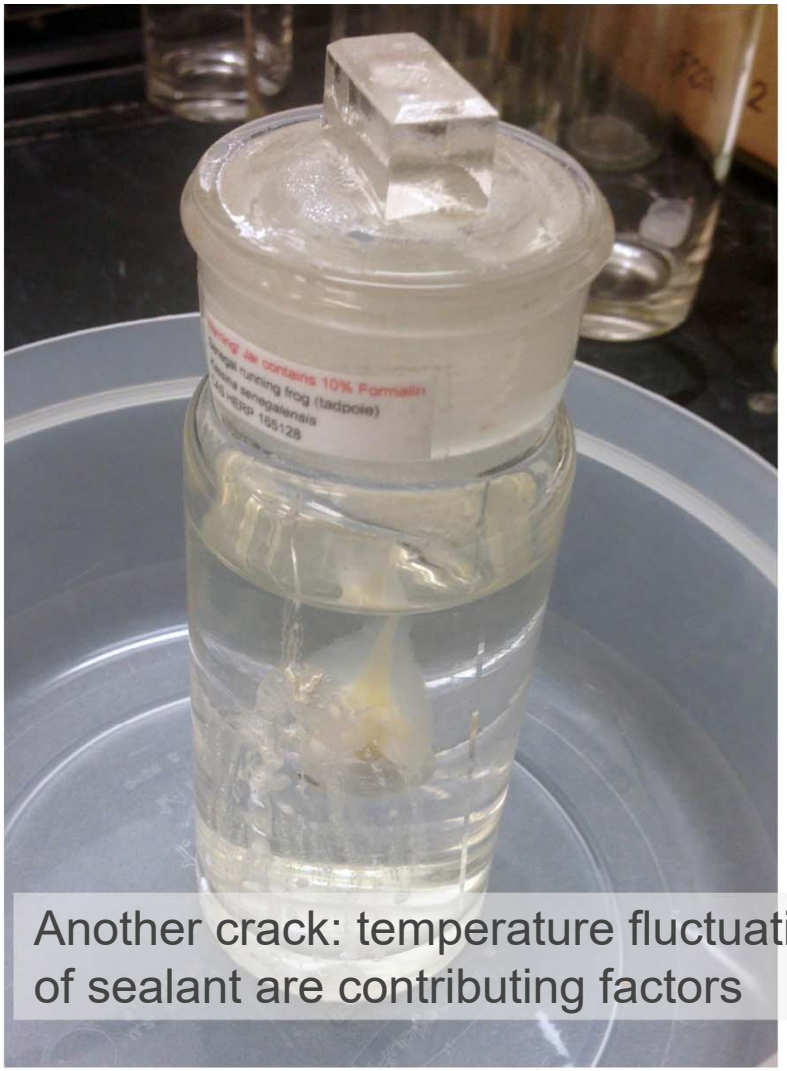


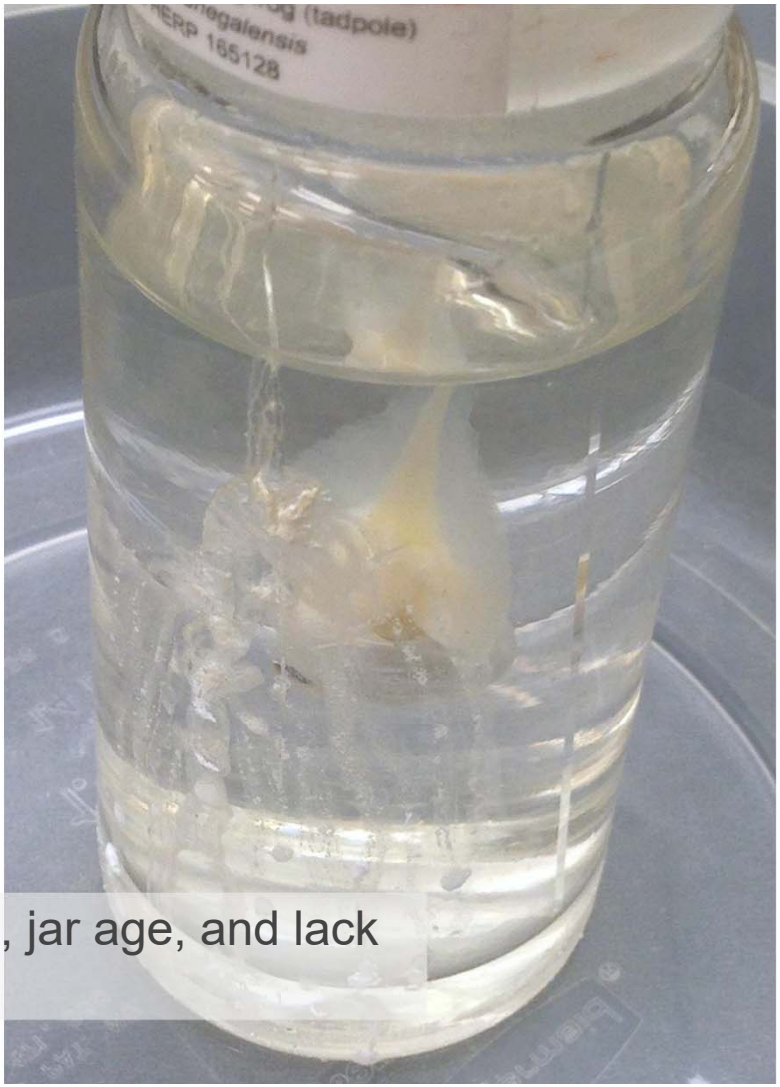


Guide peg glue; checking alignment


The jar and its environment:
mysterious cracks
ellow-Legged Frog

A crack appears





Another crack: temperature fluctuation, jar age, and lack of sealant are contributing factors

New jar with mounting slide

Compounding the sealant

So far so good

Summary of considerations

Outside the jar:

- *Success* when the jar is supported to prevent tipping.

Inside the jar:

- *Failure* when acrylic is included. Many sources indicate PMMA is not soluble in either ethanol *or* water, *but that does not mean that it is insoluble in a water and ethanol mixture!*

- *Success* when we used glass props and used or adapted established tied-to-slide mounting techniques.

The jar and its environment:

- *Failure* whan jar qualities interfere with clarity of presentation and object preservation.

- *Success* when close attention is paid to the qualities of the container (such as shape, material, age, and type of seal) and how they interact with the specimen and the display environment.

Contact

Ian Hart, Exhibits Preparator

California Academy of Sciences
55 Music Concourse Dr
San Francisco California 94118
United States of America

ihart@calacademy.org
1 (415) 379-5879

Thank you

The Exhibits Studio, California Academy of Sciences

The Society for the Preservation of Natural History Collections and NHCOLL-L

Tom Adams
Dave Catania
Elizabeth Kools
Dirk Neumann
Bob Maiden
Simon Moore
Christina Piotrowski
Lauren Scheinberg
John Simmons
Jens Vindum
Kathryn Whitney

Dixon Scientific
Plowden & Smith
R&D Glass

Questions?