

April 22, 2008

Morning – Howe Hall and Woods Creek

Went over syllabi and course info. Generally pretty straightforward. Ventured out into the field to learn “foreign-language style,” according to Knox. Just slightly overwhelming. Examined a garlic mustard plant that grows near the creek as well as a dandelion, learning the basics of flower parts.

Afternoon – Back to Woods Creek

Examined dandelions, both of the yellow and white variety. Learned that color isn't the key to identifying plants, but rather the only true method is to examine a **constellation of characters** – the various qualitative and quantitative aspects, both unique and common among plants. The particular aspects of the dandelion (**Asteraceae**) – perfect, inferior ovaries, small fruits difficult to break open (like sunflower seeds) – demonstrate its adaptation for wind dispersal. Further examined **Brassicaceae**, getting our first practice with Gleason and Cronquist to discover some key characteristics: six stamens, four long and two short; one pistil with one inferior ovary (below the perianth); developmentally determined racemes.

Learned to read G&C like a lawyer, never neglecting any parts in keying. Finally mastered the art of the hand lens (just a little bit later than I presume my classmates did). It's also curious to imagine the two types of dandelions – the first being the younger yellow-petaled and the second the white-petaled – and notice their peculiarly human characteristics: the older variety almost appears to be the grayed grandfather to the younger, brighter-colored flower. Flowers develop in as complex a way as human beings do. Made the connection with *The Song of the Dodo*.

“The ovaries are where the seeds are” (JW)

April 28

Vegetative terms quiz – I don't think I will ever get surface features straight...

Reading Notes:

Quammen, chapters 4-5

Discussed in great detail the concepts of **archipelago speciation** and **adaptive radiation** as we finally began to discuss the “yang” of Quammen's text: extinction. We distinguished between these two processes with regard to Quammen's treatment of Galapagos tortoises and finches. His passages on the dodo, the thylacines, and especially the Tasmanian Aborigines are heartfelt without being obnoxiously so. His descriptions of the waves of the passenger pigeons and their overwhelmingly large minimum viable population reminds me of Audubon's from his *Ornithological Biography* – a fairly bleak impression of the careless nature of human consumption. The discussion deviated to talk

about the mythical “song” of the dodo, through which Quammen ascribes a rather mythic quality to the bird. Quammen’s technique of frequent **anthropomorphism** appeals to the reader’s ability to relate to the wealth of species he describes and our conversation even strayed into a theoretical talk about aesthetics with regard to what sort of conservationist or preservationist ideas appeal to human beings most effectively. We also spoke of **trophic cascades**, a concept that Quammen described in a very simplistic way – harking back to the childhood concept of the food chain – and rehashed the synecdoche of island fragmentation and very small parts playing a crucial role in the structure of a much greater whole.

Afternoon – Howe 406

Indoors today due to the rain, but Knox didn’t miss a beat and still managed not to let the inclement weather get us down. What linked the morning’s discussion with the afternoon’s PowerPoint presentation and herbarium examples was the concept of **relationships** (or more formally, **ecology**). I began to conceptualize this particular branch of biology as an extremely broad study of interactions and characterize much of our reading thus far – in Quammen’s discussions of island biogeography, extinction, and speciation – as inherently focused on relationships, be they between humans and animals, insects and plants, plants and other plants, or even species of different populations. Knox described his work on the *Helenium virginicum* and the enormously complicated and decade-long process that goes into identifying a new species. We looked at a wide variety of specimens from herbariums all across the country and identified much in the way of the individual variations between the same species (or very closely allied species, such as the *H. autumnale*) of different populations and I couldn’t help but conceptualize this phenomenon in terms of enormous variation between human beings, all *Homo sapiens*. *H. v.* became a sort of synecdoche for population and individual variation among species – an important concept to keep in my before hastily keying plants – as well as the perils of extinction and ecological trauma, such as with particular populations that are impacted by and how in humanity’s constant search for knowledge even the most subtle changes to an environment can have enormous impact on species number and availability to study. To key like there’s no tomorrow on Wednesday.

May 9

Darwin, pp. 331-82, 396-99, 402-49

Finally managed to come up with a nice paper topic: the sea as a metaphor in Darwin’s writing. Throughout the reading I’ve noticed Darwin’s tendency to speak in different ways about the sea, whether it be tracing its geological founding or using it as the setting for a tale about a particular animal or organism that resides there. This reading was great, too, because it included Darwin’s travels in the Galapagos, as well as Tahiti, New Zealand, and his closing essay – probably the finest writing in the entire book – upon returning to England. A massive amount of reading, but all enjoyable and Darwin’s diction is fascinating – see “mystery of mysteries” – as he delves deeper and deeper into concepts that he is still trying to understand. Warren challenged Quammen’s own challenge that Darwin is being overly cautious in his journal and has already figured out

much in the way of speciation and natural selection. Also, Darwin's **philiopiatism** in his mother country is evident upon his return to England, as is his utter elation in reflecting on the wonderful experiences he had all over the world. Essentially, Darwin summed up the value of travel and direct experience, which illuminated our field work with botany as an even greater **synecdoche** for a deeper biological and ecological understanding of how the world works on a small, distinct scale.

Field trip to Stuart's Draft and the acid sinkhole ponds in the region. I'm growing the least little bit tired of these 8:30 days. Fingers crossed for a long van ride as I stayed up half the night doing an article. Stopped by the Cheese Shop on the way and bought a bag of chocolate-covered pretzels. Everything else downhill from there. Traveled up the long and winding gravel road and hiked for what must have been a mile or two through the woods and to each of the ponds. The soil has a particularly low pH (about 4.2) and therefore a whole slew of different species of flora, among them the mountain laurel, hickory, azalea, dogwood, tupelo, the list continues. The bugs were vicious throughout the woods and the sky was overcast, so one would imagine that the day was set up to be rather miserable. However, everything was very enjoyable and enlightening because even though we didn't do very much keying, Knox and Warren both revealed two key lessons: each sinkhole ponds we visited was, in and of itself, both a literal and a figurative "island" with its own degree of endemism; as well, especially with the final several pages of Darwin where the naturalist glorifies botany, the reading, even though about many faraway seemingly unrelated places, is a prime example of a set of writings from the field, showing us the true value of getting out there and pulling up roots – tastefully, not carelessly – and taking in our experiences outside of the confines of the lab. Truly an inspirational day, particularly for those of us who waded out to Kennedy Mountain Pond, the proverbial Ithaca on our journey, and got the least little bit drenched by the rain, our feet muddy and swampy, but our spirits high. We ate lunch around the pond and the weather came to clear up by the end of the afternoon, as we finally keyed several members of the **Ericaceae** family, unable to determine the species of one of the members. Knox revealed that this particular family, at least in the species we had gathered, tended to be limited to acid-based soil, an endemic species, if you will. The unusual lanceolate stamens were details I noted of this plant. I also noted, in our quest to find the rare *Helenium virginicum*, what Knox said about habitat – that the ability to grow in a certain area is actually a morphological characteristic amidst the cohesive constellation that distinguishes different species from one another. Kind of a simple idea, but something that made a few little lights in my head click.

The only low point of the day was when we learned that Knox's experiment had been disturbed by some rascally foe. He didn't seem too forlorn about it, but I couldn't help but be frustrated by it, presuming that it had been some group of hooligans or religious fanatics. It kind of put an interesting perspective on things, particularly with regard to the stake and trust a scientist can put in a certain field experiment. But Knox didn't miss a beat as he nearly took the van off the road trying to spot some *Viola* along the gravel path out of there. Rest assured, he found it.

May 23

Cole Mountain

After laboring until 11pm on my place paper, powered through (some of) Wilson for our final semester trip to Cole Mountain in Amherst County. Met at 8:30 and drove down 60 past the Blue Ridge Parkway. Took the van up the mountain, soaking in the great breeze and finally looking forward to a bright, sunny day – though the possibility of rain still hung over our heads. Stopped along the mountain, pulled the van off along the roadside, and walked a little bit, collecting some ruderal specimens as we went. Started up the trail to the top of the mountain, but stopped and quizzed along the way. Keyed out a member of the **Salicaceae** family, which Knox had warned us about earlier in the term. Noticed the female catkins (couldn't find any male ones), the petals gone, the resinous buds at the base of each flower. Then keyed a member of the Rosaceae with a familiar looking set of characteristics: an inferior ovary, separate petals, 10 stamens, 3 styles, and most notably, **thorns**. Managed to take this one to genus without fail.

During our ascent of the mountain, passed several groups of thru-hikers, many of them with accents of various locales around the globe. As we wound our way up the mountain for what seemed like two miles or so, we finally reached the bald, with its spectacular view of the other mountains of the Appalachian Trail and beyond. The grass is mowed fairly regularly to keep the area open and we ate lunch with the wealth of flies and the slight apprehension of rattlesnakes that might be nearby. After lunch, came upon two Israeli hikers that Hila spoke to in her native tongue. They both were on their 46th day of their 780-mile journey so far along the Appalachian Trail, which Warren noted was only about a third of the way done. I found this remarkable: I hadn't really realized how vast the trail was, assuming it was only a process easily done in a couple of weeks. Now I realize that when people say, "I hiked the Appalachian Trail last summer" that it is not simply something among the other things you did, IT IS WHAT YOU DID. Maybe someday after I shed my city-boy nature, I'll hike that trail.

In our discussion, keyed in on the similarities and differences between Wilson and Quammen again. Spoke of Wilson's effective "thought experiments" and how they are often much clearer than Quammen's own, which focus on occasionally obscure metaphors and conjecture. Wilson has an overwhelmingly powerful ability to teach the reader things without dumbing them down (Ross), but without muddying them in obscure terminology. The general scope of his narrative keys on the rise and fall, then subsequent rise of life and diversity in the world. With the term winding down, spoke about science and environmental writing in general, now that we've studied so much of it, and debated the question as to whether something like *The Diversity of Life* qualifies as literature or not. I say it does.

Through the rest of our own "traversal," climbed back down the mountain and had our final quiz, which I had the most difficult time with of probably any quiz throughout the term. Knew the leaves were strictly basal but missed the split in the key where it described them as palmately lobed (am still convinced they were crenate, the alternative step in the key). Thankfully, following the alternative step got me to the family of the

Venus flytrap, one that isn't on our list of families to know and didn't match with the habitat in our book at all (bogs and marshes). At the last minute, keyed it out as **Saxifragaceae**, a much more common plant whose species often described the habitat as mountainous. With that, we were away, final quiz count: 29/30.

Place Paper
Hila Yashar
Professor Warren
May 22, 2008

No preservatives

It is Wednesday afternoon, and just like every afternoon we go outside as a class to identify plants. However, this time we head out to the back campus. It is probably just another part of campus, I think to myself. We start our hike towards familiar Woods Creek, where one can still see the artificial surroundings: a bridge, buildings, and cars. We go up the hill and start at the trail, which seems to lead to a place, but I do not know where. The trail is level and does not demand much leg strength. We walk the trail in a relaxing manner, when all of a sudden one part of the trail ends and we turn towards the woods, where we start the real journey.

Woods scare me, especially at night. After all these years living in the big city, I find something foreign about them. I look around me, and the multiple signs that read “DO NOT ENTER” do not reassure me. My body signals warning, but at the same time it gets excited for the adventure. Will I see plants that I have never seen before? Will I encounter animals that I never have before? Where will this trail lead us? All these questions fill my mind, and I get anxious to find the answers. But the answer is yet to come. There are obstacles to pass before we can reach the back campus. The dirt path is so steep that it takes a lot more effort to get to the destination. And what is the destination? My breathing gradually increases with the slope, creating a linear graph of number of breaths as a function of slope. I start walking faster in order to already reach the top of the hill, when another set of obstacles blocks my way. Fallen logs obstruct the path like selective bouncers at a club entrance, preventing one from running straight

toward the top, as if to say “not so fast buddy. This is more than just a forest.” And it is indeed.

As soon as I reach the top of the hill, an entire forest reveals itself in front of my eyes. It is incredible that my two little eyes can capture such a complex image: The trail, trees, flowers, shrubs, and rocks. The new trail is relatively narrow, making one more cautious about where to walk. Dry leaves from last fall litter the trail, with many colors that together form such a great variety of combinations that they confuse the eyes. There is not only one kind of red, but more than five hues of this color, and the same variety of green, yellow, orange, black, white, pink, purple, and blue. It seems like this is the only path made for hiking. Surrounding it are steep slopes from all four sides, with an up and down dimension as well. All these dimensions make my body feel disoriented. Where is North? Is this South? All I know for sure is how to go down. My legs attempt to find a level surface in order to relocate themselves on an imaginary map that my brain creates. This must be how birds feel when they fly.

In the past all the trees and flowers looked the same to me. Before I learned to identify plants, I did not notice minute differences between plant families. It feels like I have been blind all these years, that I have finally opened my eyes to the environment. Now I can see the variety of plants, and my hands almost reach out by themselves to pick them up and satisfy my need for knowledge. I take my lens and look inside. The entire forest divides into several magnifications. I look up at the sky and start imagining the view of the forest from a plane, where one can see nothing but a green surface due to the crown of the trees. Moving closer, it is the view from a parachute, where one slowly starts seeing the different trees and even the dirt path. From where I stand right now, I see

a partial view of the trees and plants. I get an even closer look by bending down to see a specific patch of flowers, eventually looking at one flower. The closest view is with my tools, specifically with my lens, which magnifies twenty times. Viewing a flower with this lens is like another world opening in front of my eyes. The petals, sepals, stamens, and style take up the entire frame of my left eye. I focus all my attention on these structures, as if there is nothing else in the world at this very moment. I put down the lens and let my eyes adjust to my surroundings again.

We continue walking down the path when I notice that the ground is dark brown, and when I look even closer I can see that small chips of wood compose it. It looks like the healthy dirt and mulch that gardeners put all over our artificial campus, but here it is real. I cannot examine the ground for too long because all of a sudden my feet slip, and my entire body is about to fall down the hill. Thankfully, it does not happen. There is a fine balance of friction between my shoes and the ground, and gravity from the center of the Earth. Without this friction I would go down hill much quicker. The path looks almost like it is made for people, yet everything around it is natural. It is like driving a car in the middle of a jungle, or climbing up the stairs to the Niagara Falls. It is a combination of natural and artificial.

While we walk down the hill, it seems like the slopes lead us somewhere. When I look ahead I can see light coming through from the other side of the woods. What is it on the other side of the woods? Is it a big garden of many species? Perhaps an open space which humans created? I can now see a trail that crosses our current trail perpendicularly, but all I notice is more plants on the other side of it. I get closer and closer, when all of a sudden I see it: the river. And none else but the famous Maury River that students

constantly talk about. I have heard about this place for the past three years, yet I had no idea where it was, what it looked like, and that it was just around the corner.

Seeing the great number of plants on both sides of the river, I have only one idea in mind: allopatric speciation. It seems obvious that this river, which is quite narrow for humans but very wide for plant species, must be a pertinent barrier between the latter. I assume that different species have evolved on the two sides of the river because they have been separated by this barrier for the past few years. I look at the other side of the river and wish I could cross it and examine some of the species that grow there. I wonder if there are two different species of a genus growing on the two sides.

The houses on the other side of the river make the woods look less wild than they initially seemed to be. In front of the houses there is a long road from which one can hear the polluting noises of the passing cars, which also make the surroundings less natural. This combination of natural and artificial makes the forest more like someone's backyard. I can hear voices and laughter getting closer and closer to us, and I wonder if it is another car passing by. But the voices approach us slowly, and I notice that they come from the water. The loud source is a group of young students on tubes, drinking alcohol and laughing. All I can think of is how they add to the artificiality that already takes over this forest. At this moment I can only hope that they do not throw anything that does not belong to nature into the water.

I try to ignore the loud voices and focus on the songs of the birds. I realize that only by listening carefully can one distinguish one song from another. And the songs are beautiful. They have a pattern, repetition, and pleasant sound. I have always been interested in languages, and now I wonder what these songs mean. Is it the same songs

playing over and over again? Or does the male bird have to be creative and impress the female with many variations of songs? We stop for a moment to look at plants. I look at a plant, smell it, open it up, and look inside. I cannot help but wonder whether this plant is edible or not. I have always wanted to know what I can eat if I get stuck in the woods, without my familiar, artificial resources that I have in the city. I ask my professor and he tells me that it is edible, but he does not recommend eating it at this time of the year. But I cannot help it. The temptation is too great. I smell the fruit and it has a scent of dates and bubblegum. My mouth becomes watery and I have to take a bite. It tastes great.

Nevertheless, some plants are dangerous. In fact, the root of a plant that we just pulled up is poisonous and can cause one's mouth to go numb. I wonder what chemical attributes this root has and what ingredients make it harmful. It scares me to think that such fresh and tasty-looking fruits can be poisonous. They are like the attractive but poisonous red apple that Snow White ate. The plants have a convenient lay out for botanists. They grow on both sides of the path, and each side has a wide variety of plant families, genera and species. I look closely at a number of plants in front of me and notice something new. These plants protect themselves very well from predators. Several plants have petals that partially or completely close off the inner structures in order to protect them from predators. One woody plant of the genus *Aristolochia* has three blood red petals that connect to close off the inner part of the flower in a tubular shape. The common name for this genus is Dutchman's pipe, a very appropriate name for the piped-shaped corolla. Upon opening the corolla I find insects taking up the pollen. Another plant appears uninteresting when I gaze upon it; however, upon lifting one of its green petals I see a whole new world of colors. It is as if like a curtain, these plants do not let us

enter their world. They keep the magic of colors and structures to their own natural world. We still let ourselves enter it, but in a more forceful manner. This is when I take out my pocket knife.

We sit down on the ground quietly, when a few students start spraying the unnatural liquid that supposedly protects their clothes and shoes from insects. However, it is we who invade their territory. We start pulling out plants by their roots in order to key them out. We cut them up, look inside, and tape them to our notebooks. I never feel fully content when I stick them in my notebook. Every time I flip through the pages I feel like I buried something alive, which slowly decomposes in front of my eyes. The fruits turn brown and have an unpleasant odor, the leaves lose their original shiny look, and their patterns are even more difficult to see. The roots lose their natural posture, as if they have no motivation to spread out and breathe anymore. All these living structures are trapped by my tape. I wish that I could take this living beauty into my artificial world, but it is impossible. Only if I live here will I be able to indulge in the daily delight of smelling flowers and seeing colors. For now, my dry samples will have to suffice.

The class is over for the day, and we start walking back towards our actual campus. This time we choose a more adventurous route, up an exceedingly steep hill. At this point there is no more of the fine balance between friction and gravity. Here gravity wins. Therefore we use the rope course that people installed here in the past to climb our way up the hill. I make the last efforts before I get to the top of the hill and then, breathlessly, I see my familiar surroundings again. The path is flat, houses surround us from all directions, and the sun shines upon us as if everything is natural.

On my honor, I have neither given nor received any unacknowledged aid on this paper.

Michael Morella

Professor Warren

English 294

May 22, 2008

Mid-Appalachian Shale Barrens

It ends with a rattle. *Shk shk shk*. Though I don't get close enough to see the little rascal, the sound it makes is enough of a warning. *Shk shk shk, shk, shk shk*. The quickest little jolt of its tail makes me clutch the cliff face even tighter, my fingers caked in the dirt. While everyone else lets out enthusiastic cries, their cell phone cameras and prodding sticks in tow, I cannot help but try and shake off my fear of heights and all things that slither. Here I stand, barely stable, my sanctuary maybe two hundred feet from the ground, my descent blocked by the natural boundary that is a rattlesnake. Please don't make it mad, I thought.

Shk shk shk.

I scribble down a few swear words just so I don't say them out loud, and despite my better judgment I can't help but look down below and try and make out the gravel road between the trees and rocks that sprinkle the surface. Maybe if I strain my eyes hard enough, if I truly squint, I can make out the shape of the van, casually flung to the side of the road. How I yearn to stand vertically again, not to jut at some angle from the side of the rocks. But that could be minutes, hell, even hours away.

As I pore over Gleason and Cronquist for some semblance of meaning, some scrap of insight as to why I'm resting dozens upon dozens of feet above the ground, Knox tears up a plant, his miniature pocketknife cradled in his left hand to preserve the specimen as he cuts its lifeline from the ground. Roots dripping dirt, he lifts it to his face and stares deep into the plant through his hand lens, muttering barely audible ruminations

on what he sees. He begins speaking in his soft, New York tinge, throwing out terms such as “endemism” and “allopatric speciation,” all of which I’m still a little shaky on. But I nod reassuringly.

Then I see it too: “Local on shale barrens in w. Va.” Scanning further through the botanical canon, I find an even more specific case: “Shale barrens in Bath and Rockbridge cos., Va.” Hard to imagine Gleason and Cronquist trudging up this slope to collect specimens of *Clematis viticaulis* or *Senecio antennarifolius* for their own herbaria; the legions of botanists who have stutter-stepped this same cliff face, who have forded the same river in its varying heights throughout the decades; the glint in their eyes as they cry out, “Eureka!” *Allium oxyphilum*.

In simpler terms, it’s all endemism. Despite my tendency to shy away from the technical biological jargon, as I pin this flower between my eye and my hand lens, the sunlight shines through and I observe a number of characteristics exclusive to this species: perfect flowers with six tepals, almost exclusively basal leaves, exsert stamens emerging from the perianth – the list drags on and ends with habitat, confirming any last trace of my suspicion: “Dry woods, rocky banks, and prairies.”

This enormous “rocky bank” above this tiny little creek¹ in this backwoods little county in this thirty-fifth largest state in this North American continent is but an unusual island. And although it isn’t of the tropical or the two-week-paid-vacation kind, it is wholly unlike any other area in the world. An exclusive breeding ground for species of plant unable to grow in conditions or climates that may seem the same to the untrained eye. The vegetation is sparse, largely due to the greater exposure to heat as the shady

¹ Pads Creek, in Bath County, Virginia

treetops disappear the higher and higher one climbs. When rain does break through, soil drains quickly, so each plant must remain equipped for such arid conditioning. Yet the general lack of foot traffic on this barren earth allows these plants a certain level of privacy. To them, this peaceful, tranquil place may not be *entirely* unlike the “islands” that come to mind when that word is said aloud.

Shk shk shk.

And I’m reminded of the rattle. These snakes hiding deep beneath the rocks – or in our case, resting just above the surface like the scaly rhizomes of some perennial flowering plant. I didn’t exactly have this in mind when I imagined my spring term several weeks ago: cliffs and snakes, fording rivers and tearing down winding gravel roads. As if it were all a scene in some B-movie knockoff of the latest *Indiana Jones* film. I will see the actual film. I don’t need to live an imaginary one.

As my eyes scan the trees that crowd the hills as far as the eye can see, I’m suddenly able to shed the snake from my mind. From my vantage point, all I can see is a sea of green clashing against a pool of gray; the trees stretch on in every direction, burying deep beneath their leaves patches upon patches of other islands, other species of plant and animal swaying steadily in the wind. Everything up here is free and pure. We sit up on the wall, we laugh, we joke, and I can’t help but think that these barrens are our classroom – we clear the shale from our desks and remove our supplies from our backpacks, their fabric rank from rainwater and soil and our casual tossing them aside. A few precious moments up here stretch on for a lifetime as the landscape molds to find our feet and the air pours deep into our lungs. I could get used to it up here.

The view is quite remarkable. I slap a horsefly from my arm. It's the largest one I've ever seen, its torso the size of a nickel with the swirl of emerald and onyx across its backside. It comes back. I swing at it again but it narrowly avoids my blow, teasing me, reveling in its reflexes. Bumblebees hover idly by, scouring flower after flower before they are spoiled by human touch. It's a whole different world up here.

These shale barrens hardly live up to their title. Their topography stretches far beyond the confines of that single rock type: limestone rises up from deep beneath the surface, gasping for breath and catching ankles misplaced along its back. Trees dart from every angle, branches swipe at helpless passersby and snap in the rough wind. I wrap my jacket tight around me, the quiet air whispering the prelude to a gentle shower. Craning my neck I can't see much more than a pale gray wash. I'm terrified as hell when I glance back down and all I can imagine is myself losing ground, tumbling down, becoming the footnote in one of Knox's later stories he tells the next year he visits the shale barrens or the next year after that. It's as if someone were pulling apart my perianth parts: I was exposed and afraid, and it seemed like the watchful eye from above was beaming down at me through the clearing. I couldn't help but laugh.

Shk shk shk.

Tightening my pack across my back, I sink my feet into the side of the barren wall. The dirt is softer than I imagined it would be, claiming the heel of my shoe in my first few steps up the summit. As I climb higher, the ground stiffens as I tread back and forth across the south-facing wall. I gulp. I'm instantly reminded of such insurmountable tasks from previous weeks – the stop-and-go parade through the sinkhole

ponds, the mahogany path a mere wisp beneath our feet; the baptismal rains that poured down on us on Kennedy Mountain Meadow; the ruffled currents on the Maury; even the palm burns of the VMI rope-climb as we ascended the wall of hills on the back campus. But this time it's a long way down with nothing but a few spare roots and branches to break our fall. Rest. Breathe. One foot in front of the other.

As I make my way up, my eyes scan the ground and key in on the structures that litter its surface in the mechanical way a musician might read a sheet of music: I see nothing but trifoliate leaves and basal rosettes, corollas and inflorescences, seemingly unable to ever look at a flower again and think of it as merely a pretty decoration. Today we are Grantless, but Malarkey has joined us on our travels, lapping up a torn portion of my peanut butter sandwich as I let it fall into the stream below. Good girl. Knox ravel her leash around his forearm, listening for the sound of rattlers and looking for clues among the deeply alluvial soil and the scorched boughs, scarred deep from fires past.

Shk shk shk.

Shk shk shk.

We rattle on. The shaky chassis of the van against its bruised and bloodied tires, the lulling crunch of the gravel road against its feet. We've made it. My stomach, full on granola bars and crackers, lurches with the sudden bumps and shakes in the backseat. I polished the prize in my hand: a tiny fragment of slate, from up above. My victory medal. Since then it has escaped my pocket, be it in the careless haste of unpacking or in an unfortunate brush with the washing machine, but I remember thumbing it between my fingers, flipping it like a coin, clasping it as it scrambled down the face of the shale

barrens. This tiny fragment, broken long ago by some chance thunderstorm or forest fire, defied years. It had emerged, scarred and soiled, victorious against the ancient waves of water that tore into the shale, as it stood erect like a sailor fighting hard against the wind, claiming his feet. For millions of years, water battled the shale, lapping up its edges with its furious waves and sculpting the face of the cliff with its broad rough hands. Now, as I hold this souvenir in my own dirty hands, I can't help but imagine the shape of this place in a few hundred or even a few hundred thousand years. Maybe the cliffs will flatten out and the snakes will die away and the water will weave its way through the trees and soil, crushing some of the very species we visited today. Like the last remnants of family trickling in to a hospital room, on the eve of their death, we visit them and take this snapshot in time of this "barren" land. But that's just my nerves talking.

Shk shk shk. The clunk of the van as we barrel over the rocky underbelly of one of the rivers. Knox warns us that sometimes the water is too deep to ford, but we trust him anyway as he carries us along. Halt. The stones that emerge from the water are smooth and round, their colors various shades of brown and gray, gray and brown, the same simple shades that colored much of the shale barrens. The car slowly rolls, and after a moment or two of some less than graceful bouncing we have made it to the other side.

It starts with a rattle. *Shk shk shk.* The wind against my blinds as they oscillate wildly in the morning. I'm torn from my sheets and throw a quick glance at my clock. 7:44. Field trip today. Shirt. Shoes. Teeth. Eat. Dressed and readied, hand lens in left

short pocket, I trot the half-mile to campus with the hope that there isn't anything too challenging in store.

Andrew Carr
Biogeography
5/22/08

Inspiration to Live

A place is no longer just a place once one is a biogeographer. Neither is a walk through woods. The beauty and wonder of a place remains as much a delight now as it did when Wallace and Darwin were alive. Panther Falls amazes me today on a similar scale to the way the Galapagos amazed Darwin. Panther Falls inspires the regular person inside me as well as the biogeographer in me as well. The comparisons between experiences at places and the emotions felt there make them thrilling to study and write about.

May 20, 4:45 pm - my girlfriend, Weston, and I set out on an adventure. A quick phone call and a short car ride later we reached Panther Falls. Panther Falls was the destination chosen for the place of study because of its beauty and power to inspire. "Did I tell you what happened to me last weekend?" On a previous weekend as a typical college fraternity guy, I traveled to Panther Falls to relax and enjoy the cool water and exciting cliff jumping. It was something I had never done before. As a fraternity guy, I am easily persuaded by other fraternity brothers to do things I wouldn't normally do. At Panther Falls, swimming through the underwater tunnel was one experience that needed their persuasion. It was interesting because I felt accomplished for jumping off the rocks for the first time in my life. The danger of swimming through the tunnel, this underwater cave, was alluring, but a part of me did not want to leave the ledge I was sitting on. I watched each of my friends complete the experience with large smiles on their faces and a resounding, "That was *awesome!*" I was wary. I was scared. This beautiful place made me nervous. I felt as if I was on trial. Each of my friends completed the cave for the first time. My 'rep' was at jeopardy, but more importantly, my self confidence was, too. When I realized this fact, I decided it is time. I swam up to the rock which would eventually serve as my jump point. I slid in to where the entrance to the cave apparently was, and the swell of the water

current moving with the deafening roar of the waterfall combines to cause me to think twice. I needed a breath. I needed to get my head above water. I had to get out and start over. I felt anxious. I felt claustrophobic. I was scared to death of drowning. A buddy of mine swims up once he saw me struggle with my initial attempt. "Want me to go first?" Mike said. A short pause, "No, I got it," and I slid back in. This time I do not pause at the surface, where all the noise and current could get to me. As I swam deeper, I feel the rock; it was smooth from centuries of erosion but firm and commanding. As I swam inwards and looked up, there I see the opening back through the waterfall and down. I opened my eyes and my mind, and I was inspired.

5:15 pm – We drove down along a dirt road for a few miles, a road beaten up from repeated use. Today, I was a biogeographer. Panther Falls does not exist as a place to go hang out and drink beer, but a place for inspection and analysis. The thought of what the flora could be stirs my heart to beat a little faster. "Are you going to pick me a bouquet of flowers?" Weston says dashing her eyelashes at me. "We'll see." Previously, I was excited to go hang out with buddies and soak in some sun on the rocks, but it was different this time. I wonder what the first flower would be. As a biogeographer, I no longer assume the world to be just flowers, grass and trees, but smartgrass, hemlocks, sycamores, and maples. Magnolias, violets, and tangy juniper shrubs. What a delicious menu for the eye to see.

Unfortunately, I first notice an empty case of beer. The profoundness of my first observation being trash people left and not a beautiful flower remains branded in my thoughts. Despite the initial let down, the green of the place struck me. It reminds me of a color wheel with the rich coffee-colored dirt, the thick green of the leaves, and the bright blue sky above. The trail we walk along was firm and obvious. Clearly, many people before decided to trek through the woods to get to the waterfall. A big sturdy oak grabs my attention. It has

magnificent leaves. The pinnately odd leaves seem to reach out and touch everything. The old oak tree is surrounded by younger trees that had set their roots a safe distance away so as not to be out-competed for resources. Pine trees also dot the inner part of the forest away from the trail laying in wait for the next fire before explosively releasing seeds from their pine-cones. I still do not see a single herbaceous flower. The first color I notice to contrast with the green and brown is the orange and yellow from a magnolia tree's petals. The petals are similar to the magnolia tree we keyed in my biogeography class. It always makes me smile to see a species of flower or tree that we studied so diligently around the Washington and Lee campus in another place many miles away.

“Hey, we aren't going to see a rattlesnake are we?” Weston inquires. She is thinking about my recent excursion to the Shale Barrens, where we did see a rattlesnake. “No, but hopefully we do see signs that will show Panther Falls to be an island,” I reply. “Island?” Weston is no biogeographer; to her an island must consist of sandy beaches and young servers with margaritas. No, the island I refer to deals with places that are restricted by some boundary. It could be North America, cut off from South America and Asia by the Panama Canal and the Bering Strait, respectively, or it could be a small sink-hole pond inhabited by species of herbs and woody plants that thrive off acidic water. I am beginning to wonder if Panther Falls is an island where no species of flower reside.

5:32 pm – “Hey! Look a flower,” Weston spots one. Eureka! It certainly comes from a member of the Asteraceae family, and it resides right along the Pedlar River. The riparian habitat provides excellent resources for many different species of flowers and trees. I immediately notice the peduncle, receptacle, disk flowers, and ray flowers. A flower is no longer just a flower to me similar to the way an engine is no longer just an engine to a mechanic. I pull it a part gently, using my hand lens to inspect the flower parts more closely. I could see

the involucre bracts, and the chaff is distinct. “Weston look, there are two separate sets of florets, ligulate and disk, and it’s clearly a ligulate head.” “Uh, yes, it’s so pretty.” I amaze myself with how much I learned in a few weeks of study; I am turning into a biogeographer.

The Pedlar River cut through the Blue Ridge Mountains for millennia to form Panther Falls. Rivers are usually good boundary makers, and where there are boundaries there could be biological islands. When I notice a woody plant in the family Elaeagnaceae on both sides of the river, it shows that the river does not always exist as a boundary, but merely a habitat. In the river, mosses and a few grasses grow on exposed rock. The growth is evidence of the drought from a few months ago, and the water level of the river remains low for a period of time, providing the opportunity for moss and grass to grow without inhibition. But the continuous flow of the Pedlar River is crucial to the story behind Panther Falls.

The structure of Panther Falls, or any place, resides in the geology. Rocks and where they exist tell a story. “Look at those massive charnitic rocks!” Weston exclaims. She may be no biogeographer, but she knows the geology of Virginia. Charnokite, a metabasalt, where the original basalt metamorphoses through high temperature and pressure in the mantle of the earth. This process took place millions of years ago during the middle Proterozoic Age. When modern day Europe was colliding against North America instead of pulling away as it does today, the continental-continental convergence forced the rock up, similar to the way the Himalayas of Asia are forming today. The charnokite began eroding long before the Pedlar River came to be the Pedlar River. We have evidence of this in the couple hundred meters of material that make up the alluvium off the Blue Ridge Mountains. The alluvium is host to sink-hole ponds, a unique biological island habitat, and also a unique geological phenomenon. Today, the Pedlar River erodes the charnokite of the Blue Ridge Mountains much the same way the Colorado River erodes sandstone continuously forming and shaping the Grand Canyon. Although the Blue

Ridge will never be anywhere near the scale of the Grand Canyon in size, the similarities in history are interesting. The flow of the river formed the waterfall, and it formed the underwater cave I swam through. The eroded rock forms a 'V' with the river at the base and steep slopes on either side becoming habitat for different species of plants.

5:49 pm – The slopes are clearly distinguishable when I see bright pink woody plants, spread out numerously to my right as I walk along the western and southern side of the river. It reminds me being in a stadium and looking up seeing a crowd of people in similar color shirts, only in this case its bright pink colored plants instead of people. “Oh, look there’s mud, will you help me?” Weston asks. “Only if you tell me what that pink flower is along the slope,” “The second flower your going to add to the bouquet?” It is a rhododendron, from the Ericaceae family. Once I notice it for the first time, I see it more as I continue down the path. The cluster of five flowers with their thick leathery leaves makes it a difficult plant to miss.

“Do you see the Panther?” Weston asks me. “No, what are you talking about?” I am supposed to be the observant biogeographer here, not her. “Right there,” and then I see it. Go figure. “I never noticed that before, but now it is clear to me, too,” and seemingly hard to miss now that I know about it. We stand and take in the raw power of the waterfall. We are not alone. A dapper man in his 40s is there as well, camera in hand to capture the beauty of the falls. He has his camera, I have my hand lens. He walks up to us and says something, but all I can hear is the roar of the waterfall, and I am not a mouth-reader. We walk up to chat with him. “Where do you both go to school?” He asks, “W&L,” we reply in unison. “Oh, I went to VMI,” he states; finally, someone who doesn’t give us the ‘confused dog’ look when say where we go to school. “Isn’t this place just amazing?” he asks semi-rhetorically looking up and around. “I just love this place. I’m on a business trip, and I decided to come here to stretch my legs and for

some *inspiration*.” I smile. I am invigorated with new energy, and realize I need to get across the river to see the flora of the northern side of river.

The frigid water sends shivers up my spine, but I do not wait long enough for it to settle; I am on a mission. I need to know if the flora on one side of the river matches the flora of the other side. In essence, is Panther Falls representative of a biogeographical island? I soon discover it is. As I stand at the base of the northern side, now safely across the river, I do not see any rhododendron, and something inside me begins to stir. “Be careful,” I hear Weston say over my shoulder. I climb, put my field notebook, pencil and hand lens safely within the confines of my clothes and grab and tug at rocks and trees to hoist myself up. I climb higher and still no rhododendron. Why does the rhododendron not grow on this side of the river? Have they been out-competed for resources? Trees inhabit this stretch of slope, mainly young ones, but I am unable to locate an inflorescence to see which trees they are. Trees are everywhere, one every few feet. Maybe they are the better competitors on this side of the river. The numerous young tress leads me to believe that the slope could be too steep for large trees to support themselves, I see larger trees that have fallen in a possible wind storm that torments habitats every once in a while. I notice a flower, see five petals and sepals, numerous stamens residing on a hypanthium with a superior ovary, and a light bulb turns on, “Rosaceae!” I proudly say to no one, beaming from my knowledge. The Rosaceae flower is the only one I see, and I realize that the Pedlar River does act as a barrier on this small part of the Blue Ridge.

As I walk back down in my elation of a new discovery I see a lone flower swaying back and forth in the shallows right next to the edge of one of the large slabs of charnokite.

Helenium!! It must be; this is the genus of flower that is endemic to the sink-hole ponds studied by Professor Knox. My excitement slows as I lean down to pluck the flower and realize “Whoa, Professor Knox would hurt me if I did that;” this one is definitely not going in the bouquet. So I

settle for standing in the water writing feverishly to get down as much information as I could. The slab of charnokite acts as a barrier to the quick currents of the river, and I wonder if it was enough to allow for the water to remain slightly acidic for the plant to grow. It would add another fact to the larger synecdoche that Panther Falls is indeed representative of an island. Future observations, and certainly a pH test of the water and mud around this plant, are definitely necessary. Panther Falls is much more than just a place to go and drink beer with friends, and when I go to a place with the intent of looking for different flowers and trees, I notice so much more.

As I reflect upon my journey, I realize how much more I observed on my second trip than on my first. I did not even recognize the panther face of the very cliff I jumped from! Amazingly, I passed right over the *Helenium* flower multiple times during my first visit, but when I saw it, it brought me to attention as a bucket of cold water in the morning does. Yet, it struck me as I pondered my first, out of class, biogeographical experience that I did not stray from the man-made trail very much. Some habits are tougher to change than others. It will be motivation for me on my next adventure to change my behavior and see what the next place has to offer in terms of inspiration off of the beaten path.

As a biogeographer I noticed more; the place of Panther Falls certainly is no longer just a place to hang out but a place of study. The inspiration I experienced as one who was there to hang out, the inspiration felt by the traveling Keydet, and the inspiration I felt as a biogeographer to do more will resound in me and encourage me to jump more, study more, and learn more. A place is no longer just a place, but the emotion of the place remains forever.

Richard Friedman

27 May 2008

English 294

Professor Warren

Alone Mill

My foot felt the slight feedback of crunching gravel, and in an instant my focus widened, revealing two acres of uncut grasses. Beyond this unkempt sea of dried floral remnants was a lush wall of ridgeline foliage that rose well above the Maury River. I remembered nothing of the twelve hour drive. Someone once told me that the brain is capable of coordinating such repetitive tasks involuntarily, eliminating the need for short-term memory of the event. I thought of all the scenery I had missed in my period of automaticity. My lapse in memory made the dramatic geographical and biological differences between Fairhope and Rockbridge County even more striking.

After parking the car and taking a long stretch, I examined the exterior of my new home. It reeked. The exterior was marked by the smell of moldy, untreated Virginia pine felled many decades ago, mingled with the stench of dead water slowly churned by the Maury's effortless current. The water, though only slightly murky, was about a foot higher than normal. It must have rained yesterday, perhaps the day before. "The mosquitoes are going to blow up out here", I thought.

After tossing my bags on the living room floor, I turned on the kitchen faucet to wash my face. The fixture gurgled momentarily, and then, all at once, sputtered jets of gritty black fluid into the stainless steel sink. The smell of hot sulfur filled the room. I

quickly opened every window and door in the house. At first, I thought something had made its way into the well and died there, but then I realized that the tank had remained unused for the better part of three months. When the system was used, oxidizers of sulfur and methane emitters remained in the well for months at a low, constant population maximum. After the previous tenants had left, the stagnation must have allowed the bacterial population to accumulate exponentially, much like a chemostat. The limestone soils may have encourage at least mild acidophilic bacteria to thrive in its groundwaters. Hundreds of gallons of hot, dark water must have harbored a robust ecosystem of bacteria below. I decided the easiest solution would be to flush the system, so I turned on all the faucets in the house.

The air inside made me sick, and not eager to learn any more of my new home's idiosyncrasies, I decided to take a quick look around the perimeter. The south side of the house hid a large pine deck which opened up to the riverbank. Adjacent to the deck stood a smallish hemlock of the *Tsuga* family. Interestingly, I could not detect the pale overgrowths of the Woolly Adelgid on its leaves. However, beneath the tree, protected from the infiltrating summer grasses, was a small patch of long matured Confederate violet. During the spring, these violets would dominate the grasses around the stone-lined fire pit. Other weeds like creeping buttercup and dandelion would accompany these purple-flowered patches. Nearby, several large American Walnut trees acted as sentinels, guarding the property line. Beneath, several long, mature onion shoots were interspersed with young bamboo. The garlic mustard had long since spread its seeds but remained as dried vestiges of the spring. Dark, purple spots dominated their wasted foliage. Another

quite large specimen of the same walnut species lorded over the river fifty meters north, its top dangling nearly halfway across.

Besides the occasional red maple and dogwood, the plot was dominated by the musty Virginia pines. Walking towards the river, I noticed a desiccated pine stump. The owner must have built the house from the surrounding timber. I looked back at the house again. It stood with monolithic stillness, emitting noxious fumes like some celestial body accreted from an ancient, coniferous disk. The smell of sulfur was still nearly unbearable at this range, so I walked north along the river.

As I waded through the sea of grasses, I resolved myself to be on the lookout for snakes, a futile effort. I noticed the common families Poaceae and Juncaceae, and realizing it was too late to call the lawnmower, I pressed onward to the eastern bank of the Maury. Strange basal leaves of a large, waxy monocot obstructed the path to my tiny beach. They formed a ring the size of a car tire, and rising from the center were several woody stalks with dehiscent pods interspersed along their length.

The sun dissolved into the western ridge at 5:45pm, plunging the house into a premature, microcosmic twilight. A pleasant notion of a breeze came from the north, following the river's course like a phantom. The ridge served as a barrier for many things. Strong westerly gusts, the sound of fireworks, and the occasional shotgun blast were all muted by the obstruction. The pastures beyond the ridge were fenced off with barb-wire and honeysuckle, and the soft mooing of cows could sometimes be heard from the riverbank. A small chapel, one of the oldest in the area, stood among these fields. On a

nearby hill, a small cemetery faced west, and in the middle of the site, a large, solitary white oak provided shade for the dead.

On the beach were mostly members of the Rosaceae, possibly common blackberry. A few members of the mint family, Lamiaceae, pushed through holes in the thorny abundance. Deflated rubber tubes peeked through the greenery. A solitary lawn chair sat folded, rusting in a nearby briar patch. Forcing it open, I placed the chair on the smooth rocks of the riverbed – just enough for my feet to soak. Directly ahead was the limestone cliff, which, subjected to the Maury's flow for several millennia, had decomposed into a sharply angled nook at the ridge's northern edge. I had jumped off this precipice a few times before, yet always with the same reverent trepidation. I remember being amazed at the river's depth directly under the rock face. Practically all points nearby had a depth of one or two feet, but the area under the cliff boasted some of the deepest waters in the county. Had some kind of turbulent flow contributed to the carving of a deeper bottom?

The distant rustling of last year's fallen leaves diverted my attention from this perplexing geological question. I suspected white tail deer were abundant in the area, and the ridge would be a perfect place for them to bed down for the evening. Upon further inspection of the river, I saw that the carp were doing the same. The disturbed silt from their nests wafted downstream like brown banners.

The thought of living among so many animals excited me. From this vantage point, I would surely view geese and ducks careening through the contours of the Maury. Perhaps I would even see a black bear. According to any account made by a previous resident, I would most certainly see feral cats as well as raccoons and opossums. Being from a coastal

city, I knew that rising floodwaters or even a strong rain would drive the rodents of the region to the house, a suspicion that would be confirmed many times over. Kayakers would often take leave of their boats and cast their flies on the surface of the river. Apparently this spot has been a perennial favorite among local fishermen. Trout and carp were the main catch here. A few small mouth bass nibbled around the rushes at a nearby bend in the river.

As the real twilight set in and night fell, I marveled at the clarity of the heavens. The geography of the property limited the field of view to a small sliver of sky widest at the zenith, like an opened shell of a nut. The limited field did little to smother the grandeur of the whole scene. I had never seen the stars so clearly in my life. Prior to this, I had become accustomed to the light-polluted skies of Mobile Bay. Yet here, nearly every object viewable to the naked eye, from the planets to the Messier objects, was visible. In the thin, northwest strip of visible sky, I could make out the constellation Lyra just below Cygnus and the thick band of the Milky Way. To the southeast, Aquarius began his slow ascent, his waters flowing into the eastern side of the Maury while unblinking satellites moved in deliberate opposition across the sky.

I returned to the living room exhausted from the day. The smell of sulfur was barely present, and the tap water was now clear and odorless. Trillions of bacteria, happily dividing in their familiar habitat only a few hours before, had been transferred to the septic tank. Tomorrow, the smell would be gone entirely. I wondered if they could survive in their new environment. My roommates would arrive in their cars soon after, and then, there would be no time for quiet observation. My solipsistic ideal would be realized as just

another springtime haunt, and the features that defined this place faded into the background.