

## Maurer/Stier 2010 Annual Letter

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206 Benjamin West Ave  
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**Fran writes:** 12/26/2010: It's snowing outside and the kitchen is cleaned up from the bits of blackened potatoes that latkes leave over everything (Hanukkah ended weeks ago, but I wanted to make them when L & A were both home), as I sit down to write. Steve & are both in our 60's now. When I call myself middle-aged, Aaron corrects me. I'm old.

**Aaron** spent the summer in Minneapolis at a math REU (Research Experience for Undergraduates) studying cops and robbers on a graph. He had a good time – very much enjoyed working with his advisor. Then he spent a week in charge of a cabin of 9 year olds at a YMCA camp in WI, leaving with poison ivy on one leg and a huge scrape on the other (both from falling while being chased by his charges).

He's now a senior at Carleton, majoring in math & history. He'd known last year he didn't want to be an academic historian; he doesn't like theory, for example, [Michel Foucault](#) and the [panopticon](#) (I had to confess, I'd never heard of either).

He got a concussion when he slipped in practice and a running back kneed him in the head. He had a difficult six weeks of headaches & lightheadedness (and worried inquiries from Steve and me) before the effects cleared. He left the football team, took up running, and has since lost 20 lbs.

He is applying to grad schools in math.

He lives off campus now, in a rented house with 3 other students and an art project in back from a former tenant – the Post-Apocalyptic Smog Machine. (tractor seat, pedals, strainer, lots of gears, now rusty).

**Leon** is in the third year of a physics PhD at U Wisc. He spent a lot of the fall coordinating the department's [Holiday Colloquium](#); his roles of the Wicked Witch of the West & the Evil Advisor won him much acclaim (he attributed the acclaim to free beer & pizza, but a mother knows better).

I can't say much about his research, other than it involves cooling tiny electronic devices down to -

473F and then figuring out why they didn't perform as expected. Poor dear, he had to drill me in how to say his specialty (condensed matter, like condensed milk; I kept calling it compressed matter).

To the extent he has a social life, it revolves around bi-weekly brunches at the apartments of fellow grad students. He works hard on his culinary contributions: e.g. blintzes (hard to find farmers' cheese), pretzels, home-made English muffins for Eggs Benedict.

He changed his legal residence to WI, started to rely on the health insurance he gets through U WI, got checkups with local doctors, bought a car (a used Hyundai, acquired from a high-energy grad student leaving for Switzerland [to [CERN](#)]) and learned to drive a manual shift. Our nestling has left the nest.

He tolerates weekly phone calls home, in spite of my nudging:

Rose had been talking abt the new Hillel at U Wisc and I found myself saying (to L), you could go Fri night, and then felt upset to be such a nag, but L laughed and said I was only expressing the biological imperative: Jewish grandchildren. He mentioned a NYT article on a Satmar Chassidic lady (a Holocaust survivor) [who recently died with more than 2k descendents](#). Can you imagine??

We talk some about parenting in the abstract:

he brought up a [New York Magazine](#) piece on whether children bring happiness to parents. I read the piece -- thought it was heavily weighted toward parenting babies & toddlers, and also thought that parenting in the city is harder, then sent him some kid diaries from 1992-1993, hoping to show him how adorable he & Aaron were.

So far, my efforts have been in vain. He wrote:

Perhaps the parenting gods punished me for bringing this up -- both of my flights had screaming toddlers on them. One sat right in front of me on the flight to Detroit and spent some time screaming "I can't talk!" (uhhh????) and then

was very concerned that we weren't landing and would probably never land. Then once we landed, he wanted the plane to take off again. Good lord. Someone needs to invent a toddler gag.

**Work:** The company I work for was bought by MetLife on November 1<sup>st</sup>. Work's been busy – first there were experience studies to complete over the summer & early fall (after a purchase, reserve assumptions get re-evaluated) [the team in my unit was just great]. Then I (and others) got reassigned to help convert financial reporting to a Purchase GAAP basis. Lots of working late, some working weekends & many flaps and tempests-in-teapots: from inconsistent rounding on mortality tables, to past valuation errors surfacing. Audit and management questions will surely follow in the months to come. Much uncertainty about who will stay and who will be found redundant.

**Synagogue & Chester's Coop:** I continue as Social Action Chair at the synagogue ([click here](#) for a link to our blog), and started as treasurer for Chester's Coop. Chester, like many low-income towns, hasn't had a grocery store for years, only fast-food and corner grocery stores. After many struggles & delays, the coop got a grant from [The Reinvestment Fund's food access initiative](#), has leased a more permanent site, and will open a full-service grocery store early in 2011. I hope it will thrive, but there are obstacles to overcome.

The things we do are so small – gloves for the kids at one shelter, chicken for dinner a few times a year at a soup kitchen. The jobs that are within reach for so many pay so little.

**Genealogy:** Mom and a cousin put together a family reunion in June, and I assembled a family tree on Ancestry.com. Census records and many other government records are on-line & digitally indexed, so it was easy to find the 1900-1930 census forms for Mom's father's parents (Kate and Max) and their descendants, along with draft cards, naturalization petitions, passport applications, and gravesites.

Stories a century old emerged – the death of a little cousin aged 7, and her mother's suicide a year later. The death of Kate the day before her grandson's Bar Mitzvah. (The Bar Mitzvah went on as planned, and the family sat shiva (mourned) the next day).

The reunion was grand – all kinds of stories – for example, the chicken livers. We'd all heard about the chicken livers. When my grandfather & his brothers visited their Mom in Brooklyn for Seder (60-70 years ago), they first went to the kitchen, where she cooked them chicken livers (a great delicacy).

Great-aunt J thought it was unfair that the sons got the chicken livers, while the daughters (who'd spent the day helping their Mom cook) went without.

Leon didn't share my new-found interest. His comment on the reunion: "Old people talking about older people".

**Spain:** We spent a week there during Steve's fall break (Madrid, Segovia, Toledo, Cordoba, Granada) – many, many lovely paintings, trips on Spain's high-speed trains, great food, and fun for me to try speaking & reading Spanish. For pictures & travel-log, see [our blog](#).

**Closing:** We recently watched [To Live](#), (recommended by a friend from China) about one family's journey through China's revolution and the decades that follow. She remembers that when Mao died (she was 6) her parents worried what jacket would she wear to the ceremony honoring him—could she wear a jacket with little chickens on it? Would people object?

Life here has been so comfortable and peaceful; we've been so fortunate. Wishing you peace & health in the New Year.

**Steve writes:** I start with some odds and ends, and then get down serious business, like work and the future. For various items in my part, there are photos on the website where you found this letter.

Snow. Philly got 70 inches of snow last winter, the all-time high. By mid February we had snow up to our kitchen window. We had to shovel not only sidewalks and driveways, but also flat roofs. The College Provost has one too, and interspersed with weightier matters (figuratively), I commiserated with her over that. Her husband was on sabbatical in England. Anyway, in mid February a block of ice slipped off the top of the water tower next to the Science Center parking lot and crushed several cars. I was lucky; my hood got bashed in but the car was driveable. My insurance and the College paid for the repair.

Deer. They've become quite a problem in Swarthmore. After years of tussle with activists, the College got permission last winter to cull the herd that was decimating the Crum Woods. But it seems the remaining deer just came up the hill to the town. I haven't been able to grow fall crops

in my garden across town for several years; the deer eat the greens to the ground. But this year they started eating in May. Fortunately they don't like any part of okra. But they love tomato and pepper leaves and stems. They eat off the tops of those plants; what's below their browsing level will grow good fruits but total production is limited. Various anti-deer measures were only partly successful. They roam all over town too. I've seen them in our yard and they ate Fran's flowers. One day we were talking to our neighbor Helen Speck in her front yard, and some deer walked out of her back yard and stood a few feet from her. She stared them in the eye and said, "Get out of Dodge!" They moseyed across the street to the Kemlers.

Birds. Last spring some robins made their nest in a hanging flowerpot outside our dining room window. The nestlings really do stretch their necks for the mommy's worm – see the pictures. One of the three stopped stretching its neck quite so far, and then it didn't get fed. What sort of mommy is that? Eventually it stopped raising its head very far and soon it was dead. The others just nested on top of it. Survival of the fittest.

Work. The last 12 months have been really hectic as dept chair. Last spring my long effort to keep our fine Latino colleague failed, and so we suddenly had to do a full national search late in the job season for a 2-yr visiting position. Then this academic year started busy from the get go. We have 3 promotion and reappointment cases, and the chair has to get all the documents and letters for the dossiers. Then a sudden bruhaha arose over changes in the health benefits plan, and I was in the middle, having been the creator of the 5-year "morph" spreadsheet on the Benefits Committee the previous spring. Also, our dept knew we would have two new temporary hires this year to cover people on leave. But just in the week between Christmas and New Years that grew to 4, and I was busy immediately posting announcements and organizing the expanded search.

Fortunately I was only teaching 1 course this fall. As chair of a large department I teach 3 courses a year, and usually fall is busier for the chair. In the past two years I agreed to do my 2-course semester in the fall to help out with some problem, but it damn near killed me.

Unfortunately this year spring will be busier for the chair, as the current hiring work will only get heavier.

The result is that I am worn out. When I started as chair, and for a long time, I really enjoyed it (too much, probably). But now I've had enough. Fortunately only 6 months to go, if I don't die first.

I have a pretty good legacy as chair, including expanding the offerings and improving our already good reputation with students and administration. But I don't draw much satisfaction from it at the moment.

Starting this summer I go on leave, probably for a full year (more on that below). I can't tell you how much I am looking forward to it. Looks like I will return to ECLA in Berlin, this time for their winter term. I have also been invited to spend 2 weeks in the fall at the American University of Central Asia, in Bishkek, Kyrgyzstan. Also, Fran and I will take a more leisurely fall trip, to the Cotswolds. But mostly I hope to unwind some, catch up on some mathematical reading and some writing – and make some decisions about retirement. I may teach here just one year after the leave. Or, as has become fairly common, I may teach part-time for several years. Then what? Maybe it's time for something completely new.

There *have* been several good things this year. I'll write about 3 of them: MathPath, one of my courses, and our trip to Spain.

MathPath was a big success. We had our largest enrollment ever, the kids had as much fun as ever, and the quality of the program was as strong as ever. We were at a new location, Macalester College in St Paul. From the administrative side it was the best location ever: many strong mathematician expositors to call on from the Twin Cities, a very flexible and helpful summer conference director, and an excellent price. With the high enrollment and low cost we are finally almost out of debt. The returning students (we get quite a few) preferred the previous location at Colorado College – hard to beat a location flush against the Front Range, and the food and campus layout were a bit better there. We are returning to CC for 2011, but I am

still trying to arrange an eastern location for 2012.

I continue to teach the Honors Linear Algebra First-Year Seminar each fall. We meet over 5 hours/wk in a wonderful seminar room with floor to ceiling blackboard on 3 sides, so that everyone can turn around from the table and start expressing their thoughts on the wall. I do little direct lecturing; the students learn through discussing the problems. Some of the strongest math students in the first-year class take this seminar, and this year's was a particularly strong and friendly group. I'm so pleased with how they learn to express themselves well about mathematics at the board, and their evident pleasure with the material and with being together. Word about this seminar is definitely out there; this year for the first time I had 19 students sign up for the 12 spaces and had to lottery. In the past the double time commitment had limited the signups.

Spain. Fran made a good observation about a year ago. I was never going to find time for another vacation while chair unless we committed to it long in advance. So I committed last spring to a trip to Spain during Swarthmore's fall break, a week in early October. Had she let me wait to book, it never would have happened, because I was terribly behind when the trip started and even farther behind when we got back.

Anyway, Fran has written a detailed chronological account of the trip on her blog, with many nice photos. Here I'll merely add some personal observations.

My favorite things were the art museums in Madrid and mastering public transportation, followed by history, architecture and scenery. I derive little pleasure from nice hotels and only some from local food; indeed, the cost of these things is a big negative for me, and I found the Spanish meal schedule an annoyance. But it is an agreed to price I pay to do some things the way I want, notably part of where we go and what transportation we use.

Madrid has 3 major art museums within a few blocks of each other, of which the Prado was the least interesting per painting. Even the Bosch

and Breughels at the Prado were a bit disappointing, though I had been waiting a lifetime to see them – just one small room compared to huge room after room of Velasquez.

Trains. Spain has the fastest and most rapidly expanding network of high speed trains in Europe, and it was a delight to ride them. If the Ascela went as fast, Philly to NYC would be 40 minutes, not 75. I've written an article on those trains for the coming June travel newsletter of the Delaware Valley Assoc of Rail Passengers. You can read a draft and see some photos from the webpage of this letter.

I wanted to see the Alhambra for all the very mathematical frieze artwork, but as Fran describes, we couldn't get in. Fortunately, there is similar Moorish artwork in the old parts of other southern cities. In Cordoba, there is beautiful artwork even in building vestibules and yes, even in the bathrooms of ordinary restaurants.

Spain today takes the attitude, isn't it wonderful we had this mix of cultures, Christian, Jewish, Muslim. While this is great for tourism today, and probably honestly felt, it's not what they felt at the time, nor are they very honest with themselves about it. It was interesting to hear a cab driver talk about the Spanish explorers and the Latin American Indians (as translated for me by Fran). It seems Spain helped them out by bringing law and order long before England brought this to North America. On the contrary, intolerance and brutality have a long history in Spain and its colonies, right up through the Spanish Civil War.

When I was at ECLA, the president was a Spanish professor from Washington and Lee. I mentioned to him how taken I was that Germany was very frank and honest about its past; I recounted in my 2007 annual how, walking around, time and again I came across a plaque in German saying, basically, right here we did such and such horrible thing. Yes, said the president, this is quite different from the Spanish, who have yet to accept their past.

The Spanish are mostly fair skinned and many of the women are blondes! This didn't fit my conception of Hispanics at all, but the Hispanics I know are from the Americas. When I walked out

of the Prado late one afternoon, the sidewalk was jammed with people watching something noisy in the boulevard, and I immediately noticed that the crowd was swarthy as I had earlier expected. What were they watching? Well, it was Monday of the 4-day Oct 12 weekend. Oct 12 is Columbus Day in the US (the day he arrived in the New World) and it's the same holiday in Spain, except it's called Hispanic Day. Turns out all the former colonies were invited to send contingents to the celebration. Sure enough, singers and dancers in native dress from one former colony after another marched up the street. But finally, after every country went by, a big double decker bus with a rock band on top started booming its way slowly up the street. Now the cheering really started.

The American economy. It won't affect my Swarthmore job, except that salaries were frozen last year for one year. But Fran has a day of reckoning coming by March. If the best workers are kept, she won't have a problem, but it doesn't always work that way. And what if she is released? I think it could be a blessing in disguise. I think she would be much happier devoting more time to her social action volunteer work and otherwise reading and sleeping more. But she likes spending money, and her family tends to live a very long time. One thing for sure: if she is let go and (as likely) doesn't find another actuarial job, then I should work more – take just a semester leave next year (thus get full pay) and stay teaching a few more years.

I've been thinking MathPath would be a nice retirement project for me. To do what I do for it right would really be a halftime job all year – things like increased applications do not happen without effort – and in retirement that would fit nicely; it doesn't fit nicely now. Of course, it doesn't pay very much either, so again, the issue is whether I can afford to retire. Here I am assuming MathPath will continue; despite its progress, that's not certain either.

Our sons. Our financial problems are minor compared to those of our sons, starting out in a bad economy. Leon I am not so worried about. Lasting academic physics jobs are hard to come by these days, and one tends to get them only after a long string of postdocs. But there are a fair number of industry jobs, and Leon has a good

set of ancillary skills – mathematics skills, computer skills, he has even studied economics. He thinks he can get an industry job and I think he's right. Anyway, he is set in grad school with a Research Assistantship for at least 2 more years.

Aaron is applying to math grad school. Duh, it's in the genes you say, but it's not what I expected. Whereas both my sons were always pretty good at math, and we certainly had some math discussions around the dinner table when they were younger, I didn't push it and both their real interests seemed elsewhere. But both ended up as double majors where one major was math. When Aaron got to Carleton's introduction to proof course, I thought he'd like it less, but in fact he liked it more – a good sign, and I was touched. Then he really liked his REU at U Minnesota this summer, and his advisor (a Macalester prof whom I had independently hired to teach a week at MathPath) told me he was really good – which pleased me even more. So applying to grad school became a plausible option.

Still, his approach to applying is far from mine. He started late, missed some deadlines, sort of picked remaining places geographically, and has not added a few more schools when his Graduate Record Exam subject test score was lower than we hoped. He has spent a fair amount of time on his personal essay, even though in my experience most math admissions committees don't pay a lot of attention to it. Applying to grad school is not like applying to college. His attitude: he can't change what courses he has taken or his grades; the personal statement is the one thing he still controls. And if he doesn't get in anywhere, he'll figure out something to do for a year and maybe apply again. Que sera sera.

If he does go to grad school in math, he will finish in 5-6 years, and who knows, the economy may be a lot better.

Anyway, we are waiting for other shoes to drop. By May we will know a lot more for all of us. We hope for the best, for us and for you.

**Leon writes.** It has been a fairly uneventful year; I didn't take any interesting trips, and I spent most of my time on the research projects I wrote about last year. In fact, the only upcoming big change I see

isn't something new, but the end of something old. I'm now in my third year of grad school (out of an average of 5.5 years -- I don't expect to be "below" average, so I'll be here for a while), and the big change is that this winter/spring will be the first time in about 20 years that I won't be taking classes.

It's about time too -- I've gotten thoroughly sick of homework, exams, and the like. Still, I'd gotten so used to them that it was hard to stop; there are always classes that look interesting, and that's often enough to make me take them. I'm not alone with this problem, and this led to a solution: I made a "death pact" with another student in my class whereby I'd be required to kill him if he took any classes next term, and vice versa. It seems to have worked. It's kind of exciting, not simply because I'm done with classes (a symptom), but because of the root cause: I've basically taken all the offered classes relevant to my research. This puts me in the "reading research papers" stage of grad school (see [the illustrated guide to a phd](#)). By that metric, this is an important step.

The research project I've spent (and continue to spend) the most time on is the final one I described in last year's letter. It's a collaboration between my advisor and another physics professor that combines our equipment and experience with RF electronics (RF = radio frequency, electronic signals in a certain frequency range that includes the radio stations we're used to) with his approach to quantum computing (different than ours). Simply put, it's an improved way to measure his devices -- quantum computing can do some surprising things, but it's no use if you can't somehow read out the state of the basic elements of a quantum computer (the qubits).

I was just starting this project last fall; it didn't really get rolling until summer; and we were expecting to complete it quickly. At least in theory, it's only a small change to the measurement method they already used -- it would let us "see" things that happened too quickly for the other method to detect (like the movement of individual electrons through their device). Moreover, this method had already been done elsewhere for very similar qubits; the main difference is the material they were made from. That's why we expected everything to work in short order.

However, even though we've tried about a dozen times, it still hasn't worked. Initially, this was due to equipment failures -- broken cables and the likes, but

recently we've had a number of measurements fail with equipment that has passed all our diagnostic tests. On these measurements, we've seen a signal like the one we expect but orders of magnitude smaller.

The RF properties of our materials are virtually unknown (e.g. the resistance of a material can depend on the frequency of the electrical signal put through it). The groups who've used this measurement technique used a material which has been studied at radio frequencies and behaves almost exactly as expected. Not all materials do; a few materials have properties leading to results like ours.

I'm becoming convinced that our recent failures aren't due to equipment problems but due to some unusual material properties. My advisors aren't convinced yet; we'll soon be running another test that could decide.

I'm not sure what will come of all this. Maybe this test will work showing that we were doing something wrong earlier. Maybe this test will also fail and we'll decide it's worthwhile to investigate the strange RF properties of this material (which could be interesting; it hasn't been done before). Maybe if it fails we'll just decide that it's too much trouble. In any case, I'm hedging my bets by getting more involved in an ongoing project that I mentioned in last year's letter (SQUIDS optimized to be electrical amplifiers).

Classes and research took up most of my time; since the summer, most of the remainder was taken up with preparation for the Holiday Colloquium. It's a humorous show put on by the third years -- one of the department's traditions (supposedly dating to before WWII, known to date at least to the 70s). A good bit of the humor is physics or department related, but you might still like it. The videos are available [here](#). The first movie in the playlist is the whole show (live and prerecorded, along with audience reactions). After that are individual prerecorded skits.

The show went well, but it left little time to do other things. The only extracurricular I've made progress on is cooking. A group of students in my year meets for brunch every other week; that has provided a good excuse to learn a number of dishes, from pie to blintzes and soft pretzels (made the traditional way, with caustic lye -- I figure that I used dangerous

chemicals frequently at work, so why not at home too?)

I've also been working on non-brunch fare, in part because I've watched nearly 12 seasons of "Good Eats" over the past year. It's a show with a somewhat scientific basis to cooking which works for me (e.g. how does a roux work? What are its advantages/disadvantages over adding some form of starch directly?) Many cooking shows just give recipes with a few tips and frequent comments on how good things smell and taste. That's all well and good, but if you don't know the mechanisms behind the food, then it's harder to successfully modify recipes or come up with your own.

Since I'm done classes and the holiday colloquium, I should have a good chunk of free time next term – a good thing considering the backlog of things I've been meaning to do (I can't remember the last time I read a book for fun). I'm looking forward to a productive new year. I wish you the same.

**Aaron writes.** 2010 began for me with winter term (we are on a trimester as opposed to a semester schedule) of my junior year at Carleton College in Northfield Minnesota, where I am double majoring in mathematics and history. It has been my observation that, at least at Carleton, Junior year tends to be the most academically stressful, as it tends to be when students take their most difficult classes for their major. By comparison, senior year, students tend to take easier classes since they dedicate most of their effort to their senior thesis or project and figuring out what they are doing after graduation (I'll get to these latter).

Anyway, my junior year very much fit this pattern, and far and away my most difficult term during it was winter. I was taking three courses (which is a normal load at Carleton). The first class was a history methods seminar, one of the core courses of the major, designed principally to both give a survey of prominent history theory and to give students a real understanding of what exactly academic history. My second course was abstract algebra one, which while not strictly speaking required for a math major at Carleton, is one of the fundamental courses required to go to graduate school in mathematics. My last class was a survey course of imperial Chinese history, which I got stuck with as part of my history major. All in all it constituted a fairly miserable academic load culminating with having to write three quite large papers in the five days of

reading period and finals. However, I was hardly alone in this regard; the memory that will stick with me from this term is of me and fifteen or so other friends of mine who were also juniors all working through the night in the math building on the last day to get everything done. At the end of it all, the work was finished, but I did somewhat less well than I had hoped.

Thankfully winter is followed by spring, which, as anyone who has lived in the upper Midwest knows, is always desperately needed. My junior spring term turned out to be one of my best at Carleton. In terms of weather it was hands down the nicest I've seen in Minnesota; it didn't even snow once in April. Spring term at Carleton is always fun due to the student body rising up from hibernation and several annual spring traditions at Carleton such as spring concert. However, between the great weather and my twenty-first birthday in late April, this one was especially fun. In addition, though my classes weren't necessarily easier, I did enjoy them much more. My first class was a research seminar in history, for which I spent most of my time researching early twentieth century US naval reform. My second class was a mathematics class on set theory, which was my favorite class of the term, mostly due to it being taught by my favorite math professor. The third class I took was another math class on calculus with complex variables (imaginary numbers), which I expected to be somewhat more interesting than it turned out to be. I was quite pleased with how I did in the end.

Over the summer I participated in a research experience for undergraduates at the Institute for Mathematics and its Applications, which is located on the University of Minnesota campus in the Twin Cities. There were nine other undergraduates in the program, though I primarily worked with the two others who were in my research group. We studied games of cops and robbers on graphs with a professor from Macalester and a graduate student from the University of Minnesota. In mathematics, a graph is a collection of points, called vertices, and lines connecting them, called edges. A game of cops and robbers on such a graph is a game where a certain number of cops and a robber are placed on vertices in a graph, and they alternate taking turns moving between vertices that are connected by an edge. The cops win if one of them ever gets on the same vertex as the robber. We attempted to figure out whether a given number of cops could always win on a given graph. I really enjoyed the program; our research was really interesting, I think we got some good results, I really liked the professor we worked with, and it was a lot of fun being up in the

Twin Cities. After the program finished up, I still had some time before the football season, so I spent some time working at a YMCA summer camp, some time working in the Carleton math department (since I was staying in Northfield), but mostly lounged around the house three friends and I are living in for the school year.

At many large schools, students only really expect to live on campus for maybe a year or two, but at Carleton it's actually quite hard to get out of the dorms. The only way to move off campus is to be a senior, and to draw into what is known as 'Northfield Option,' which is only granted to one hundred students. I was lucky enough to get quite a good room draw number, so I was able to get this for my friends and me. The house we are renting, at the expense of being seven blocks from campus, is quite nice and extremely cheap. It has been a bit of an adjustment to keeping up a household, but we've been paying the bills, stocking the fridge, cooking house meals, and haven't burned the place down after living in it since July, so I think we are doing alright. In any event, I'm saving a tremendous amount of money not paying for a dorm room and cafeteria food, eat far better, and have my own master bedroom, so I have no complaints.

After these last couple weeks of summer, football camp got started. This was to be my last season playing, since it was my senior year. At the start, it looked like I was finally going to start at nose guard (this is the player on the defensive line right across from the center and the football at the start of the play). Unfortunately this was not to be, as I got my second diagnosed concussion when a running back kned me in the head (I am fairly certain in retrospect I, as most other football players, have had a few go undiagnosed). At the time it didn't seem like it was such a bad concussion, since I didn't lose consciousness, so I figured I would be able to return to playing in a few days. However I continued to have symptoms for the next month and a half. These included headaches, wooziness, getting light headed and dizzy when I worked out or thought too hard, as well as, I found out latter, occasionally in conversation having what I thought were coherent statements coming out garbled and nonsensical. Though my symptoms stuck around for a longer period than with most concussions, neither the symptoms nor their persistence were that abnormal with a concussion. Ultimately the only thing to do was not hit my head anymore, rest, and wait till they went away. My doctor said that once this happened I could continue playing if I wanted. However, the more concussions one gets, the easier it is to get more and the worse they are, so it seemed doubtful

that even if I got healthy and kept playing I wouldn't get another. Accordingly, since my head's health is more important than football anyway, I decided it was time to stop playing.

Though my symptoms ultimately cleared up a little before half way into my fall term, they helped contribute to what was probably my roughest term at Carleton. To start with, it was extremely difficult to get much done for the first part of the term with my concussion, which was problematic between studying for the GREs in November, writing the proposal for my senior thesis in history, and classes. On top of this, I, as well as what seemed liked most of my class, was fairly stressed out about the our college years drawing to a close and what we were going to do afterwards. As well, I didn't have an easy time to adjusting to college without a sport and not being a part of the football team. Ultimately though, I managed to come out fall term alright. Despite a rough start, I did quite well in my two classes, intro to computer science and chaotic dynamics. I managed to figure out what I was doing my thesis on in history, mainly siege warfare in the tenth to twelfth century Byzantine world (When someone tells you that the "Roman Empire" fell in 476AD, what they mean to say is that the western half of the Roman Empire fell then. The eastern half of the Roman Empire, which has since been labeled the Byzantine Empire, continued as a substantial power until 1453AD). By the time I took the GRE, my head was alright, but I still didn't do as well as I had hoped, though not terribly either.

After the term, I drove home for what is Carleton's unusually long winter break, lasting from Thanksgiving to New Years. Besides the usual rounds of seeing relatives and gorging oneself that goes along with this time of year, writing applications, and working on my history thesis, one other event bears mentioning. I got a call in early December from Mike Bruno, the father of my friend Izzy, asking if I had a passport and if so, whether I cared to go to Hong Kong. Mike is in the planetarium business, and he is friends with some people who work for a different company also in the planetarium business called Sky Skan. Sky Skan was in turn, due to delays, only a few days away from the date by which they had promised to deliver a planetarium show to a company in Hong Kong called PCCW. To this end, if they shipped the show on a hard drive and it got damaged or held up in customs it would be too late. Since the show was a digital file, I'm not sure why, besides its large size, they didn't send it over the Internet, but for whatever reason they decided they needed to send it to Hong Kong with a person. Looking for someone with free time to do so,

they talked to Mike, who talked to Izzy, who suggested that they send me since she was out of town and I was on break. Accordingly, after getting called by Mike on a Wednesday night, I talked to Sky Skan throughout the day on Thursday, and on Friday I was on a plane to Hong Kong with their show on a hard drive in my backpack. They paid for the flight, a nice hotel for four nights, and gave me an extremely healthy stipend for expenses.

Thus, I arrived in Hong Kong, was driven to my hotel, handed over the hard drive, and had a few days to spend in the city as I saw fit. PCCW bought me a rail pass, so I spent my three full days going all around the archipelago of Hong Kong. I visited the usual tourist spots, namely Victoria's Peak, the highest point in Hong Kong, and the Po Lin monastery, home to one of the seven or eight giant Buddha statues in China. PCCW runs the Hong Kong History Museum, Space Museum, and Science Museum, so I got to go into those for free. Besides that, I spent a great deal of time walking around taking in the sites and sounds, haggling with street vendors for fun, and eating some pretty delicious food. All in all, quite a good trip, especially since it was entirely paid for by someone else.

That brings me up to the present. Where 2011 will take me after graduation is a pretty big mystery; I don't have any concrete plans for next year, and I'm still not entirely sure what I want to do. My primary inclination is to attend graduate school in mathematics, since I really enjoy math research, and at the very least one doesn't lose money going to graduate school in math (tuition and a stipend are paid in return for teaching). I'm in the process of sending in my application to various schools, but where or if I will get in remains unclear. However, I've been looking at some jobs as well, such as at Google, and once I'm done with graduate school applications, I plan to start applying to them. Hopefully in late April, the deadline for accepting or declining admission at graduate schools, I'll have some options. If any of you folks out there have any suggestions for what a Math/History double major might do with themselves, or know a business that is interested in hiring slightly bewildered liberal arts students, I would love to hear from you. In any event, I hope you all have a happy 2011.