

Laboratory Notebook

This was written by Bruno Pernet at the Friday Harbor Laboratories.

Why keep a notebook?

This is a class on the diversity, form, and function of invertebrates. Lectures provide an introduction to organisms and how they work, and cover topics that we cannot study during laboratory (either because they require organisms, equipment, or time we don't have). You will get much more out of this course if you keep a notebook. A notebook, first of all, serves as a permanent record of what you've seen. But of more immediate concern is a study tool for the course (both the practical and written exams). Additionally, and more importantly to me, making detailed notes and drawings is an excellent way to sharpen your skills of observation. There is nothing like comparing your own sketches and notes to a real animal to make you realize that it really has six appendages instead of four, or that its skin is covered with tiny curved spines, not smooth as you've drawn it, or that its circulatory system branches much more, and in different patterns than in the diagram in your textbook. Such observations lead to insights about how animals work, which is one of the course objectives.

What should go into your lab notebook?

The central component of your notebooks will likely be obsessively labeled sketches of animals you've studied. Additional things that should be included are:

- The names of the organisms you're examining
- Where we obtained them, and size references (e.g., scalebars)
- Notes on specific lab exercises, and any observations on structure, function, or behavior that you think are important or interesting.

Great examples of lab notes are available in compilation of drawings by DP Abbott and students (*Observing Marine Invertebrates*, 1987). A few more suggestions:

- A 3-ring binder filled with clean white unlined paper is a good choice for a notebook, because you can easily incorporate handouts into it. A bound composition book is also a good choice since it is sturdy and the pages will not come apart.
- Make your drawings large. This permits you to actually show relevant detail. Fill the page!

- Use a pencil, not ink pens.
- Don't use color for the sake of color—use it only when it's informative.
- Organize your notebook taxonomically, not day to day.
- Don't copy illustrations from textbooks. What's the point of that?

More general suggestions from DP Abbott 1987

- Reality is too complex to express in mere drawings. One need not be an artist. What you need to do is to decide what sorts of details are to be stressed or omitted, and then in the sketch try to simplify reality without distorting it too much in the process.
- Clean, simple lines, all connected, are almost always better than a lot of short, sketchy lines that everything a fuzzy appearance and conceal rather than reveal detail.
- In anatomy, the relationships of the parts to one another and the whole are so important that nearly everything else should be sacrificed to show relationships. It may be necessary in some cases to make exploded drawings where parts are displayed as pulled apart so that all connections between parts are clear.
- A certain degree of neatness in drawing, format, labeling, etc., is helpful both to yourself and to others using your drawings, but one should not make a fetish of it. "Freehand" neatness often serves the purpose and saves endless time in the rendering of unnecessary detail. On the other

hand, unlabeled drawings are not useful at all.

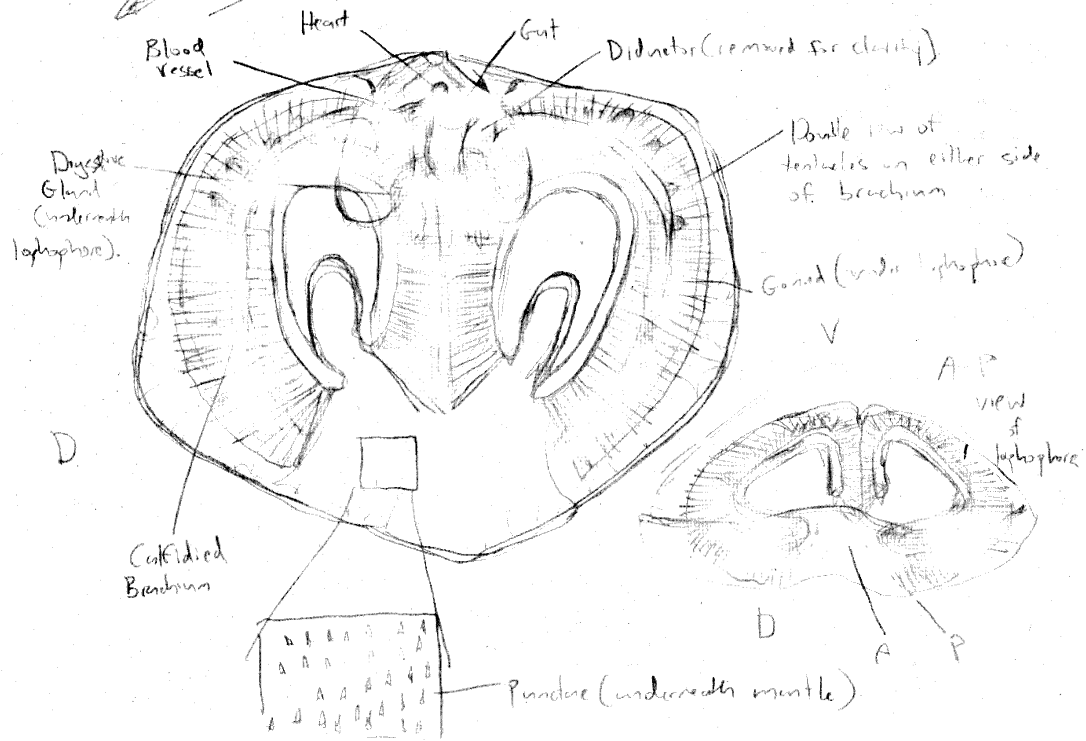
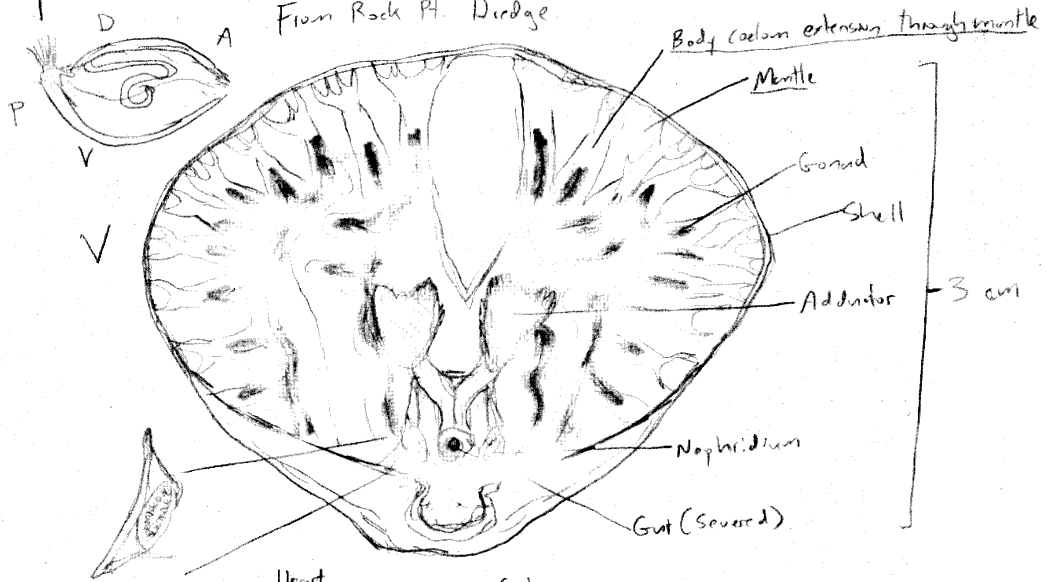
Below are 4 examples of drawings from students that claimed they couldn't draw. Anyone, can make informative drawing.

6/28/02 Brachiopoda & Phoronida

Seth.

Dissection of *Terrabentalia transversa*
From Rock Pt. Dredge

■ = Gonads

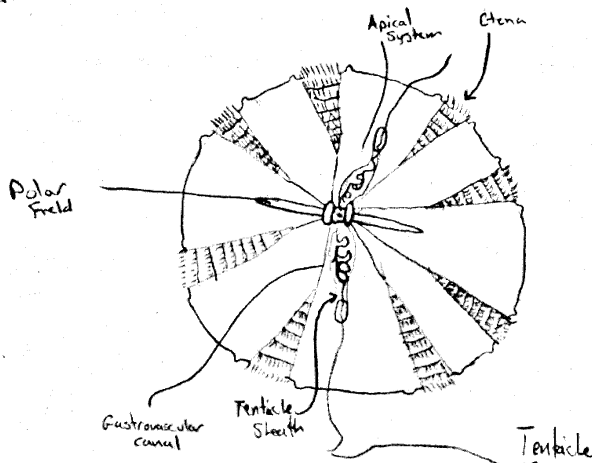
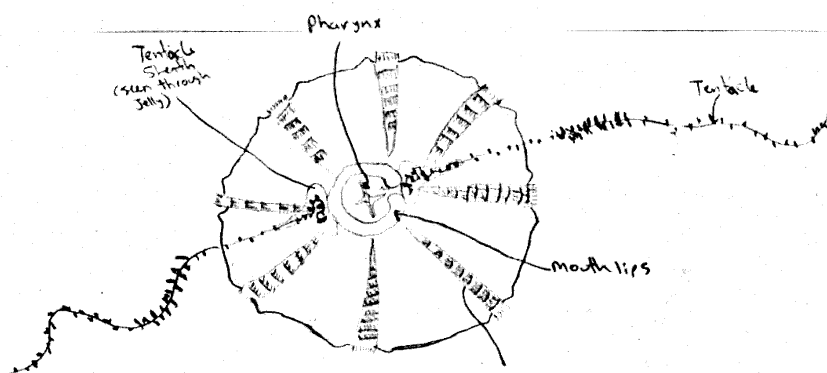


CTENOPHORA

Noel

Class Tentaculata
Order Clippida
Pleurobrachia bachei

Oral end



1 cm

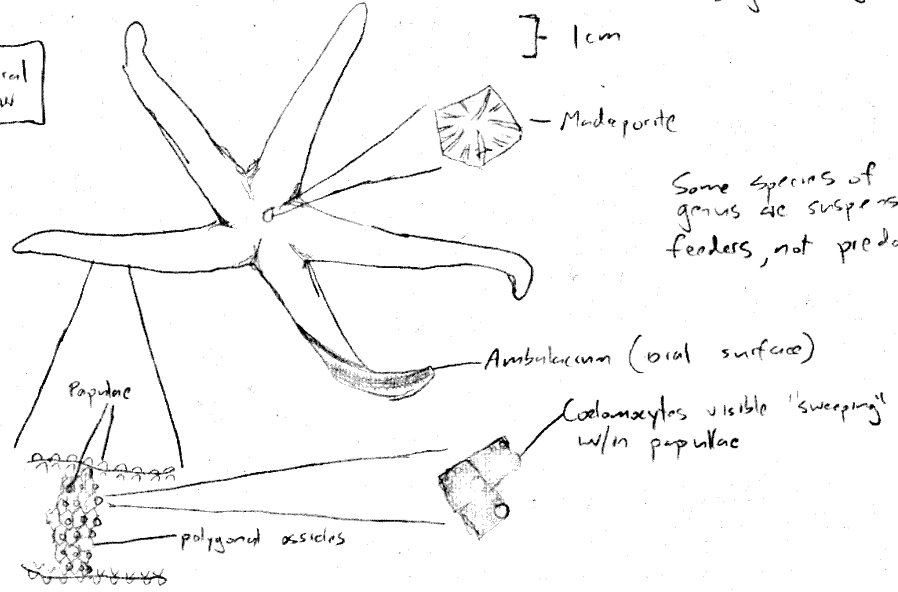
Aboral End

7/5/02 Echinodermata

Cl. Asteroiden

O. Valvatida Gen. Henricia sp. ("Blood Star")
-Bright orange

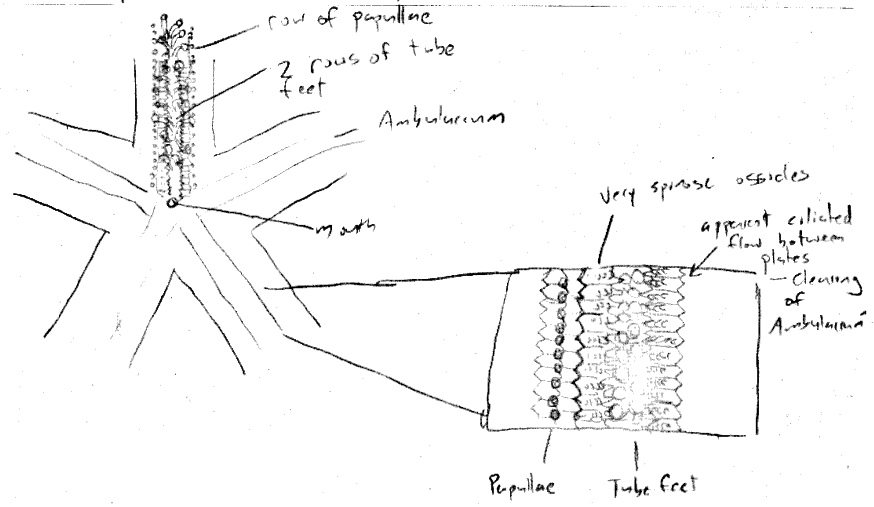
Absoral view



Some species of this genus are suspension feeders, not predators

Papulae have sensory function, retract if prodded

Oral view



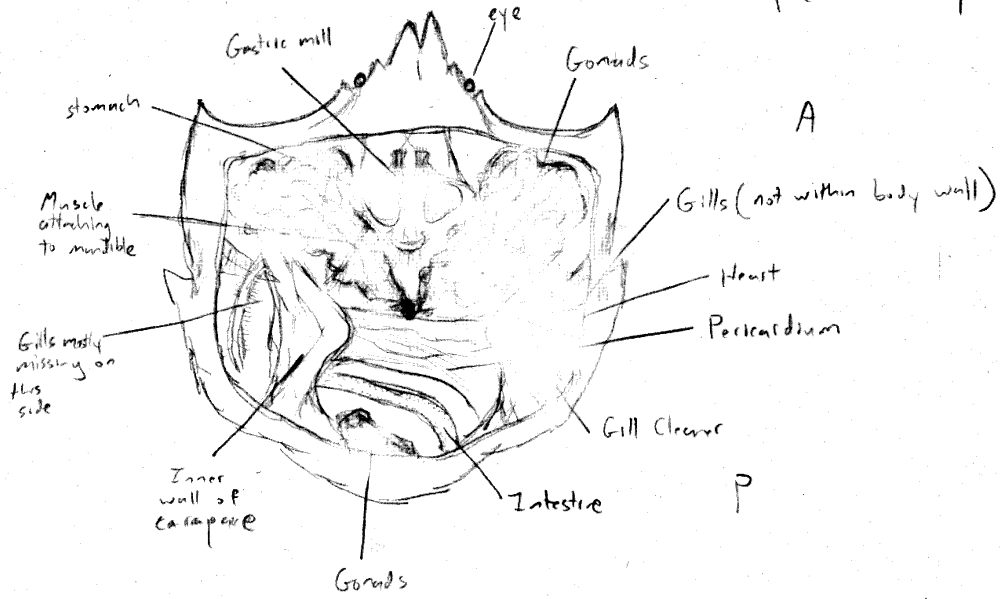
7/3/02

Dissection of

♀ Pugetia productus → herbivorous

Limbs omitted for clarity

Dorsal view - top of
Carapace cut away



Some individual w/ gonads,
pericardium, and digestive
glands cut away.

