

3. Allison Crane (Prof. Lisa Hermsen) Writing

Allison Crane has written an intriguing piece about her study of gross anatomy in the RIT Physician Assistant Program in the Department of Medical Sciences. She also invites us to consider the increasing mix of the technological with the human.

After the first day of our Rhetoric of Science, Alison recommended that I read the book *Stiff: The Curious Lives of Human Cadavers*, by Mary Roach. She and I began to exchange reading lists: Atul Gwande, Oliver Sacks, Christine Montross, Richard Selzer, and others. So when Allison decided to try Science Writing on her own, she knew she wanted to write about her experiences as a student of medicine.

Her writing, like all good Science Writing, has significance beyond her own professional practice. Allison uses her essay to take us from the old imaginations of dissections performed in anatomy labs to the advanced technologies available in RIT's new Anatomy Studies Laboratory: natural lighting, sophisticated ventilation system, progressive smart-classroom design. It is evident that Allison is thrilled to have the opportunity to work in the laboratory she describes so impressively.

Allison, rather than stopping at an appreciation for technology in medicine, argues for a balance between the technology and the human, describing her interaction with the material human body in front of her. Allison is a brilliant student and able writer, who (I have no doubt) will go on to provide humane medical care.

Six Unusual Class Members

by Allison Crane

Like most people, I have a Monday routine. Once I get to the academic side of campus I begin by changing into dirty clothes. Next, I swipe my card to open the door, button up my lab coat, and “double glove”. The locker room smells more than the lab does, probably because the two expert ventilation systems are installed in the lab, but the hallway houses 23 gross lab coats with no air movement. Needless to say I’ll forget all about the outside world when I try to remember what the hell I’m supposed to be looking for. The lab manual always helps, propped up next to the table, but it’s a pain when the pages stick together from the juices that leak from the table. One time I was looking for the bifurcation of the radial nerve in the forearm, thankfully it was where it was supposed to be underneath the brachioradialis. Good day. Wednesday. Repeat. Only then I found the lumbricals beneath all of the subcutaneous fat, tendons, nerves, and blood vessels around the metacarpals.

The College of Science at the Rochester Institute of Technology is not the biggest college on campus, but we do have the most secrets. We have a new building, we call it CBET (the Center for Bioscience Education and Technology). It’s number 75, the one behind 76 and 9. Why there was ever a building 76 (or 77 and 78) before 75 I don’t know. It’s successfully hidden from students who don’t have to go there since they don’t really know it exists. Liberal arts professors get lost trying to find it, and most have no desire to try. In fact, we want to keep it so secret that many of the labs require card-swipe access. I have access to the second floor Anatomical Studies Laboratory. It’s the cadaver lab.

At least twice a week, often more, I go into a brand new, state of the art, professionally ventilated smart classroom. This one in particular has something that most labs go without. Six bodies. On a typical Monday or Wednesday afternoon, one will find 31 bodies in this room: twenty-three living students, two living faculty (one with a doctorate in Anatomy and Pathology) and six supine, embalmed cadavers. The cadavers never leave the lab, but wait patiently filled with formalin. Slowly the bodies will dry out and someone might wonder why they smell like Snuggle fabric softener (which is not just used on clothing anymore). By the end of the course, it is the job of each table of four students to try to determine their body's age and cause of death. Each cadaver was over the age of 60 when they passed and none have died from an outrageous unnatural cause or infectious disease.

Some lab days are really exciting. One of the extensors on the posterior forearm, the extensor digitorum, is the primary extensor of the digits. That means it straightens your fingers. However, the tendon that goes to the ring finger splits and also sends a branch to the pinky. Have you ever wondered why you can't bend your pinky finger without your ring finger bending with it? In lab I got to pull on that same tendon in the hand of dead body to see his fingers straighten. It's a good trick to try to determine which tendon is being tagged on an exam, pull the tendon, observe which finger extends, and determine the correct muscle: the extensor digitorum, or the extensor digiti minimi.

There is a gentleman at the middle table on the right side of the room I have become rather acquainted with. Most of his wrinkles seem to be more from the loss of embalming fluid than old age. He's balding and had a triple by-pass surgery, two or three laparoscopies, and a gall bladder removal operation. He has been extremely helpful in our

dissection, although he got a little touchy-feely when I had to hold his arm back with my hip in order to cut open his armpit. My three lab partners and I do not know his real name or anything about his life or who he was. For this reason we have not arbitrarily named him either. We considered a few possibilities, I thought he looked like a Howard, Christina says he might have been a George. We won't know these things, but there isn't a student in our class who does not hold these bodies in the highest respect. Nevertheless, it's easy to make jokes about the amount of fat or feel awkward grabbing hold of the large intestine.

In fact, the potential for lack of respect concerning the cadaver lab is one reason Dr. Doolittle, Head of the Department of Life Sciences and our professor, doesn't feel any need to publicize. The rumor that he was given a blank sheet of paper to design the lab is true. Dr. Doolittle created the entire layout of the room and what went in it, the only limitations he had were the dimensions of the space. He worked with engineers to fully equip the lab with two ventilation systems. One sucks air out from the floor of the room, and an additional system takes the air from the head of each table out the ceiling through a silver tube. The lab includes white boards, a projector, and an attached smart classroom ready to be installed with computers and anatomic software. This summer \$30,000 will go to filling the currently empty glass cases along the wall with models, bones, atlases, and other supplemental material. Other faculty from medical schools and hospitals drool when they hear about what we've got at RIT. Believe it or not, most of the institute doesn't even know the lab exists, nor has any idea what we do, what it means, or why it's not just a room full of dead people. An RIT official once turned to Dr. Doolittle and said "I hear we've got a morgue on campus". Comments like that are what make him

cringe and decide not to bother broadcasting the lab. In an article from the Democrat and Chronicle on the official opening of CBET Thursday, April 26, 2007, very few words were mentioned about the building's high tech labs, and none about the "Anatomical Studies" lab. No one from RIT was quoted. On the CBET website through RIT, there is only mention of human anatomical studies and the ability for physicians to practice on cadaver tissue, and no more detail is given.

The old lab was housed in the subbasement dungeon of building 8, the College of Science home base, when Dr. Doolittle first came to RIT in 1986 and started the class. Here, the ventilation was makeshift, and the three-cadaver room was about the size of Dr. Doolittle's current office. He tried to move the lab to the first floor in the mid-nineties and was told by the previous dean that she "won't have dead people on the first floor" period. No other reason was given, despite Dr. Doolittle's assurances that it would be as concealed and safe as it is now. So instead, for twenty years students were hiking down the dank hallways to a lab that was cramped, dark, and smelly.

Now, the room has windows that let in enough natural light to see by and brighten the room with life and excitement. However, the blinds are low enough to keep eyes out, for legal anonymity purposes. No one is allowed to see the cadavers except those registered in the course. Our class itself is a mix of science students with a passion for the body. We have some pre-medical, pre-dental, pre-veterinary, pre-physician assistant, pre-nurse practitioner, pre-physical therapy, and a few biomedical and biotechnology students. The diversity of the students and the cadavers bring nothing short of enthrallment to the lab. I have to stand on a step stool, another student is returning to school after fifteen years and one of the lady cadavers near the window is tinged green.

Two women are missing a breast from cancer, and the gentlemen to our left has a pacemaker and crazy white hair. Depending on the smell or the day, we often complain about the grossness or coolness of our current dissection, and each cadaver smells different. You don't notice how used to your own cadaver you get until you smell someone else's and try to argue that yours doesn't smell. They all smell. It's just that after getting used to the scent of your body, everyone else's stings and makes you step back if you get too close; like yours did those first few days.

The skin of our cadaver was once a peachy-pink and is turning orange from drying out. Some of the muscles are a little hard and look like beef jerky. At the end of each class we spray about a bottle of diluted Snuggle fabric softener to keep the body moist and pliable. Cheesecloth is filled into every few layers to hold in the Snuggle, and big metal pins hold the skin closed over the cavities. Partly for the sake of the cadaver and partly for the sake of the lab group, a cheesecloth mask covers our gentleman's face and a clean paper towel over his hips assures a sense of decency for the man who gave his mortal dwelling place to a couple of 20 year olds to tear apart. The tools are all laid out: disposable scalpels, small scissors, pointed tweezers, and blunt probes. We keep the bone saws in a drawer near the sinks. The stainless steel tables have two side lids that form a pointed dome over each body. A coiled tube that looks like it's made of tin foil wrapped around a slinky rises from the head of each table, another tribute to good ventilation. The lab is clean, clear, and each table is adjusted to each lab group's personal preferences. No one is allowed in our lab except for us. For this quarter, it is our lab.

Each group is extremely possessive of their body. Ours is the best and the coolest, even though we have to look at another body to see the cystic duct since ours was

removed with our gallbladder during surgery. Instead, when we tried to find the opening where it may have joined the common bile duct, we instead ran into metal staples surrounding the softer tissue. The first creepy part of dissection is making that first scalpel cut through the skin. It's pink, tough, and looks like skin. When the blade hits the subcutaneous fat, there's a release in pressure and you know that you can then drag the blade down to the xiphoid process, or around the belly button. Most of the body is soft, bones are obviously hard, and ligaments are extraordinarily sharp on their edges. At first, the vessels and nerves were the hardest to tell apart. With practice the flimsy veins filled with blood are easily removed to find the rounder arteries. Arteries and nerves are the same color, but nerves are flat and sometimes stringy, as well as slightly more delicate, easier to accidentally pull out, and more important to know for a test. It's a great feeling to separate muscles by sliding your hand completely under them in one swift stroke and incredible to make movements happen in order to try to figure out the action of each one. Muscles do just what the textbooks and atlases say they do.

Scar tissue around each of his surgeries made some muscles and membranes tougher to get through. His lungs were weighted with embalming fluid, and were a pain to pull out of the thoracic cavity. We should have cut our hole in the rib cage a little bigger. Metal twist ties held his sternum together from the bypass surgery, and sutures and staples were present all over his heart. The great vessels like his aorta and common carotid arteries cracked from hardened plaque on their sides when we squeezed them. After we removed the heart but before making the incisions to see inside it, we had to take it over to the sink to rinse out the masses of hard, dried blood trapped on the inside. The abdominal muscles were thin and almost impossible to get through, and we had to

remove his paper towel to cut down into the genital area. Unfortunately, or not, we don't have time to dissect the perineum. The intestines allow fumes to emerge from the abdominal cavity every time they're shifted and they are extremely gooey and make the splunging squishy sound if you aren't careful. There are food masses still in the stomach and the lower GI tract. We cut open part of the small intestine just to see what was in it. It was brown, chunky, kinda really gross. Despite the relative thinness of our cadaver, pulling out gobs of fat from over, in, and around his stomach and intestines were the only way to see his kidneys, back muscles, and the lumbosacral trunk of nerves. It made all of us wonder how much padding we really did have despite attempts at exercise.

My friends and acquaintances by now must be sick of me talking about the lab all the time, "I totally ripped out the musculocutaneous nerve by accident!" "He's got three arteries stapled to his heart!" "Today we sliced open the kidney to see inside!" or of my incessant diagrams of the brachial plexus and aortic branches on every black or whiteboard I find. At the same time, most of their eyes widen in amazement or horror. My mom cringes and worries about my pleasure in class as my dad just shakes his head. I spoke with a cardiac surgeon at an Easter brunch and when I brought up the topic his face lit up with mine as he described his cadaver from medical school and how he'll never forget him. He also mentioned how the table next to his complained of the fat on their cadaver. His was very skinny. My mother later turned to me and said, "So, if I ever decide to donate my body to science I can never let it go can I?"

There are rumors that cadaver labs are beginning to be phased out of the medical school curriculum in favor of plastic models and computers. Even trained anatomists are showing a lack of skill in the craft. RIT has a cadaver dissection lab that rivals that of

our syllabus) Dr. Doolittle encourages extra time in the lab to check out these structures. Thankfully, he is a professor that wants nothing more than for his students to learn.

Sure, the lab smells a little. Yes, I will be burning my lab clothes and coat because they're just that disgusting. True, my roommates were totally grossed out when I told them that there was human juice on my lab manual sitting on our kitchen table. Is it worth it? Absolutely. There may not be words to describe the grandeur of an experience like this. The class is intense and requires an enormous amount of work, but most of us don't even consider it work. There is no greater peace than sitting in the lab, just moving stuff around, looking at how huge the aorta is, or how cool it is to pull a muscle in the forearm and see a finger bend.

There is nothing comparable to this experience, and it would be impossible to think I could ever learn everything about the human body. Considering all the structures and minute details we don't or can't see it makes me wonder how all of these things were discovered in the first place. Dr. Doolittle loved dissections so much he made it his career, even though the sight of blood makes him faint. He told me he loves just sitting in a lab and going at it without a manual to see what he can see. Every body is different, just like we are taught that every person is unique, inside and out. We are a privileged group of students to see the beautiful insides of the six men and women decided to come back to school one last time.