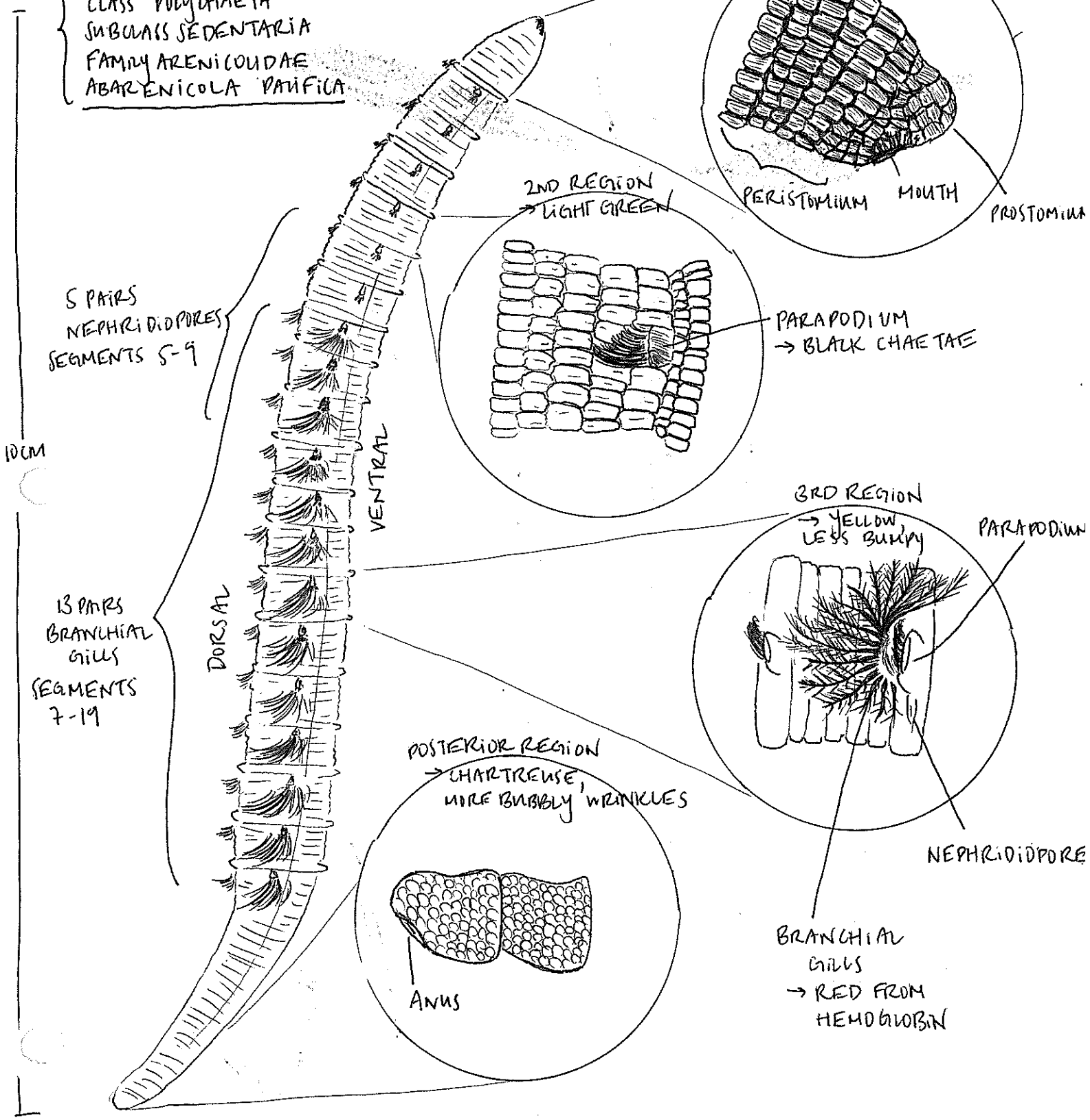
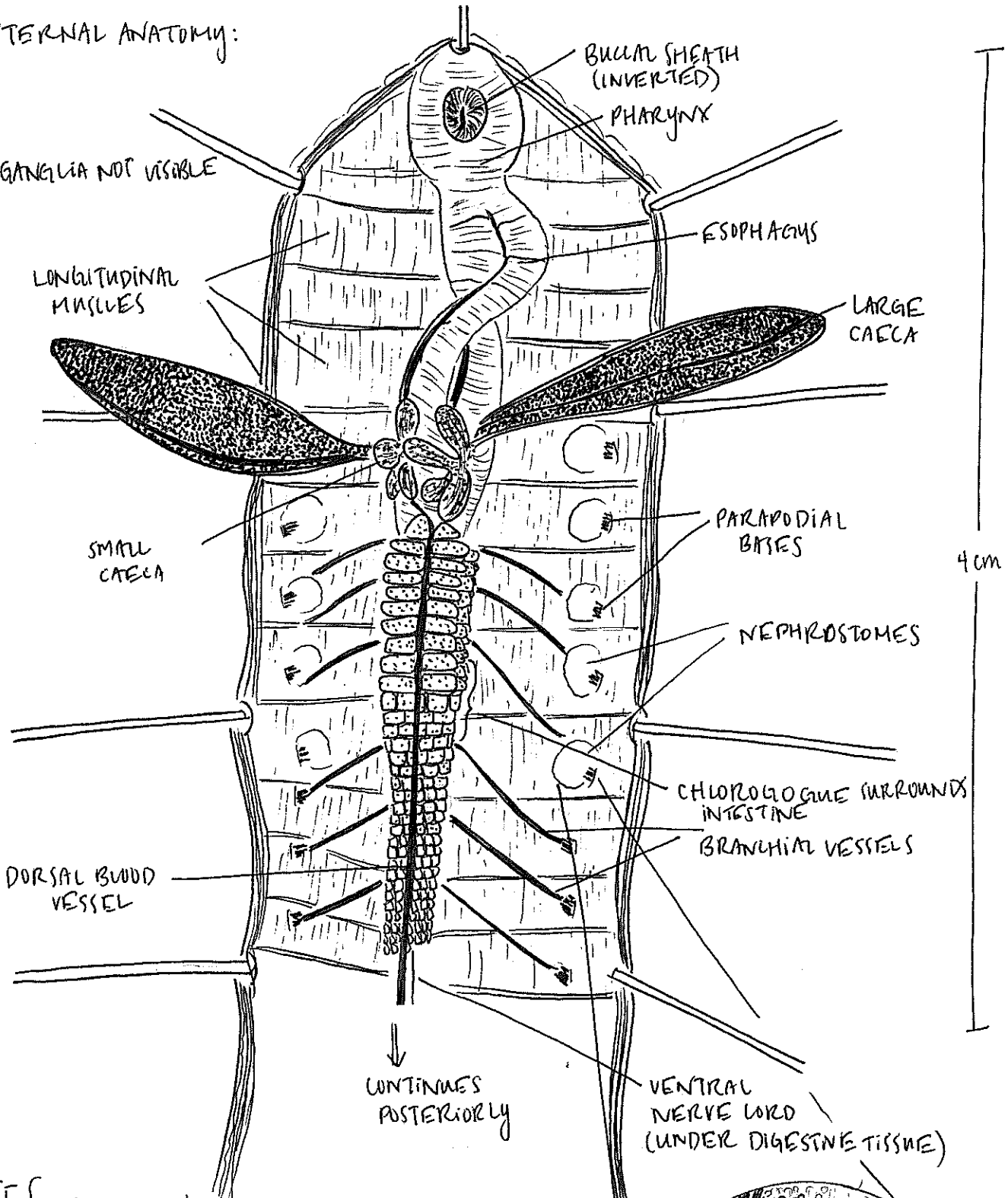
PHYLUM ANNELIDA: "CLASS" POLYCHAETA // 04.20.17

① LUGWORM DISSECTION: EXTERNAL ANATOMY

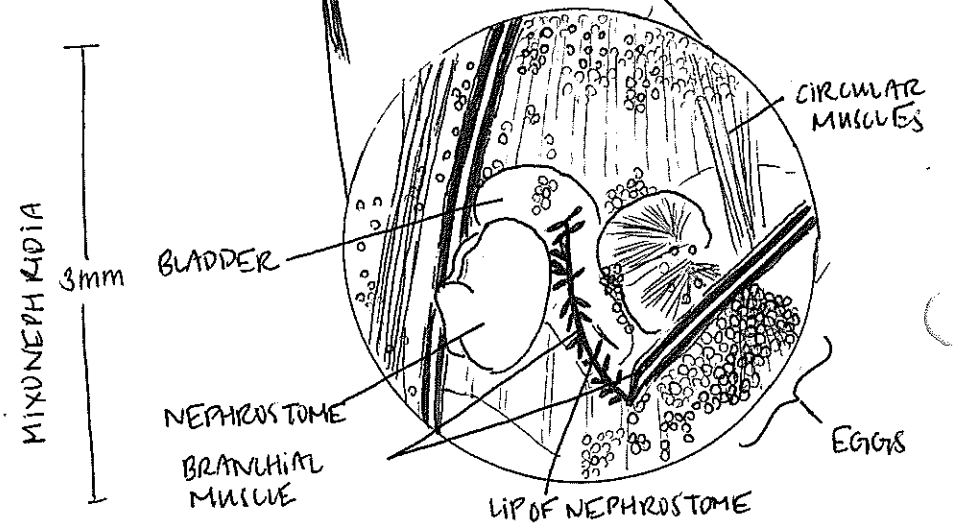
PHYLUM ANNELIDA
"CLASS" POLYCHAETA
SUBCLASS SEDENTARIA
FAMILY ARENICOLIDAE
ABARENICOLA PACIFICA



INTERNAL ANATOMY:

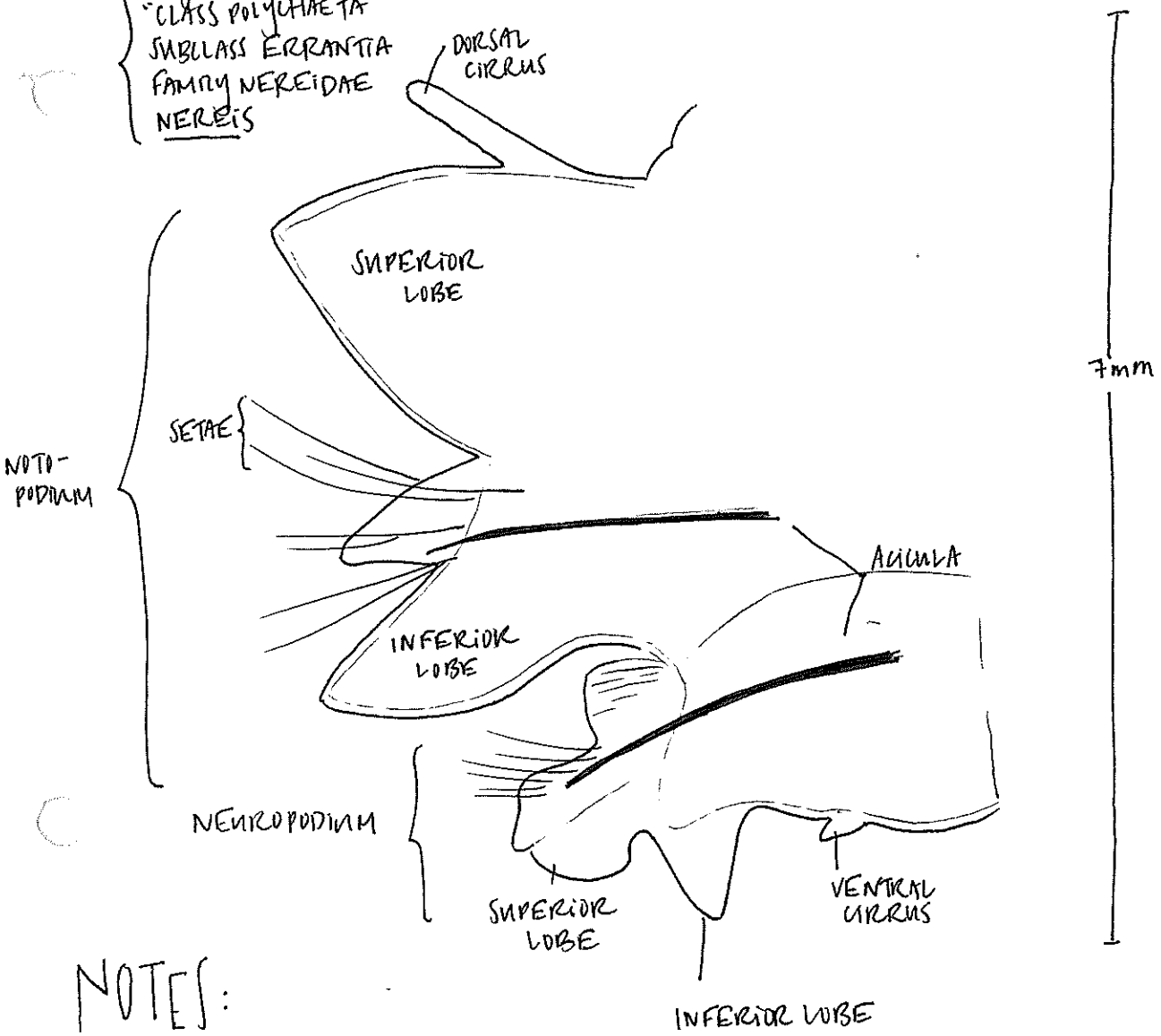


NOTES: Anesthesized in $MgCl_2$, then cut open posteriorly on the dorsal side with sharp scissors. The blood continued to pump through the dorsal blood vessel, and I could see the cilia moving inside the nephrostome.



PARAPODIUM OF NEREIS:

PHYLUM ANNELIDA
"CLASS" POLYCHAETA
SUBCLASS ERRANTIA
FAMILY NEREIDAE
NEREIS



NOTES:

FUNCTION OF STRUCTURES:

→ PARAPODIUM: Paired locomotor appendages that also increase the surface area of the worm and function in gas exchange, as they are highly vascularized.

→ ACICULA: Chitinous support rods that stiffen the lobes and aid in locomotion.

→ SETAE: Form temporary attachment sites and prevent backsliding during movement or within the substrate of burrow.

→ CIRRI: Generally have sensory functions

→ BRANCHIAL GILLS: Oxygen absorption and gas exchange

→ DIGESTION: buccal sheath, pharynx, esophagus, caecae, chlorogogue, intestine, anus

→ CHLOROGOGUE: Tissue that stores glycogen and neutralizes toxins; help with excretion

→ NEPHRIDIOPORE: Where excretion of urine occurs; MIXONEPHRIDIA: a combined nephridium and coelomoduct

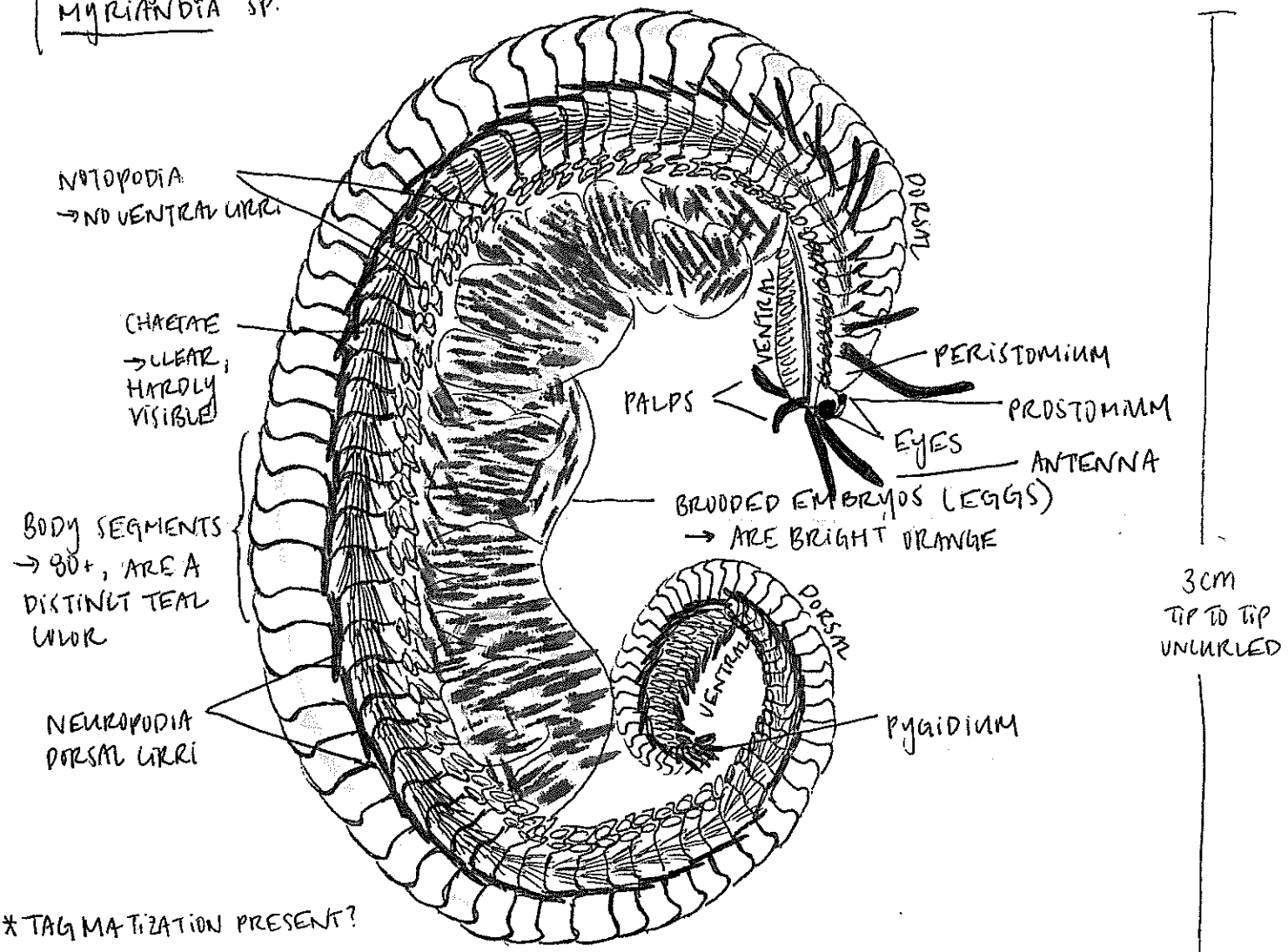
→ CIRCULATORY: Dorsal blood vessel, branchial vessels, branchial vessels

→ GIANT AXONS: Allows for rapid response (almost instantaneous), retraction into tube or burrow!

PHYLUM ANNELIDA: POLYCHAETE DIVERSITY

// 04.25.17

PHYLUM ANNELIDA
"CLASS" POLYCHAETA
SUBCLASS ERRANTIA → MOBILE! EPIFAUNAL!
FAMILY SYLLIDAE
MYRIANDIA SP.

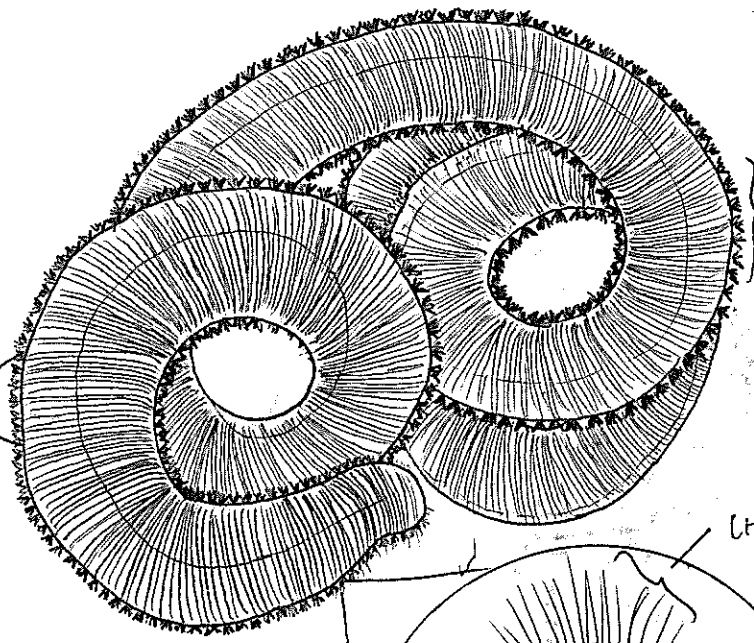


*TAGMATIZATION PRESENT?

NOTES: * MOVEMENT/BEHAVIOR: Before zapping it with MgCl2, this worm was moving quite rapidly. The body was "slithering" from side to side in the dish — so fast that I could hardly see it under the scope. When it was in a deeper dish, it was swimming up and down in the water column. After putting it in a dish of MgCl2, it immediately curled up tightly around its brood sac — a noble attempt, but the brood was considerably larger than the rest of its body. Eventually, it relaxed a bit and I was able to draw it as shown above.

PHYLUM ANNELIDA
CLASS POLYCHAETA
SUBCLASS ERRANTIA – MOBILE! INFAUNAL!
FAMILY GLYCERIDAE
GLYCERA AMERICANA

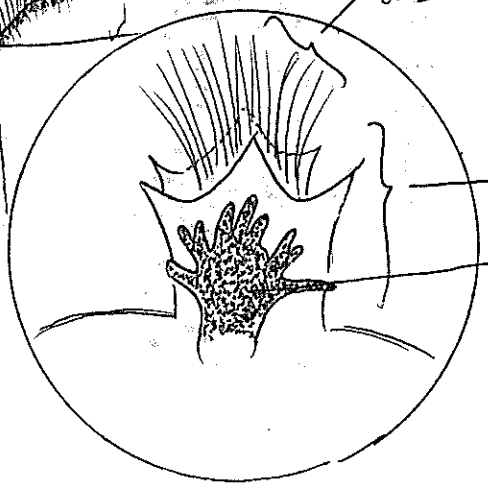
30 cm TIP TO TIP, UNCURLED



PARAPODIA BRIGHT RED FROM HEMOGLOBIN

1 SET OF PARAPODIA PER EVERY 3 SEGMENTS

CHETAE



PARAPODIUM

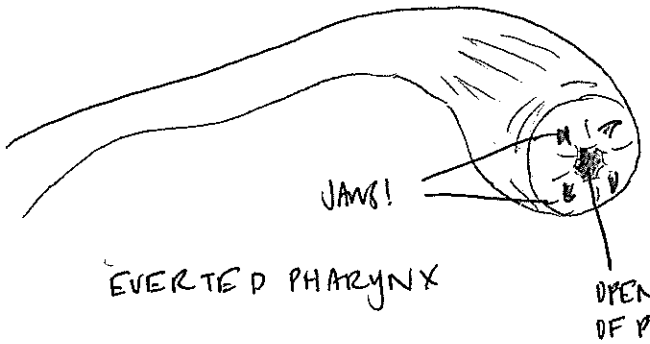
BRANCHIAE BRANCHED, WILL RETRACT WHEN TOUCHED
→ ARE EXTENSION OF PARAPODIA
→ BRIGHT RED GRANULES

1mm

* NEITHER PROSTOMIUM, PERISTOMIUM, OR PYGIDIUM VISIBLE IN THIS VIEW; WORM WAS CRANKY
* BODY NOT DIVIDED INTO DISTINCT TAGMA
→ BRANCHIA EXTEND ALL THE WAY DOWN

NOTES: COLOR: Brownish-red; in the right light, it had a iridescent sheen. The color of this organism is derived from the hemoglobin in its blood, hence – the blood worm. Though, perhaps it is called a blood worm because it can draw blood with the jaws on its pharynx?

6 cm



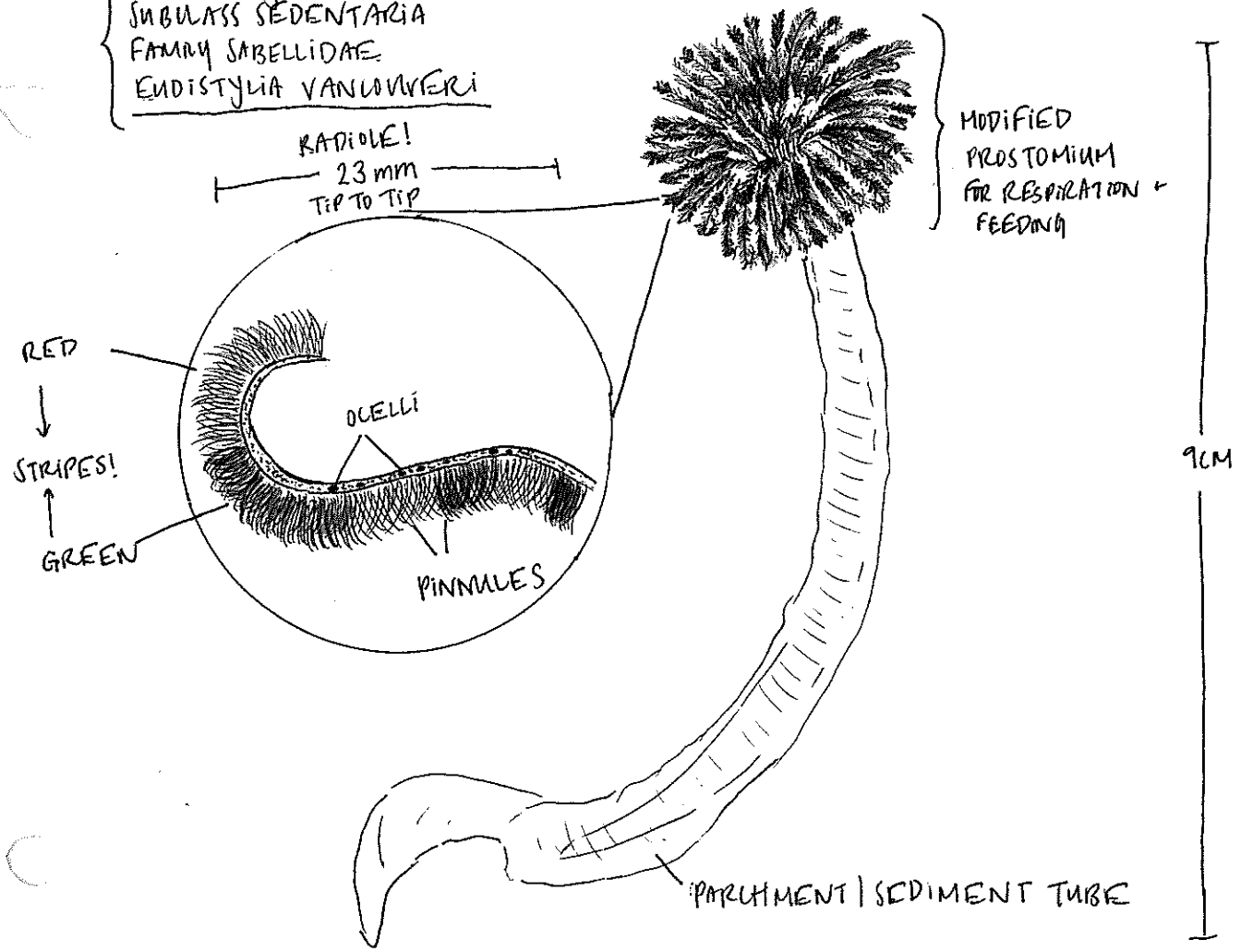
JAWS!

EVERTED PHARYNX

OPENING OF PHARYNX

BEHAVIOR/MOVEMENT: The first time I observed this organism, it would curl up tightly to defend itself (drawn above). I was unable to perturb it to the point of showing me its pharynx. But, after I let them sit for a day, I tried again – and was successful! I only needed to pick it up with forceps, and that made it angry enough to try and fight/bite me.

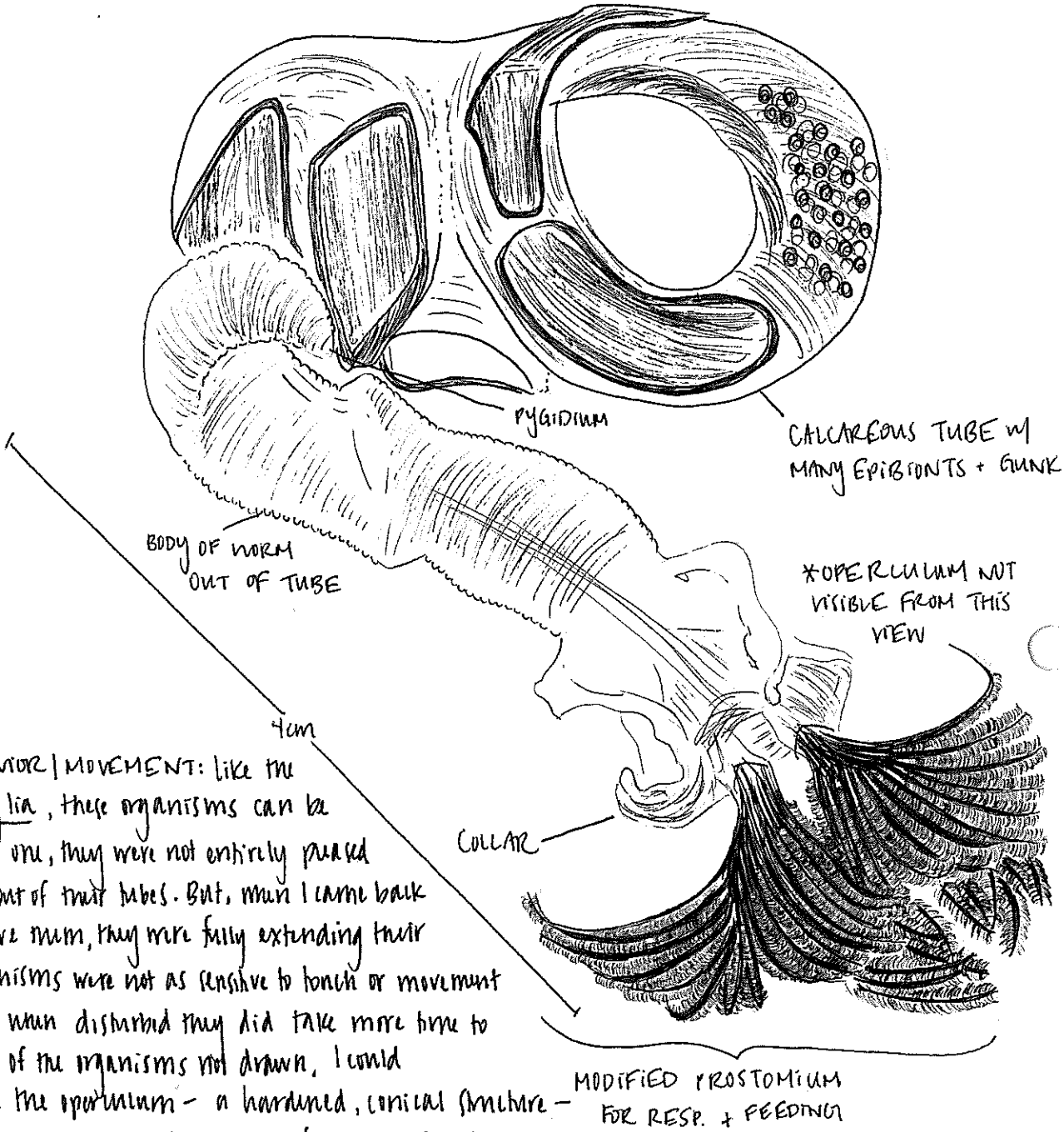
PHYLUM ANNELIDA
"CLASS" POLYCHAETA
SUBCLASS SEDENTARIA
FAMILY SABELLIDAE
EUDISTYLIA VANCOUVERI



NOTES: *BEHAVIOR/MOVEMENT: This organism responds to touch and is even sensitive to water movement in its bowl. When startled, it retracts its radioles back into its tube for protection. Interestingly, the plucked radiole continued to move autonomously even after being removed for 24+ hours! To move water and transport food (namely, plankton suspended in the water column), the individual fibers on the radiole beat, creating a flow toward the mouth. Particulates that become trapped in the radiole hairs are then drawn into the mouth by a contractile motion. In action, it almost looks like the worm is "flicking its fingers" one by one or as a clump of radioles.

* OTHER: Sedentary, epifaunal, tagmatized, i
* WASTE REMOVAL: Has "a ciliated fecal groove that runs from the ventral anus along the ventral abdomen, swinging around the body at the point of fecal inversion + continuing along the dorsal thorax to the peristomial collar" (Light's Manual).

PHYLUM ANNELIDA
"CLASS" POLYCHAETA
SUBCLASS SEDENTARIA
FAMILY SERPULIDAE
SERPULA



NOTES: *BEHAVIOR | MOVEMENT: like the Eudistylia, these organisms can be quite shy. On day one, they were not entirely pleased with being twisted out of their tubes. But, when I came back a day later to observe them, they were fully extending their radioles. These organisms were not as sensitive to touch or movement as Eudistylia, but when disturbed they did take more time to re-emerge. In some of the organisms not drawn, I could distinctly visualize the operculum - a hardened, conical structure - being positioned to seal the round-be opening of the worm's tube.

* COLOR: tube grey; body yellowish white; collar bright red; radioles red + white striped - other organisms in dish more white + yellow striped, pink, or orange! Brilliantly bright.
* OTHER: sedentary, epifaunal, tagmatized
* See Eudistylia for radiole detail drawing; did not see cilli on the radiole I plucked off of this organism. Serpula moves food into their mouths in a similar manner, too.