The Art of Dissection

Description

The smell in the air was pungent and nauseating during that day in grade 10, you could smell it throughout the school. Students were talking cheerfully, as they were clearly excited to begin todayâ€™s big project, despite the smell emanating from two large plastic buckets at the front of the class.

Looking at my lab partner, we exchanged hesitant glances before lining up to receive our experiment for the day on a large black pan. Looking around the room, some students looked enthusiastic about what was about to occur, while others looked pale and scared.

â€œOk class,â€• said the science teacher. â€œTime to get started.â€•
Grabbing the sharpest of the implements on the lab bench, I brought the business end of the tool into the pan. Getting the nod from my partner, I used the scalpel and cut into the animal before me, beginning the classroom required earthworm dissection.

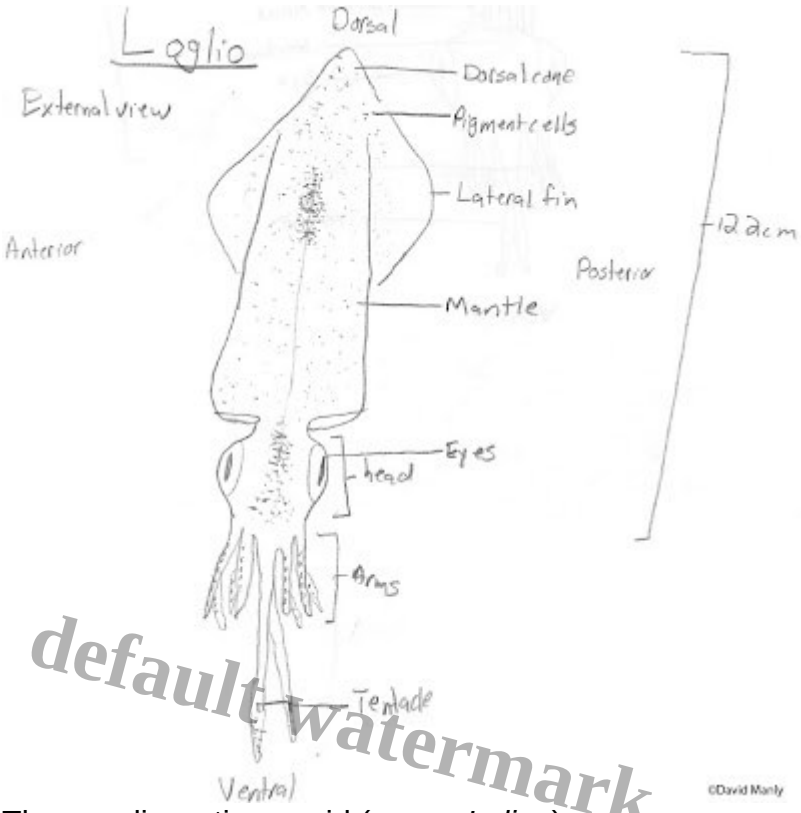
As â€œgrossâ€• as some people considered the dissection, I enjoyed it. I liked seeing what I had read in real life and finally make sense about the inter-connectivity of the biological systems. All the five dissections I did in high school (earthworm, locust, perch, cow eye and fetal pig), all presented different challenges and learning experiences to discover.

My favourite part of dissections was learning about an abstract idea from a lecture or the textbook, like that pigs have three bronchial tubes (one goes to the left lung, while two go to the bigger right lung), and actually observing it in front of you. Seeing a picture in a book is not the same as seeing it in the flesh (pardon the pun).

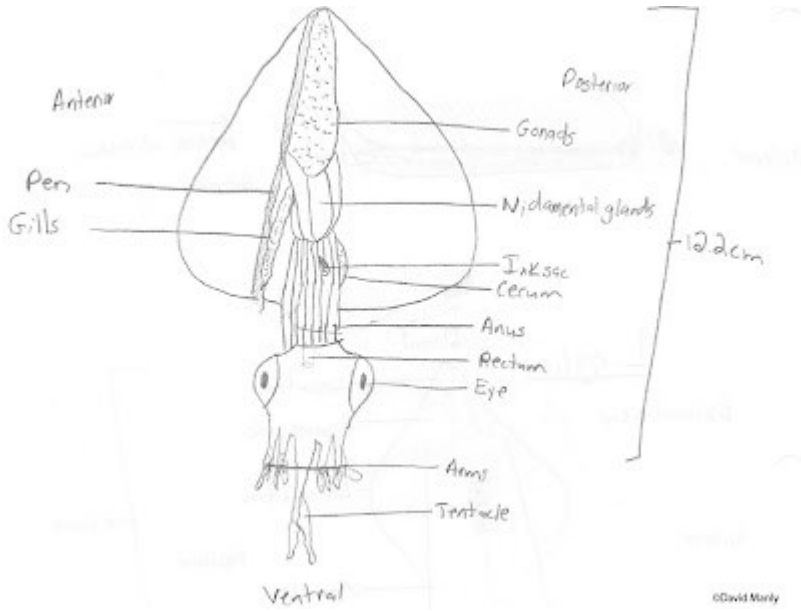
The best way to remember those observations, at least for me, was by drawing pictures of the lab animals. I knew some people in university who took pictures of the specimens with a digital camera, but that felt like cheating.

I donâ€™t draw on a regular basis, but I occasionally doodle things of a scientific nature, such as beakers, chemical structures and viruses. But the most detailed pictures I ever drew in my life, those I spent a lot of time to make as good as my limited art skills would allow, were for university dissections.

Take, for example, the picture of a squid below that I drew in my second year of university in a class called â€œAnimals.â€• It may not be the greatest quality or even that life-like, but I was happy with the result.



The pre-dissection squid (genus *Loligo*)



The post-dissection squid

These types of drawings, both in review and even now six years later, I can remember various aspects of the dissection. I remember my friend accidentally punctured the ink sac in her specimen, and how I was shocked to see how spotted with pigment the mantle of the squid was.

My drawings may not be colourful or even drawn very well, but you can tell I enjoyed doing the dissections. I enjoyed it because it was my experiment, my results, and my observations.

Now, there are individuals who are anti-dissection. The proponents of this say that dissections show disrespect for the life of an animal, desensitize students to animal cruelty and is a traumatic experience for those forced to do it. Meanwhile, there are others who say that dissections are the only way to understand some abstract concepts, that it provides hand-on experience that is vital to understanding anatomy, and it can act as a potential catalyst for students to become interested and enter science careers.

I tend to fall in the positive camp, but there is one anti-dissection statement that Iâ€™m on board with: that dissections should not be mandatory, but optional. And that alternative solution should be available to everyone, but emphasis should be placed on completing physical dissections, but the computer simulations should be available if wanted.

I only used a computerized dissection in lieu of the real thing once.

Back in grade 10, one of the animals we had to dissect was a fish, which was a problem. I have an allergy to fish and can suffer from anaphylaxis if I eat it, and the smell of fish makes me nauseated.

After bringing in a doctorâ€™s note (required by my teacher), I was excused from the physical dissection and allowed to use the â€œnewâ€• virtual dissection program on the class computer. It was one of the most boring and un-educational experiences in my biology career. The interface was horrible, the animation and graphics looked terrible, and after pointing out an organ, it would disappear from the screen and never re-appear.

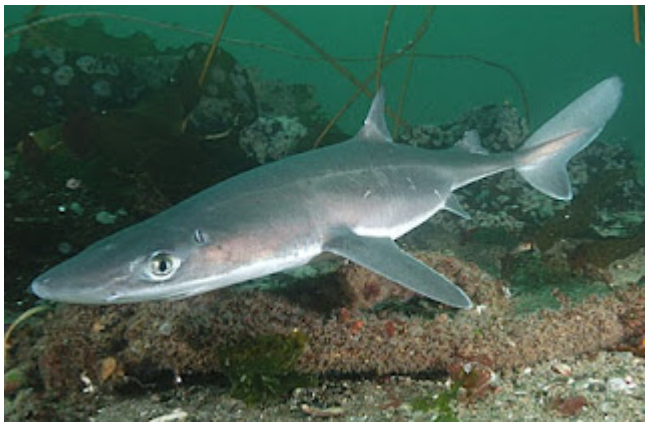
Suffice to say, I learned nothing.

For the end of year exam, we had questions based upon the animal specimens we dissected, and I knew nothing about the perch. My memory was blank, because the dissection did not hold my attention. In fact, I had to spend a lot of time reading and re-reading the textbook and notes to understand it. But, with the earthworm and locust, I remembered the dissections vividly because I experienced it and made notes based on **my** observations, not those of other people.

I was disappointed I did not get the chance to dissect a fish, but with my allergy, I understood the precautions. But, I was determined that the next time I had to dissect a fish, I would find a way to do it.

My next shot would not appear until the end of the Animals course.

That course took us through all major groups of animals, and each lab was devoted to a different type of phylum. As part of the course, we got to dissect and observe a lot of different animals, from nematodes to locusts, which all culminated in the massive two-day dissection of a dogfish shark.



The spiny dogfish shark (Genus *Squalus*)

Knowing this was coming, I spoke to my professor and we took all types of precautions: I had a change of clothes in case anything got on me, my Epi-Pen was nearby on the odd chance I had a reaction, and I wore less absorbent gloves. The precautions might sound a bit much, but the university, my professor and I did not want to take any chances. There were other options available to me, but I did not want to take it.

The experience with the dogfish shark was incredible, as we not only explored various organs, but also the circulatory system, eyes, reproductive organs and cranial nerves. The animal stunk to high heaven, and I had to excuse myself more than once to get away from the putrid smell, but it was a great experience.

In my life thus far, I have dissected countless animals, including a few rats, snakes, lizards, lots of insects (locusts, cockroaches, etcâ€¦), a sea urchin, some puffer fish and almost 100 frogs (a few Leopard frogs, but mostly *Xenopus* for my thesis).

Below, you will find a selection of some of the dissection drawings I did in the animal course. I am extremely proud of the crayfish and starfish ones, as my dissections and drawings were so good they were saved and used as demonstrations for other classes.

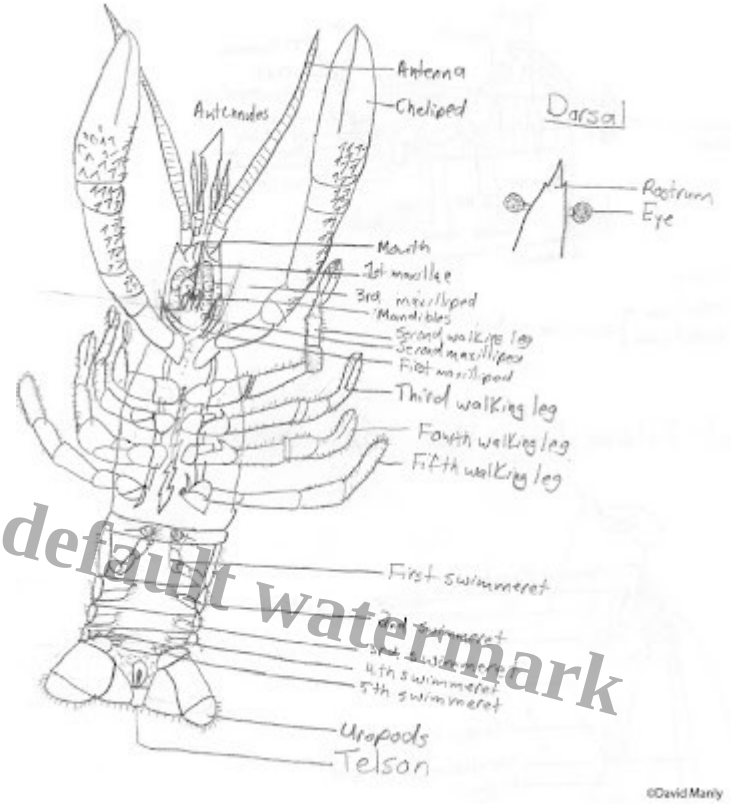
I spoke to a lot of my friends in real life and over Twitter about the dissection debate, and there was no consensus. But no one I talked to, even those who didnâ€™t go into science, said they despised the dissection component of their school experience. In fact, everyone said they either enjoyed the experience, or at least found it interesting

However, the debate over dissections will never go away. There will always be students who do not wish to participate and those who do. But, at least for me, the combination of hands-on experience and drawing what you see (not what you **wish** to see) helped cement me on my scientific career.

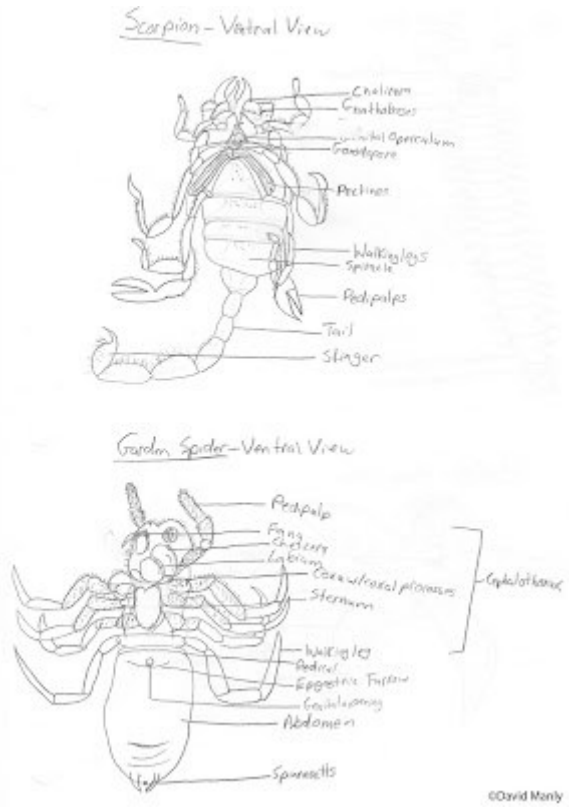
I could not possibly put it better than noted doctor and author Abraham Verghese on the subject of dissections in schools, â€œThe living studying the dead. The dead instructing the living.â€•

Note: The topic of art in dissections came to mind when I read a recent blog post by a friend of mine, Andrea Kuszewski. She discussed how to create scientific-based art, as well as how it can be used to enhance learning. Since I will not win any awards for my art skills, far from it in fact, it was fascinating to read about the amazing learning experiences that can come up from an illustration and brought to mind the idea for this post.

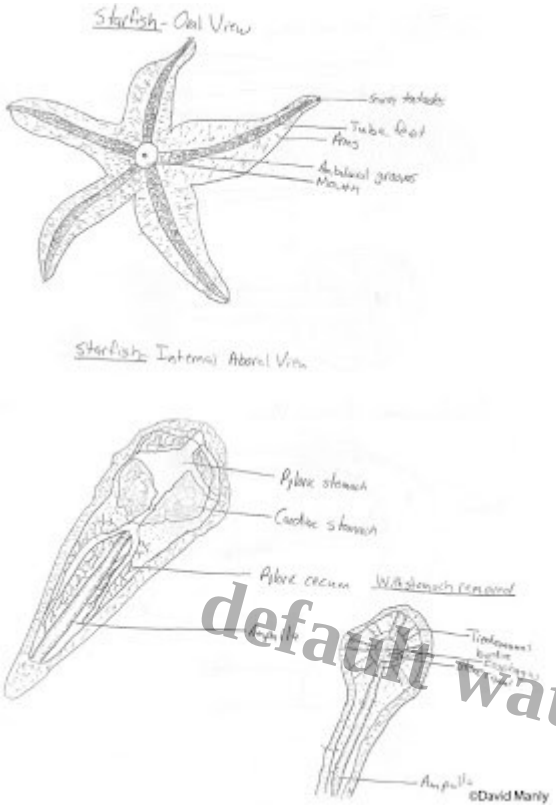
Also, you can click on any of the illustrations in this post to see a high-quality version of my drawings (if you want to see that kind of thing).



The noble crayfish (Genus *Cambarus*)



The scorpion (Genus *Centruoides*) and the garden spider (Genus *Argiope*)



One of my proudest dissections ever performed â€“ the starfish (Genus *Asterias*)

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