

Spasmodic Metropolis

Prelude to a Blog:

Newsletter Update 6/27/2002-7/4/2003

Here I sit, occupying a corner table at Boogie Woogie Bagel Boy on Independence Day, and I find it strangely appropriate to reflect on the last year or so now, as opposed to then; then being the object of my recollection. In prologue, I suppose I have not catalogued any of my doings or goings-on, mostly because in the present I always seem to feel like nothing interesting ever happens in my life. At least that is what I claim when others inquire. This seems unfair, however, because in my experience nothing is ever going on, unless you are under indictment or otherwise facing great peril. So, the seeming lackluster of my recent life is not actually so, but is in fact a placid, pacific pool, which reflects only the slow happy progression of my new existence as a married soul. I am generally happy and content, aside from the constant flow of irritations and obstacles that urban life always casts in my direction. It is this contentment, and irritation, that I definitely possess, which has led me to suspect that indeed there is something to tell of my doings and goings-on, and if the reader has made it this far, these are what I intend to illuminate for the purpose of producing some semblance of that which has resulted in the relatively unexceptional but pleasant continuity of life that I enjoy.

First I'll begin with the first summer of my and Whitney's marriage. We spent our honeymoon in Hawaii, on the biggest island, the one with the most feral inhabitants and grazing land. It also contains the two large volcanoes, and several others which blend together into what in other places is called topography. It rains enough inland that most of the island is green and attractive, with springs and such running to the ocean, but still on many parts of the island are open lava fields in varying states of development into hotels and retirement communities. There we spent a great deal of time relaxing and mixing tourism with inconspicuous tooling. Some examples of this combination include rapping with the owner of a certain Hamburgers-Pizza establishment about "aloha", and taking a pizza back to our resort to eat while we watched the sunset from our private beach lounge chairs. After all, we paid a lot of money to be tourists, and we weren't about to give up our claim to the beach - we just chose not to do it while eating \$15 hamburgers.

We stayed in the resort for a number of days, the majority of our honeymoon. We made little forays around the island from there, including a trip to Kona, which after relaxing in the relative obscurity of the north-west coast of the island left me shocked by the urbanity of the area. We ate at a place there in a strip mall called "Kona Mix-Plate", which is some variation on the "Bowl" concept that has occluded most description of Asian cuisine in the average restaurant here in Berkeley and elsewhere. The help was similar there to what we saw other places on the island - an attitude that a projectionist might have toward a movie that they had little choice to watch, even the 113th time.

This attitude improved as we met people further removed into the country. For instance, in Hawi, which sits on the northern-most point of the island, there is little to do, and almost no tourism. We ate there at the rough equivalent of Kona Mix-Plate, except

the place did not have a name, so I'll call it Mom's Place (its spiritual name in my mind). First of all, I admit that we were not at first looking for lunch, but some fresh guavas to satisfy my wife's periodic addiction to the fruit. There seemed to be some promise in the form of road signs for miles around of a fruit market in Hawi- so to there we migrated. Actually we had little choice, for there are only two ways to anywhere on the Island, clockwise and counter-clockwise. Thus, Hawi is on the way, by necessity, to everywhere, depending on your direction of circuit. Anyway, I entered Mom's Place, and found the lady who was presumably named Mom in casual conversation with another local about nothing in particular. The place had the look of a classic southern barbecue hut, and indeed all the charm. There were no other patrons, and if Mom was surprised to see me, she didn't show it. Her conversation faltered for a moment as she kind of observed me looking at the menu, trying to decide between a fish "plate" and a fish "bowl". I kind of sauntered over to the counter, and she actually paused her conversation to ask me if I wanted to order. I think I settled on both a plate and a bowl of fish- when she replied without inflection, "We're out of that." When I asked here what they did have, she replied, "All we got is hamburgers and fried chicken." Well. I settled on fried chicken, and returned to the porch to hang out with Whitney and observe the locals. I also failed to mention in this narrative that Mom's place had at least six ancient '50s era fridges and freezers, replete with those gross rust liver spots that those steel monsters develop, and the dank cave-like smell that they emanate. Actually, now that I think about it, fridges age very similarly to humans. I guess we just throw them out when they require diapers, collecting them in junkyards instead of "homes", which are often little more than junkyards for the elderly.

While we waited for Mom to emerge with my mystery meal, a nice man meandering about on a scooter passed us once, then again, before finally stopping to talk to us. He was genuinely curious in us, and did not suspect at all that we were tourists, and actually just wanted to know about us and what we were doing. This may not seem noteworthy, but when was the last time that a stranger did that in a city - came up to get to know you without prompt or suggestion of anything to exchange? After a time he noticed the prominently displayed camera and maps on the table, and asked, "Are you guys Tourists?" When we replied affirmatively, he said, "Wow! We never get tourists in Hawi! You should come down and see my gallery [he made furniture out of bamboo] down the road!" Our presence must have riled him up, either out of the general rarity of it, or because he thought we were actually coming to his house/workshop, causing him to rush off to clean it up and make it presentable.

Eventually Mom brought us our food, which consisted of a couple pieces of microwaved fried chicken *a la Banquet*, and an ice cream scoop each of white rice and this potato-macaroni salad stuff, with which we became enamored over the course of our stay. I have to say that we were not at all disappointed with our food, even though it basically came from the supermarket via the microwave, because it contributed to the feeling that we were really experiencing the real Hawaii, not the façade that was put in place by mainland corporations, or the attitudes that followed the mainland insurgence. Hawi was really a beautiful little town, arrested in development like a gold rush boom town after all of the miners were forced to buy houses and get city jobs. A few locals and "adventurers" really became the inhabitants, with a certain identity indistinguishable from that of the town itself. The sidewalks were partially littered with remnants of past

attempts at commercialization, including one of those claw-lowering games that now occupy movie theater and Denny's lobbies; except this one was called "Challenger", and on the front showed a picture of the Challenger shuttle in orbit, extending its robotic arm, and manipulating one of the letters in the name of the game. The machine itself had a glass enclosure which was fogged with a nasty grunge, which probably emanated from the questionable stuffed animals which had presumably been baking in the sun on that sidewalk from sometime before 1986 when the Challenger STS exploded. In its own way, this Challenger game became a kind of monument to the persistence of the local identity, calmly living out a mildewed existence on a sidewalk, but with apparent dignity, or at least with complete lack of regret. I'm probably reading too much into this, as in reality the people of Hawi just had nowhere to stash the pathetic machine, and there was no particular purpose to its presence. But that's just the point that these people and their claw machine present; namely, must we always have a purpose in our presence, and would the average person have the bravery to give up purpose to live in obscurity, but without traffic, money, and most of the other things that come with mainland life? I'm pretty sure that I couldn't do it, but Whitney could, and maybe when I get over my infatuation with stuff we might retire to such a place as this.

We left Hawi, stopping briefly at the fabled fruit market, at which the proprietor laughed about us wanting guavas, since they were obviously out of season. Obviously. We continued our circuit of the Island, and had other more or less similar adventures. The only two really notable happenings after this were our trip to Volcanoes National Park, during which we saw lots of craters and lava fields, and an attempt to try surfing at the resort, which ended with me throwing out my back. This injury still bothers me over a year later; I'm seeing a doctor about it next week.

We returned from our honeymoon to the mainland, and were presented with the awesome task of taking care of the carnage of presents left in the wake of the World Wedding I. We made an appointment to return/exchange some of our presents, and proceeded to load Whitney's dad's Chevy Tahoe to the limit with loot. This was to take advantage of the following loophole/scam that I advise everyone getting married to exploit. We registered at Macy's almost exclusively, and they have two policies that overlap in this circumstance. The first is that on one day only, the happy couple, following their wedding, gets 10% off anything on their registry list. This is so that they will be tempted to buy more crap that they probably don't need and almost certainly have no room for in whatever shoebox they are about to inhabit. The second excellent policy is that if anyone opens a Macy's credit account, that day they get an additional 10% off anything they buy, regardless of whether it's on sale. Macy's will print out a list of everything that you received and what it cost when purchased as well, so that you can even shop for bargains, and elect to keep any merchandise that you might actually want to keep, and can't beat the price of at 20% off. For instance, somebody found sets of Fiestaware on sale for \$11 a place setting, which is like 70% off. So, I have two pieces of advice for couples registering for their wedding loot. First, register at a place you can scam - Macy's is a good choice. They have lots of sales around the time that people are getting married, and a decent website, and excellent policies to exploit. Second, craft in advance your plan to exploit the store you choose, and register for everything you can. We bought an expensive bed that we would have saved something like \$600 on if we had registered for it. Also, some fool might actually buy you a \$5000 Persian camel-hair rug,

which you can cash in for a kitchen full of stuff. Stephen the Gay Macy's Furniture Salesman claims that this happens all the time.

In the end, we got everything on our registry, returned it all, bought most of it again, bought an expensive English bed with the money we netted from our scam, and had cash left over, which was issued as a check to us a month later. Had we known this would happen, we might have been choosier about the stuff we picked to re-purchase, but I don't really regret our plan. What did all this cost us? We spent Eight Hours in a Macy's. We were there so long that employees actually asked us if we worked there. It was very trying, but well worth it. Oh yeah, one last scam - some stuff comes with a free "gift" on purchase. We got a free 4 qt. cooking pot when we bought our cookware (\$150 value), and when we returned and repurchased it, we got 20% off, and another pot! Not really above the belt, I realize, but I'm poor damn it, and sometime I might need both of those pots simultaneously. You'll see.

After returning with our hard-earned booty, we had to stash all of it in Whitney's parents' garage, since we had no place to live yet. We were scheduled to move into the Berkeley married student housing "sometime soon", and I had to start work at Lawrence Livermore National Lab in a couple days after our return from Hawaii. We moved into her Aunt and Uncle's house on the San Francisco peninsula, which we used as our base of operations for working and getting acquainted with Berkeley and such. I had to drive everyday about 90 minutes each way to get to and from work, and Whitney lumbered about town taking care of business in her uncle Jan's huge pick-up truck. This lasted for about a week, and it was actually kind of nice to stay with family like that (as opposed to the kind of visit that usually comes with the holidays, replete with scheduled engagements and such). There was little to report from that time, except we ate somewhat richly since our hosts both like to cook, and we also developed an affinity for limeade made from concentrate with soda water. Mmmm. Strangely, we haven't really had this much since then, because limeade concentrate is never on sale, and we are incurable cheap-asses (more by hobby than necessity I admit).

Over this summer I worked at the Lab, and W started her summer school classes to finish her prerequisites for nursing school. Most of these classes had limited worth, but I guess were redeemed by the trove of stories of her quality fellow students in the East Bay Community colleges that was yielded.

These stories are really Whitney's to tell, but I'll recount one here, but just until she can edit it for her own publication. One day in "Interpersonal Communication", a particularly noteworthy admission by one of the students came out. Somewhere in the middle of the class sat a quiet black woman, not out of the ordinary in any regard, dressed conservatively, and with the general appearance of a business secretary. The class was discussing communication difficulties with respect to cultural differences between the communicating parties. All of the sudden the insignificant office worker lady stands up and pronounces,

"Yeah, one time I used to date a pimp. And, you know, he used to yell at me 'cause I was lookin' other guys in the eye. You know, just walkin' down the street and seein' other guys. He used to say, 'You wanna be with that guy? You wanna go with him? Then go on! I don't need ya!' and go on like that. I tried to tell him that I didn't want to go wit' them, but he never believed me.

Now I realize looking back that he thought I wanted to be with those other guys because he thought they were pimps too. He thought that I wanted to go with them because they were better pimps than him. But it's not because he was bad or mean, it's just because of his culture as a pimp. His pimping culture.

I'm really glad that I took this class, because now I see that all those misunderstandings we had, they were because of our Cultural Differences. Now I know, that when a 'ho looks a guy in the eye, it's because she wants him to be her pimp. And when he used to get mad, it's because he thought I wanted to go with them, because of his pimping culture. Now I understand so much more about my life because of this class."

<Long silence>

"But I weren't never a 'ho or nothin'."

Whitney's classes weren't really spectacular in any way. Actually, on a whole, they sucked. She basically frittered away her summer preparing for nursing graduate school, even though she had almost no experience being a nurse, or even wanting to be a nurse. Her stalwart determination to get through these classes probably was a holdover from her 3-year college marathon, and probably also quite impossible for most people of ordinary constitution.

My summer was spent working at LLNL on an extended project that I had started the previous year. The purpose of the project was to use an ultra-short pulsed laser, in combination with a motorized stage, a very accurate laser sensing head, and a high-falutin computer with near-real-time software to orchestrate the whole affair, all for the purpose of making a completely autonomous machining workstation. Sound neat? I think so, especially if it ever happens. Eventually we did get significant results - I got the machine to carve out a spherical depression in aluminum-oxide (sapphire), and to an accuracy of about 3 microns or so (a small fraction of the width of a hair). It took a long time for the machine to finish each sample, far longer than was practical, but this is more the result of a lame, ailing laser than anything. The purpose of the project, like that of all government projects, was not to be successful, but to do just enough to ensure future funding. In that respect, we were unquestionably right on target with our results.

"Wow, look at the results we got with the limited equipment and budget we had! Just imagine if we had more money to fund engineers, and the high-power laser prototype that we have proposed, but have no funding or application to allow for its creation! We could develop it and use it for [classified], and also farm it out for [proprietary commercial partnerships]!" You get the idea.

Next, we found ourselves in Graduate School, which apparently is different from "grad-school", but only to the initiated. I began my ascent to greatness in complete obscurity - I had no professor or research, knew no one, and had little idea of how I was exactly to proceed. I arrived in grad school with one guiding philosophy; namely, that I should not be in too much of a rush to choose a research advisor or a research project for my thesis. I should instead wait for the great project to come along which would excite all my creativity and ingenuity, and also that this project should be administered by a great, kind, and fantastic professor, who was personally interested in my personal well-being. Kind of lofty. Given this as my decided direction, I found myself without any

such opportunities, since all positions that met this description were given to those more readily deserving (meaning they were anointed by NSF, or were generally the arch-angels of their respective undergraduate programs; *id est* not me).

I began the semester without any guaranteed source of funding, and so I picked up three or four classes, determined to make the most out of my semester, even if I had to pay for it and not do any research. Sometime in the second or third week of the semester, I was offered a position TAing for what is essentially Senior Design, but with micro-controllers. This was my first choice for teaching, so I accepted, and my whole schedule was turned upside down. I had to drop most of my classes, and kept only two. These two classes were a materials science class, and a “MEMS design” class. Both ended up being rather diffuse, or rudimentary, and as a result I began to become irritated as my brain atrophied from lack of use.

I made trips out to LLNL (a forty mile trip), even though there was rarely anything for me to do, and little money to pay me for doing research (I was still technically a “summer student”, just on administrative leave. I still am). I tried my best to be a good TA for the class, setting up my own shop at home to test the labs before the students attempted them, and really tried to get them excited enough to try something daring with their projects. It turns out that “daring” is not an adjective which can possibly describe a Berkeley engineering student, and in the undergraduate case, “competent” is generally a stretch. Most students approached the class and its project with a general malaise, and already somehow opposed to the whole idea of making something which is required to be remarkable.

In the end, I can't really put my finger on the cause of the students' lame performance. It could be because the class, which nominally purports to be a design class, actually was a crash-course in C programming of imbedded controllers. The projects tended to be hobby-class material, because all the students' time was spent fretting about and learning programming of the microchip boards. However, motivated students can fight through that. I blame mostly the curriculum of the ME program at Berkeley, which seems to, by natural selection, squeeze out the originality and imagination of every student - as though these are somehow incompatible with their ultimate goal of owning a “start-up”. To be fair, the ME department is reconfiguring the undergraduate curriculum, but I expect that little substantial will change - as this attitude of which I write is probably systemic to the California education system, and therefore incurable.

I seem to have skipped a couple of subjects that deserve mention before continuing. First, there is our apartment. It covers about 410 square feet of floor space, but this tiny area also includes a number of superfluous walls and partitions that form storage spaces. Our apartment building is built very much like two giant shoe boxes stacked on top of one another, and then covered with lead paint. There is an area full of such buildings around ours, and this land is dubbed the “Albany Village”. To get a feel for what our neighborhood is like, cross an industrial park with a day care center. Maybe I should elaborate on this. Between the shoebox buildings are wide grassy areas, some more dead and diseased than others. Someone decided it would be a great idea at some point to pour asphalt in front of our building, in our front yard. Perhaps this was a failed attempt at handicapped access ramps - but we'll never know. Most of the inhabitants of the buildings have children, and these run around in packs like the wild herds of feral

horses in Texas. Even for those of us without children, these roving mobs of screeching kids really make the Village into a cohesive neighborhood - one that I really find myself not wanting to leave. More on this later.

The history of our Village began in the early '40s, when the buildings were erected as temporary barracks for conscripted shipbuilders for the war. The land sometime after was purchased by the University of California, and used for student family housing. More buildings were added to the complex in the 1970's, and keeping with the tradition, these were of shoddy and dubious construction. A third group of apartment buildings was finished in 2000, and these are attractive, even swanky abodes with large windows and colorful facades. However, there is always a bottom line - one of the new one-bedroom flats costs about \$1250 a month, compared to \$510 for our cramped little hovel. There is more to this story however. When I first looked at the webpage for the Village housing project (in December of 2001), the section dedicated to the part that I now live in clearly stated "Scheduled for Demolition in 2000". I believe it still does. It turns out that now that our beloved buildings are senior citizens in their own right, they are too being sent to the junkyard, to be replaced with more expensive, swanky counterparts to those across the street from us. Our building will get bulldozed sometime in July of next year, along with all of the shoeboxes, and some of the crappy '70s era buildings which are actually less hospitable than our barracks. We will probably be forced to live in the expensive housing (which means debt for us!) since the cheaper stuff will have to go to the foreign students which aren't eligible for financial aid, and also aren't allowed to have jobs since they are in the country on student visas. And they have kids, generally three or more. Compared to them, Whitney and I are certified Fat-Cats, and totally undeserving of charity.

I also completely omitted Whitney's practice of the fine art of Bagelry. Last summer she got a part time job working at Noah's bagels, which is a clone of Einstein Bros. Bagels, both of which have the same parent company. That Noah's sits right next to Cal campus, and also right on the notorious Telegraph Avenue, so she got to experience first hand the maelstrom of homeless crazies mixed together with spoiled Asian kids talking on cell phones and hemp weavers desperate for anything "organic". Eventually the business of her job there was no longer offset by the benefits of getting huge bags of bagels for free every day, in addition to a meager but sufficient paycheck. She left Noah's around the time that she started school, ostensibly to have more time to study, but really just so she could have more time to goof off with me over the weekend. What a gal, huh? Putting her career in the bagel industry on hold just for me. It's more likely that a third scenario actually prevailed; Whitney probably wanted to sleep in more often. If you've ever seen her get out of bed before noon, you'd understand.

Anyhow, around this time W began her horrible experiment with nursing graduate school. I'm going to try and be as objective as possible about this subject, but I'll first say that she is totally unrepentant about quitting grad school after the first semester, except that she would rather have quit before finishing it, and she might have actually enjoyed her summer, were she not committed to attending class with hordes of Yolandas every day.

First, in my expose on Whitney's experience in nursing school, I'll attempt to paint an accurate portrayal of the structure of Samuel Merritt College. This is a school with a long history of turning out high-quality nurses to feed to the medical industry.

Sometime in the recent past, they began their somewhat trendy Entry-Level Masters of Science in Nursing program, which offers students with undergraduate degrees in non-nursing fields a faster track to a nursing MS degree. These are fairly intensive programs usually, and only offered to the best students, since there is a much larger demand for this service than can be supplied. In the case of Samuel Merritt, this program is run by a faculty of nurses, the only qualifications that they possess toward justifying their positions being professional nursing experience, and “always wanting to teach”. Well, I can tell you that nostalgia and professional experience make not an adequate professor, let alone an entire department of them.

Her semester of class consisted of watching air-headed instructors read off of PowerPoint slides to the students, and submitting to ridiculous assignments of obviously questionable merit. Keep in mind that this is a graduate program, and everyone in it has a Baccalaureate in Something prior to admission. One assignment involved learning weights and measures, an important subject for a profession where you will be metering medications in hospitals. In this assignment, the definition of a gram was given as “about the weight of a paper clip”. Further, the definition of a kilogram was necessarily given as “about the weight of a thousand paper clips”. Not only are these definitions totally useless, but a gram is a measure of mass, not weight, and so the information was also erroneous. These definitions, and others like them, had to be memorized despite all this, for they would be tested verbatim on exams given by the inadequate, under qualified instructors, who seemed to be incapable of grasping such subtleties as these.

The last gruesome detail I will recount of her nursing school experiences involves her mandatory enrollment in a nursing “clinical”, which in the first semester places the student in a psychiatric clinic. Here you are responsible if the “patient” escapes, and you have to deal with the immutable fact that the people you try to help everyday you go to clinical will never get better, especially since most have very limited access to any form of healthcare, and the rest of them are pretty much there against their will and have no interest in cooperating with you. Some of the patients were less objectionable, however, like the very amicable, pathologically manic gay man who proclaimed that he commanded “an army of Love”, with which he would eventually conquer the world. What do you say to that? I guess just “OK”.

So, thus ends my narrative of Whitney’s miserable experience with nursing. I have to say that I never saw her more spiritually evacuated than during that time, like a prisoner, or more like a slave. Toward the end of her semester she applied for an internship as a zookeeper at the Oakland Zoo, which she began after going on her permanent “leave of absence” from school. She also started at a bagel shop near our house called Boogie Woogie Bagel Boy. This place had been closed for months, and if you ask the employees why they were closed, they will tell you that there was a fire in the back, not caused by the oven, but because some crack addict set the back door on fire in some kind of an attempt to break in and steal stuff. As unlikely as that sounds, that’s what you’ll hear. If you sit at one of the three tables in the front of the store for more than an hour, you’ll probably hear this explanation at least once, because apparently the bagels that BWBB sells are more than irresistible - they have vaulted up the hierarchy of needs for the store’s clientele to somewhere between water and shelter. Thus, when people come into the store, like desperate desert animals to an oasis, they proclaim that they missed their Boogie Woogie Bagels every day, and swear a kind of loyalty oath to

their one true love, after inquiring about the fire, of course. If you think I'm exaggerating, come and see for yourself. Whitney was one of the first employees to be hired after the reopening, and most of the others from that first wave have moved on; thus she officially qualifies as "old school". Whitney is very content now working as an apprentice zookeeper part time, BWBB the rest of the week, and spending time tooling about with me on the weekends.

We camp occasionally when we get a chance, and when we get off of our butts and motivate ourselves enough to leave the house on a weekend. We have lots of camping gear, as the consequence of living so near to the Berkeley REI store, which happens to be the single best money making store for REI in the country. Its allure was too much for me, and now we have two new bikes, new trekking backpacks, new hiking boots, socks, a rain fly tent thing, and other outdoor odds and ends that now have our limited closet space stuffed beyond capacity. We have taken a couple trips down to Big Sur, which is a beautiful area of coast where the California mountains seem to break apart like huge granite glaciers, falling into the ocean and leaving a field of huge stone icebergs next to breathtaking shear cliffs, all being beaten relentlessly by the active surf for which the area is named. To get to the camp grounds you have to drive south from the Bay for a few hours, and you end up winding around on Highway 1 and trying not to wreck while beholding the hugeness of the spectacle going on all around you. For all of the excitement of the show that nature puts on in Big Sur, the campgrounds are actually quite peaceful, excepting the old school busses full of nomadic hippies that populate them during the summer months.

We also went to Point Reyes, which is north of the Bay, and is equally spectacular in its own way. You can camp just on the other side of a hill from the beach, which serves as a windscreen from the relentless gale that blows in from the ocean day and night. We ate our Thanksgiving dinner on the beach there, which consisted of mac and cheese with tuna in it and a huge hunk of bread, all consumed by lantern light. Apparently Point Reyes has a lot of history all bound up with it, and instead of detailing it here, I'll just say that you wouldn't know anything about it from hiking around in the woods or hanging out by the ocean. So, I guess the History of Point Reyes doesn't really matter to the average camper, including me. There is a cool lighthouse there though, which is totally outdated now, and has all kinds of nifty mechanical gadgets that make it operate that are quite interesting to me, and probably to others like me too.

So, back to the progression of my life. I think I left off after the fall semester, which was fairly disappointing due to a lack of sufficient challenge for me. I worked at LLNL over my Christmas break, which since I had no finals was Six Weeks Long. During this time I actually completed my prototype laser mill, and produced the samples that I mentioned before. This also gave me an outlet for my insufficiently tapped cerebral urges, and tided me over until the next semester when I could try to redeem myself from the previous semester.

Sometime in the early part of the semester, or even perhaps before it began, an email went out to the various engineering departments advertising the opportunity for a student research position working on a Biomedical Micro-mechanical sensor to be used in conjunction with dental implants. I had heard only great things about the professor who was offering the position from other students, and so I decided that this was the

project that I had been waiting for. After some waiting, I got the position, and have spent the last semester working out the rough details of the device, which I will mention next.

The premise for the use of the device comes from standard dental practice ultimately. When surgeons implant prosthetic teeth, they generally judge the extent to which the implant has integrated with the surrounding bone by flicking it with their finger. If the implant rings like a tuning fork, then it has integrated and is healthy. If it goes “thud”, then the bone has not grown into the implant, and it will probably need to be removed, and then revision of the surgery begins. If a machine is devised which will quantitatively perform this flicking assay, and take meaningful data which can be interpreted by a dentist, then the progress of bone integration can be monitored easily and more systematically than before. This device is to fit inside the implant, nestled inside a screw just a few millimeters in diameter, which eventually will be completely wireless and will go with the successful implant patient to the grave. For my part, I don’t have to worry about most of that, I’m just trying to get a working prototype going so that further development is warranted. This is a pretty cool project, in my opinion, but progress has been slow due to the difficulty in getting qualified to run the machines required to manufacture such a device, and also since I was pretty busy with class during the semester.

After my class experience in the fall semester, I made sure to sign up for what I thought would be a challenging array of courses in the spring. I ended up taking three: Structural Aspects of Biomaterials, Continuum Mechanics, and Mechanical Behavior of Composite Materials. The first I mentioned could really just be called “Implants 101”, the last is self explanatory, but Continuum Mechanics deserves its own blurb. Imagine an original subject which has as its basis a rigorous mathematical description of motion and physical objects as collections of “material points”. Combine this with a study of tensors and vector spaces, and you get a way to derive the way all materials react to motions and deformations, solid or fluid, based solely on a carefully developed premise. Seem cool? It is, but it’s pretty challenging, and forbidding at first to almost everyone who takes it. Needless to say, I was kept pretty busy by Continuum, but I enjoyed all of my classes. I’m glad I took Composites, especially since it was taught to me by one of the less well known founding fathers of composite mechanics. He might dispute this assertion, but his career as an academic has produced more work which has spawned enough imitations by other academics to launch dozens of careers into notoriety, yet he is satisfied to sit behind his little desk and do the new research instead of drumming out a hundred publications based on one idea. I find that admirable.

So, now I’ve pretty much landed in the present. This summer I’ve been fighting to get qualified on machined in the Microlab, where I will build and test my devices. I just got trained on enough machines so that I can play with some MEMS (Micro-Electro-Mechanical Systems) that I inherited from a previous attempt at my project, or at least from a precursor to it. These little guys are about 1 millimeter square, and extremely delicate. They came from a fabrication firm which can make such devices directly from computer CAD files, and have to be “released” by etching away the silicon oxide which serves as glue or packing material for the fragile machine to that it doesn’t break during shipping. Some of the parts of these things are barely 5 microns wide- that is about 0.0001 inches. If you’re not really careful when doing this release (with hydrofluoric acid), you will end up with a Teflon dish with little gold 1 mm squares floating around in

it like glitter. I've managed to get some of these released properly, and spent a whole afternoon playing with them on Thursday. Nothing terribly exciting to report so far, except that I can get them to short out and burn by applying enough voltage to them.

Whitney is still working at the Zoo and BWBB, and is quite contented working with the giraffes and other animals that live in Zoo Africa. In a couple weeks she will probably move to caring for another group of animals, called a "string" in zookeeper jargon, which will probably involve less backbreaking farm labor, and more cuteness. I'm trying to move forward with my research, which is really like swimming upstream. Everyone is busy with their own research during the summer, so it is hard to pin down the people who have to certify you before you can use the Microlab equipment. This is compounded by the fact that I am not part of a "Lab", or a community of graduate students working for the same professor, which serves as a kind of village to raise the new students, and get them trained and up to speed. I also have a revised deadline for my current project, which is set now for Christmas barring further manipulation. This will probably be difficult to meet, and as I append this narrative as time goes on, the reader may be able to watch me slowly unravel as I frantically attempt to complete the design, fabrication, and characterization of devices barely large enough to resolve with the eye. Stay tuned, you'll probably be in for a fairly strange trip.