

# Natural Selections

A NEWSLETTER OF THE ROCKEFELLER UNIVERSITY COMMUNITY

## Historic Instrument of the Month—Wendell M. Stanley's Tobacco Mosaic Virus Crystals

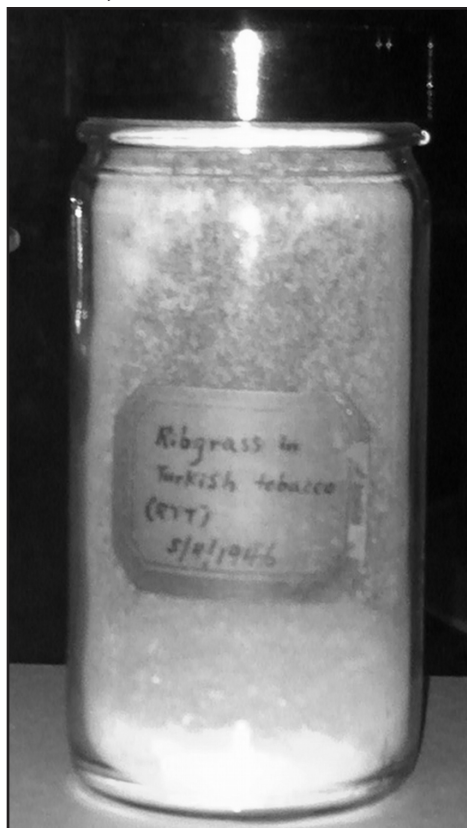
JOSEPH LUNA

Of all the artifacts in the historic instrument collection, one stands out as not being an instrument at all, but a reagent—a bit of white crystalline powder in a non-descript bottle. At first glance, this would appear wholly unremarkable, unless you happened to add a solution of this reagent to tobacco plants. In due time you would observe a mottled discoloration on the plants' leaves that remarkably appeared to be transmissible from plant to plant, even after filtering out everything smaller than the smallest bacterium. Quite simply, you would have reconstituted an infectious agent known as Tobacco mosaic virus (TMV), incidentally the first virus discovered over a century ago.

But a virus as a chemical? A century ago, this question was all the more perplexing, as viruses had only recently been discovered. What became the first known virus, TMV was first isolated by Russian biologist Dmitri Iwonovsky in 1892, but first recognized as a new infectious agent by Dutch microbiologist Martinus Beijerinck in 1898.<sup>1</sup> Beijerinck is known as the father of virology for this observation, having correctly deduced that the infectious agent was neither a bacterium nor a toxin (which could be diluted out), but instead a "virus" which he framed as a soluble and living germ (*contagium vivum fluidum*). The same year, Friedrich Loeffler and Paul Frosch discovered the first animal virus as the causative agent of the foot-and-mouth disease of cattle.<sup>2</sup> Within a short time, a number of important human infectious diseases were found to be viral and not bacterial in origin, first with yellow fever in 1900 and polio shortly thereafter. Even maligned bacteria were susceptible to viral infections from "phages" discovered by Twort and d'Herelle in 1915-17. Viruses were everywhere it seemed.

Throughout this time, it was largely presumed from a microbiological perspective, on the basis of their ability to replicate as obligate parasites, that viruses were alive (in fact many viewed them as super-tiny bacteria). But from a chemical perspective, it soon became clear that many viruses were no larger or more complex

than a few protein molecules, and thus considered too small to contain all the necessary metabolic components required of an authentic living organism. A cell, in any form it was argued, a virus was not. So the question quickly became rather simple, but incredibly profound: are viruses alive, or not?



Bottle of TMV. Photo provided by the author.

As with most interesting scientific questions, many arguments were put forth for both sides, but the central problem was one of purity. The main criterion for the presence of a virus then (and now) was whether the agent was filterable as mentioned previously. But how could one be absolutely sure that no bacteria (or any living cell) made it through the filter? The microbiologists were inclined to be convinced of a virus' filterability by repeated and varied experimentations. The chemically inclined however, were not fully convinced. If a virus could be thought of chemi-

cally, then perhaps it could be purified and analyzed via chemical methods, and still tested on its host to ensure that it was still virulent.

In the early 1930s, Rockefeller biochemist Wendell M. Stanley at the Institute's Department of Plant and Animal Pathology in Princeton set out to do just that. TMV had been crystallized around the time he started, but was found to be inactive, that is no longer infectious. Stanley worked out a procedure to crystallize the virus while retaining its infectivity; an important feat, since it proved that a virus could be isolated in a purely inanimate form.<sup>3,4</sup> It was for these crystals now found in our bottle, that Stanley was awarded the 1946 Nobel Prize in Chemistry.

As much as it was an intellectual triumph, this discovery is also notable for having been incorrectly interpreted. Stanley was convinced from his experiments that the virus crystals he isolated were composed entirely of proteins and replicated by auto-catalysis (not unlike a prion in many respects). In this manner, his interpretation overemphasized the inanimate nature of viruses as completely distinct though very much "dead" replication machines. He did not anticipate that a nucleic acid held the secret of a virus' ability to replicate, following evolutionary principles that govern all living organisms (TMV is a positive sense single stranded RNA virus). Still, this discovery helped cement viruses as occupying a unique boundary between living and non-living. That is, inside a cell, few would doubt a virus' animated, seemingly deliberate, and often deadly purpose. Outside a cell, however, a virus is about as dead as any other chemical, like the one that sits in a display case at the base of Caspary, dormant for over 50 years, with the vibrant potential to continually transform the living. ◊

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- 3) Stanley W.M. *Science* (1935) 81(2113):644-5
- 4) Stanley W.M. *Science* (1936) 81(2143):85

# Visiting Titian at the Borghese Gallery

BERNIE LANGS



*Sacred and Profane Love, Galleria Borghese. Credit: Wikipedia*

In the mid-1970s, when I would see the Rolling Stones in concert, I made it a point not to know the publicized set list of the band before I went to the show. The day after the concert, friends would approach me asking, “What did they play?,” and there were always a few surprises. I applied the same idea to visiting Rome’s Borghese Gallery on a trip to Italy last year. I didn’t go online to see what they held, though I did know that Raphael’s *The Deposition* was a major feature of their collection. On a previous trip to Rome in 1983, I had told my friends that the Raphael was one reason I was making the trek to Europe. I had been greatly disappointed to find the gates to the Borghese shuttered when I arrived back then, and cursed my travel agent (in my head) for not alerting me that the museum wasn’t open the week of my trip. Well over a decade later, I discovered that the Borghese was closed for several years for renovations and that I hadn’t suffered a case of bad timing the day I’d been there after all.

First off, I want to say I hadn’t been to Europe since 1991 and I consider myself very, very lucky to have been in the position to go with my family and some friends in 2010. I call Europe “the living museum,” and a trip to Italy offers one both a tour of the Renaissance era and an education in ancient wonders and monuments. I was constantly surprised that places I’d visited in 1983 were completely different than I remembered: the church with Michelangelo’s statue of The Moses was much larger than I recalled; the large works of Caravaggio displayed in the church of San Luigi dei Francesi had deep, rich, textured colors in oil that I had remembered as light and weak and almost fresco-like; and the Roman Colosseum was about ten times the size of what I’d thought it was. It was truly awe-inspiring.

I’ve read extensively material from

ancient Rome as well as many biographies of Imperial era Emperors. Ronald Syme’s book *The Roman Revolution* coalesced all of my studies in its analysis of Julius Caesar’s historical period. When I visit the Metropolitan Museum, I take a seat on a bench in The Leon Levy and Shelby White Court and meditate on the few Roman sarcophaguses amongst the beautifully laid out holdings of ancient statues. When I reached Rome’s National Gallery last year, I entered a vast outdoor courtyard with dozens and dozens of such statues and sarcophaguses both under a large portico and scattered within the garden itself. It was an unbelievable moment. I felt like a pirate who had opened a door to find a massive room of treasure.

When I am asked what I enjoyed the most on this trip, however, I have to say it was my visit to the Borghese Gallery and especially standing in front of Titian’s masterpiece, *Sacred and Profane Love*. I had already been more than surprised to find myself admiring with wonder several statues by Bernini in the collection and had found Raphael’s *Deposition* to be as great as I’d hoped for. But I hadn’t known that the Borghese held the Titian and

seeing it was like being hit in the head by a frying pan by Bugs Bunny in an old Warner Brothers cartoon. I was absolutely stunned.

The Borghese has several exhibition floors, but it isn’t the largest of museums so the caretakers limit how many visitors can be in the space at one time. My travelling party had arranged our tickets months in advance, so when there was a mix-up and we were temporarily told we could not enter, I had to threaten that America would sever ties with the Italian government if we did not gain access. In any case, the matter was resolved, the point being that the room with the Titian was not crowded at all. I could stare at it without obstruction literally from all over the gallery. The meaning of the painting has eluded scholars for years. It was painted in the early 1500s by the greatest of High Renaissance Venetian Masters. That said, all of art history vanishes when confronted by such a powerful work of art. Literally, one just takes it in timelessly.

One locks in and is carried away by the weight of the forms and how they break the shackles of the picture plane to seem almost like a hologram. *Sacred and Profane Love* is just an unbelievable study in beauty and grace.

Days earlier, I had sat in an ancient amphitheater near the sea at Ostia. I had always wanted to sit in such an amphitheater where “they” had actually sat and watched theater two thousand years ago. I thought nothing could be better than that. Seeing the Titian, I realize now I was wrong! ☺

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**OPEN MEETING! 10/11, 5:30 pm FACULTY CLUB**

# **Crony Capitalism, or Michelle Bachman is Right about a Few Things**

JACOB OPPENHEIM

At the Republican presidential debate last week, congresswoman Michelle Bachmann, the Tea Party stalwart, attacked Rick Perry, the governor of Texas and current frontrunner, over his 2005 executive order to vaccinate all 12-year-old girls against HPV. While she made some rather unfortunate insinuations about the safety of this vaccine (now taken back), she made a fundamentally important point alongside it: Perry wasn't motivated by the health of young women in issuing his mandatory vaccination order—the producer of the vaccine, Merck, just happened to have hired the governor's former chief of staff as a lobbyist. A look back at the money trail confirms these linkages—Merck contributed significant sums of money to Perry's reelection campaign. Beyond the appeal of mere lucre, Merck had successfully pulled at the strings of friendship and won the game of influence, skills now possessed in spades by every large American corporation (to say nothing of those overseas).

Crony capitalism presents the greatest long-term threat to the future prosperity of the United States. From financial firms evading regulations and destabilizing the economy to military contractors ripping off the defense department, it pervades our political and economic system. A few key examples can explicate the depth of the issues involved:

- Medicare Part D—When patients on Medicare buy prescription drugs, they do not receive a special rate, unlike people on any other health insurance plan, be it public or private. Congress forbade Medicare from bargaining collectively in a massive sellout to the pharmaceutical industry. The Congressman responsible for all this, Billy Tauzin, retired soon after the passage of the bill (and his extraordinary efforts to get it passed) and got a million-dollar job as a pharmaceutical lobbyist.

- The F-22—Despite veterans and hawks in Congress, such as John McCain, and the determined support of Defense Secretary Robert Gates, it has proven nearly impossible to axe wasteful defense spending, such as orders for the F-22 “super-plane.” Defense contractors such as Lockheed-Martin have proven adept at constructing factories in as many congressional districts as possible to ensure as much local support as possible in addition to hiring retired generals as spokesmen and lobbyists.

- Tax breaks in NYC—In a past issue, I have addressed how stifling regulation has made the property market turgid and expensive in NYC. A look through the news will show you that in the case of most large buildings going up in Manhattan, the city has negotiated special deals with developers, exempting them from certain especially vexing regulations in return for accomplishing some supposed social good, such as renting a handful of apartments at below market rate.

The principles involved in the Medicare Part D case, the revolving door system, whereby Congressmen and regulators are promised much higher paying jobs after retiring from government, are a major source of sweetheart deals for corporations throughout the United States. It is no wonder, then, that GE has an effective tax rate of 3.6%, while most startups pay the full rate of 35%. A sign of tech company maturity has been building a Washington office, hiring lawyers and lobbyists, and bringing its effective tax rate down—just as Google has done over the past five years.

Similar deals help firms avoid regulatory scrutiny—a situation most commonly found in the financial services industry, where the cases involved are complex, and there is plenty of money to be offered to former regulators. When we ask why the Government didn't do anything about the subprime mortgage crisis, our first look should be at the regulators at agencies like the Office of the Comptroller of the Currency (OCC) that

were rewarded with fantastically high paying jobs in return for their lassitude. We see the same principle currently with the Obama administration pressuring the States' Attorneys Generals to accept a much smaller settlement over the robo-signing scandal than they had originally desired.

In a system replete with crony capitalism, wealth accrues to the rich and well-connected, making barriers to entry into the marketplace much steeper, especially for new entrepreneurs. The fewer competitors in a marketplace, the higher the prices will be and the less quickly innovation will occur. Politicians sell out their taxpaying and consuming constituents in the interests of their own avarice and cupidity. The situation becomes even worse in markets that are already overregulated and overtaxed, such as New York State. The small manufacturers that once made upstate New York wealthy do not have the clout to avoid the job-killing regulations forced upon them by overzealous liberals. The only industries that have consistently possessed such power are the financial services and real estate industries, not coincidentally headquartered in the center of the state's left-wing politics, and city denizens are left to reap what our politicians have sown: high real estate prices, an economic meltdown, and a hollowed-out industrial base upstate.

These deleterious effects extend all the way down to the smallest businesses, for instance those of the immigrant entrepreneurs. I have written about the perils of occupational licensing before, which stifles the talents and opportunities of the poor and those who have just come to this country especially. The more hoops that one must jump through to open a restaurant, or a store, or a service business, let alone a small manufacturing shop out in Queens, the less likely it is that they will be able to accomplish it. City bureaucracy is maddening enough for us upper-class natives; it is worse for the immigrant. A recent law required yet a new license for so-called facilitators, who help foreign-born entrepreneurs navigate the city bureaucracy—clearly a fantastic solution for encouraging economic growth. How much easier this all is if you (or your mother) can call a friend on the City Council to get you the necessary permits without the hassle of mixing with the great unwashed!

The political debate in the United States sadly ignores all of this. The liberal wing of the Democratic Party frequently originates regulations that have greatly damaged many American industries, while its pro-business wing, as can be expected, is friendly to its contributors, but skeptical of business on the whole: just look at New York's own Chuck Schumer—a foe of corporate thievery, unless the corporations involved happen to be on Wall Street. The Republican Party, nominally pro free-market, has lined itself up behind corporatist interests. Rather than cutting senseless regulations that make markets much less competitive, the Bush years saw giveaways to the energy and the pharmaceutical industries (among others). Sensible market-oriented changes, such as tort reform, patent streamlining (the sheer volume and conflict among patents in the high-tech industry threatens to destroy it and give massive rents to “patent trolls,” while ruining individual entrepreneurs), and more open government contracting were not pursued.

And thus we stand today, ensconced in economic malaise, with no one to blame but ourselves for our predicament. By voting on sexier issues and ignoring the substance and records of our politicians, we have helped insure that our government will waste ever-greater sums of money and that the innovation desperately needed for future prosperity will be harder to come by. ☉



# PDA corner: Meeting with the President

ISABEL KURTH

In early August, the PDA met with our new president Marc Tessier-Lavigne; Vice President for Educational Affairs and Dean of Graduate and Post Graduate Studies and Research Professor Sid Strickland, and Emily Harms from the Dean's Office, as well as Virginia Huffman from Human Resources (HR). On our agenda were three important issues:

1. Salary negotiations
2. Waitlist for Child and Family Center (CFC)
3. Career planning

This meeting was a follow-up on a first meeting that we had in April, where we gave the president an overview of the activities of the PDA and most importantly informed him about the most relevant issues that affect postdoc life here at Rockefeller University (RU). Over the years, we heard many concerns about how high rents have become, how we don't have any retirement plans, how waitlists for the CFC are too long, etc. All of these issues are important, but, at the root of it all, everyone is experiencing hardships. To address this, the PDA examined the current state of compensation at RU.

The last time the stipends were increased was in 2005-2006, when former President Paul Nurse introduced the concept of salary brackets, which assured that everyone would get paid a set minimum wage relative to their year of postdoc training. That was a big step then, but no change has been made to postdoc stipends since. However, the situation of postdocs has changed quite significantly over the past six years. Postdoc tenures have increased to over five years, up from four years in 2006. Additionally, rents in Rockefeller housing have been constantly increasing, while housing subsidies were eliminated in 2008. Most importantly, the urban inflation rate since 2006 has been 11.3%. This means that in order to make up for the inflation loss, current salaries would need to be set at approximately \$46k (vs. \$41k currently) for the first year and \$56k (vs. \$50k) for maximum earners. By way of comparison, salaries range from \$46,000-\$50,000 for competitive fellowships (Helen Hay, LSRF), \$43,000-51,000 + benefits for some universities (Broad, Stanford, Whitehead) and \$45,000 for NSF for 0-1 year postdocs. Starting salaries for industry postdocs is ~\$55,000 and comes with life insurance and 401k options. Also, the NIH has recently increased postdoc stipends for 2011 by 2% to \$38,496 with retroactive adjustments.

In light of this situation, our primary goal for the first meeting in April was to bring these issues to the attention of the administration and negotiate a salary increase for postdocs. Our request fell on open ears as the president agreed to look into this matter and get back to us with a better idea of what might be possible given the current financial environment. In our more recent meeting, Dr. Tessier-Lavigne announced that he is committed to institutionalizing a salary increase by January 2012 on a voluntary basis, and by July 1, 2012 on a mandatory basis. The fiscal year has just begun; mandatory changes cannot be made until the beginning of the following year in July 2012. The amount of the salary increase hasn't been established yet. However, Dr. Tes-

sier-Lavigne and the administration have been studying the marketplace and the faculty needs to be engaged to develop the proposal and make a final decision. Meetings with Faculty will be held in the fall of 2011, and final details should be worked through with the Academic Council at that time. Dr. Tessier-Lavigne assured us that the PDA will be informed when it comes time to finalizing the decision. We also discussed benefits, including life insurance, retirement and disability plans, which are a constant concern for postdocs as well as for other employees campus-wide. "We hear you, and guarantee we will look into this matter," commented Marc Tessier-Lavigne. Given the budgetary ramifications of these issues, they would have to be considered in the context of the strategic plan for 2012, with the goal to come up with possible ideas in May 2012.

Regarding other matters, we were very pleased to hear that our concerns about the CFC waitlist had been well received. Virginia Huffman, in collaboration with Alex Kogan from the Housing Department, has spearheaded an effort to look into options of how to expand childcare to relieve the long (6-18 months) waitlist for infants and toddlers. RU is currently looking into a new space in the vicinity of the campus in which to install a new CFC. The most likely scenario is that this new CFC would be for younger children exclusively (3 to 32 months old). One possibility currently being explored is to share this center with the other members of the Tri-Institution; MSKCC and Cornell. According to Virginia Huffman, there are still lots of obstacles. In particular, they need to wait for agreement from the other institutions before taking the next steps. "We think it's a problem and we would like to find solutions," Virginia Huffman stated.

Finally, we recently performed a survey to understand the biggest challenges for postdocs when it comes to finding jobs. Interestingly, more than 90% of postdocs at RU would like to pursue a tenure track position at a primary research organization. However, only 35% of postdocs who left RU in the past year ended up with such a position—which is close to the national average; and 20% have gone on to a second postdoc. Thus, many postdocs wish to receive additional mentorship to help them prepare for the job searches, something that only 25% receive from their current PIs.

A primary consensus from postdocs was the request for a career office on campus. MSKCC has recently started one, and Columbia University has had a successful career office in place for many years. RU is currently not a preferred hiring spot for any consulting, pharmaceutical, or biotech company, which have hired 19% of postdocs who left in the past year; a career office could greatly improve this situation. Another idea discussed was that of developing an alumni outreach network. The current postdoc alumni database is ineffective, and valuable mentorship from postdoc alumni is not being tapped into. This could initially be set up in conjunction with the career office. We will meet again at the end of the month with the Dean's Office and HR to discuss these possibilities in more detail. We will keep you posted! •



**This Month Natural Selections interviews Anita Ramnarain, Research Assistant in the Laboratory of Neurobiology and Genetics.**  
**Country of origin: Guyana, South America.**

## New York State of Mind

- 1. How long have you been living in the New York area?** Since 1988.
- 2. Where do you live?** Maspeth (Queens), New York.
- 3. Which is your favorite neighborhood?** Forest Hills, New York.
- 4. What do you think is the most over-rated thing in the city? And underrated?** Shake shack—overrated. Hagi Restaurant—underrated.
- 5. What do you miss most when you are out of town?** The food.
- 6. If you could change one thing about NYC, what would that be?** The MTA, to have

- more trains and buses running.
- 7. Describe a perfect weekend in NYC.** Food shopping around Union Square in the morning on Saturday, then later on, maybe dinner and a movie. Then have a lazy day on Sunday: reading and whatever else I desire.
  - 8. What is the most memorable experience you have had in NYC?** The 2003 blackout.
  - 9. If you could live anywhere else, where would that be?** Barcelona or Madrid, Spain.
  - 10. Do you think of yourself as a New Yorker?** Yes I do. I have lived here most of my life and love this city very much. It's my concrete jungle. ☺



## Clinicide

ZEENA NACKERDIEN

Have you ever had an allergic reaction to all the medical soap operas serving up medical doctors deftly juggling their love lives and solving medical mysteries that stump their colleagues—read *House* meets *Grey's Anatomy*? Rarely, in our attention-deficit prone world do we seem to stumble upon the doctor as mere mortal or, worse, someone as sinister as any anti-hero in a Stephen King novel. Fear not, arm chair cynics and medical history buffs. A quick flip through the pages of a series of related articles reveals a roll call of medical murderers motivated by personal or political gain—villains who might make the overly-paranoid think twice about switching to a new physician.

If the death of one man is a tragedy and the deaths of millions considered to be a statistic (a quote often attributed to Joseph Stalin), then it follows that the murders of millions numb us to the horror of each individual act of violence. So stories describing political serial killers like Drs. Behaeddin Sakir and Mehmet Nazim and their roles in the establishment of extermination squads during the Armenian genocide in Turkey (1915) read like the recitation of dry historical facts from a bygone era. Perhaps the extent of brutality is best understood at the individual level, when reading about the barbaric acts of Dr. Mehmet Resid, which included branding his victims with red-hot horseshoes and crucifying them on makeshift crosses.<sup>1</sup> The Armenian example is by no means unique, as evidenced by the well-known atrocities practiced by Nazi and Japanese doctors during WWII. Perhaps the squeamish among us should steer clear of books like *Unit 731*<sup>2</sup>, which describes acts of horror committed by Japanese doctors, including mass infections of prisoners in Manchuria with anthrax, plague, and cholera. The impersonal reference to prisoners as “logs,” on the grounds that killing the prisoner was equivalent to cutting down a tree, only serves to underscore the horror of these acts.<sup>2</sup>

While the egregious acts of the men described above, which are further illuminated in history tomes, may be attributed to the distortions of war or political indoctrination, it is the motives of the solitary medical murderer who “walks among us” that may often be hardest to decipher. *The Postgraduate Medical Journal* devoted several pages to

the case of Dr. Harold Shipman, a 54-year-old general practitioner in the British town of Hyde, Manchester who, in 2000, was found guilty of murdering fifteen patients with lethal heroin injections. Post-trial estimates of his victims were far higher, ranging from 215 to 450, making him one of the most prolific serial killers in English history.<sup>3,4</sup> Dr. Shipman's acts—namely the killing of patients from the time he went into practice in 1974, with a one-year break during which he was treated for drug addiction, until his arrest in 1998—were only uncovered after suspicions arose that he had forged a will<sup>4</sup>. His motivations may be as murky as those of Dr. Michael Swango, who killed 60 patients across several states.<sup>1</sup>

Sometimes the motives of these doctors only become tragically apparent with hindsight, such as the case of Great Man Syndrome suffered by Dr. Ferdinand Sauerbruch, a famed surgeon of the previous century. Beset by erratic mental behavior caused by vascular dementia, his operations degenerated into crude butchery, but his underlings felt too intimidated to intervene.<sup>5</sup>

Regardless of whether the law eventually catches up with them or leaves us wondering for centuries—as in “was Jack the Ripper a medical doctor?”—all these cases emphasize that the medical profession is not immune to the presence of individuals capable of performing acts of great cruelty. ☺

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# Dreaming to Run—or Walk Briskly, at Minimum: Part III

RICH TEMPLETON

Since Thanksgiving 2010 I received a cortisone shot for my left (worse) knee and took a three-week vacation of propping up my legs on a pillow and watching Maury Povich. By February 2011 my knees were moderately better. I could walk a mile and no longer used a crutch to go up and down my walk-up. Although I could not run (or walk briskly, for that matter) I figured that I would try something more strenuous and enjoyable than watching delightfully crappy television.

I always wanted to do improvisational acting but never had the time—Rockefeller's improv group conflicted with my schedule—or, more frankly, the courage to start. I enjoy playing characters and doing impressions with friends. That I was no longer in constant pain finally inspired me to sign up for Improv 101 at the People's Improv Theater (the PIT).

## March 8, 2011: Blinded Me with Improv

"Rich, what TV show are you obsessed with?" the instructor asked.

"I like, um..." I blanked and then rubbed my neck.

"Science?"

I collapsed my head in my hands and muttered, "God, I need to get out more."

The other improv students snickered as I looked up with a half-smile, shaking my head. The first class started off with a bang. (A month later one of my classmates, an actor, admitted that once he heard that I worked with yeast he said to himself, "At least I'll be funnier than one guy here." Don't underestimate the power of low expectations.)

It had been six months since I attempted any sustained standing or genuinely spontaneous movement. Six months of monitoring each of my steps with a pedometer. Six months of primarily propping my feet up and watching Food Network. Six months of concentrating almost entirely on my knees. It was not so much my inability to do certain things that frustrated me; it was the indeterminate prognosis. So I welcomed improv with not only hope but also apprehension. A hundred "What if's?" bounced around my head ("What if I slip? What if bump into something?

What if my knees spontaneously combust?") Ultimately though, I erred on the side of having a good time now rather than trying to predict the future.

Fortunately, my knees were faring better than I thought they would, standing up for close to two hours. After my awkward intro we played games like the ones you find at summer camp or retreats: "Red Rover," "Zip, zap, zop," "Yes, and..." etc. The last game of the night, "Top-Secret," was also the most memorable. In miming fashion, each student looked for and hid a document in the bedroom of an old mansion. The point of this game was to help students develop their miming skills or "object work." As I searched behind a bookcase, underneath a carpet, and inside a vault, I melted into the scene and into my character, an anxiety-ridden burglar. I gave out erratic and spontaneous guffaws, swiveled my head, and scratched my left forearm incessantly. The experience was cathartic, as if all the pain, the nervousness, the honest fear of whether I would be able to walk by age 40, had been channeled into this bizarre world. Once I found the document behind a Degas (I think it was a Degas), my eyes, staring into air, welled up.

"This might be my sort of thing," I thought to myself, document in hand. I then placed it behind the collar of a baset hound and walked off the stage.

I have continued taking classes and seeing shows at the PIT. My knees have bugged me from time to time during practices and performances. In fact, the pain was bad enough in May that I visited another specialist. He ordered a new MRI, the results of which were intriguing and deflating. Along with the plica (fibrous band of synovial tissue), they found a heavily scarred medial collateral ligament and meniscus, implying that I had damaged this tissue since the last MRI. (Physical therapy? Swimming? Daytime television?) The surgeon explained he could clean the knee out but it would be at best a "B+" operation with a decent risk for complications like excess scar tissue. Considering the cost-benefit of the operation—and the fact that, hey, I could walk—I decided to postpone it.

As of the publication of this article and final installment of (the radically self-indulgent, but personally cleansing) *Dreaming to Run*, I am pretty much in the same position as I was in May: moderate pain with everyday activities, essentially nil athletic life. That I can walk, however, makes me reflect on a more desperate and uncertain time at the end of last year—before I could stand for no more than twenty minutes, let alone perform—when the pain was much more intense and nearly constant. Just as I now find solace playing over-the-top characters in improv, I recall watching the movie *127 Hours* with a similar zeal the day after last Christmas.

## December 26, 2010: 94 Minutes

I am sitting in a Greenwich Village theater watching the end of the movie *127 Hours*. The title refers to the length of time twenty-eight year-old hiker Aron Rolston (James Franco) had his arm stuck under a boulder in Utah's Canyonland National Park. At this point in the story Aron just freed himself from the boulder (the details of which you may know or can imagine, and I will spare you), hiked seven miles, and is now stumbling toward a medical helicopter after a family spotted him in the area.

"C'mon, Aron. Just a few more steps," Aron slurs. "Just get it done."

I lean toward the movie screen muttering the same thing at a volume I can only imagine is audible to the audience member sitting in the aisle in front of me. With Sigur Ros's transcendental Festival blaring in the background, Aron collapses into the arms of a helicopter medic. I raise my arms and point at the screen and blurt, "Yes! Do this thing! Boom!" (I tend to say "boom" or "explosion" when I am enthusiastic about something.) I notice the startled looks of the other members of the audience. I grin and chuckle and cradle my head in my arms.

I remain hunched over in my seat for another ten minutes. The credits are done. A theater attendant walks through the aisle and shines a light on the side of my face.

"You alright, sir?"

"I will be." ♦



# Natural Confections

CARLY GELFOND

With the Jewish holiday of Rosh Hashanah—the beginning of the Hebrew calendar’s New Year—now behind us, it’s time for Jews to look towards Yom Kippur—the solemn day of atonement on which observant Jews fast—looming just ahead. If you’re Jewish, you may want to add one more item to your list of things to atone for: thinking giddily of the holiday food to come when you should be making lists of things to atone for.

Not to worry! You are in good company to be sure. And besides, your grandma would be thrilled to know how fervently you crave a shmear of her mock chopped liver (possibly mistaken for festive cat food by the unaccustomed) atop a shard of matzo as each Jewish holiday, and the break-fast in particular, draws near. (Or maybe that’s just my family.) In any case, my own Grandma Sara is unarguably a cook to be reckoned with. She has a brain like a 750-gigabyte hard drive when it comes to remembering recipes, a skill that allows her enviable freedom from reliance on scraps of paper with mock chopped liver recipes, which have a tendency to go through the wash in one’s pants pockets more times than one would care to admit.

On a recent evening, Grandma Sara was delighted to pass along another family favorite over the phone without missing a beat. The recipe in question was Mandel bread, known in Yiddish as Mandelbrot, a twice-baked cookie made with oil that is somewhat similar to Italian biscotti. In Yiddish, mandel means “almond” and brot means “bread.” Traditionally, Mandel bread is made with nuts, though I’ve often seen it made with chocolate chips instead. The loaf is usually sprinkled with cinnamon and sugar just before baking, and, once done, can run the gamut of very crunchy to more soft and cakey. Like the oft discussed and widely debated “perfect” matzo ball, the “perfect” Mandel bread can take many forms.

In fact, it was this very flexibility that got me interested in Mandel bread in the first place, because I had been on a hunt for a recipe that would lend itself to personalization. While my grandmother’s recipe is relatively traditional—a crisp, light, crumbly cookie filled with nuts, my stepmother has adapted hers to cater to my father’s preference for chocolate, thus omitting the nuts in favor of chocolate chips and a cakier cookie. Both recipes (and many others I’ve sampled over the years) are wonderful in their own ways, but I thought it was time to up-

date Mandelbrot for the next generation. Enter a few of my favorite ingredients: step forth, coconut, orange zest, vanilla, and almond extracts! It’s time for you guys to get some love.

In an interesting twist, at our most recent family gathering, what did my Grandma Sara top her Mandel bread with? M&M’s. As the two of us stood in my kitchen, each sampling a piece from the other’s batch, nods of approval all around made it clear that a new generation had gained some credibility, and an older one had gained some flare.

## MANDEL BREAD (MANDELBROT)

*Adapted from Grandma Sara Gelfond’s recipe, itself adapted again and again from countless others.*

### Ingredients:

3 ½ cups flour (up to half of which can be substituted with whole wheat flour)  
3 teaspoons baking powder  
2 teaspoons cinnamon, plus more for sprinkling  
1 cup sugar, plus more for sprinkling  
3 eggs  
¾ cup canola (or other neutral) oil  
Zest from 1 orange  
2 tablespoons orange juice (from about half an orange)  
2 teaspoons vanilla extract  
1 teaspoon almond extract  
1 cup sweetened coconut flakes  
1/3 cup shelled pecans, coarsely chopped

*Makes 2 loaves of cakey, moderately sweet Mandel bread.*

Whisk flour, baking powder, and 2 teaspoons cinnamon in a large bowl.

In a separate bowl, beat eggs and 1 cup sugar together until combined and a yellow color is formed. (Per Grandma Sara, you can also combine these using a small food processor.)

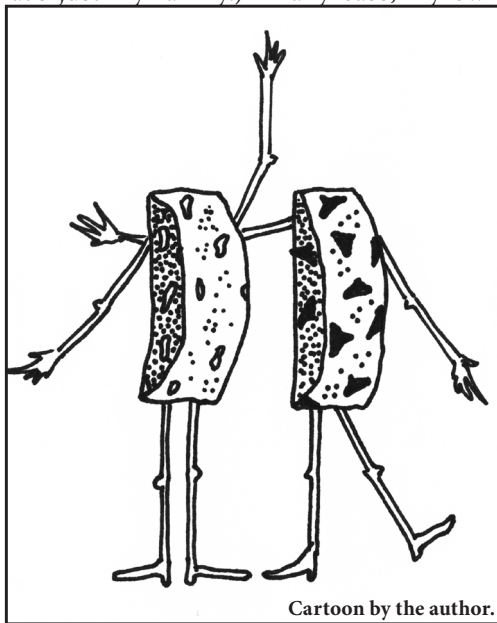
Form a small hole in the center of the dry ingredients. Pour combined egg and sugar mixture into the center. Mix until combined.

Add oil, zest, juice, and extracts. Mix until combined.

Add coconut and pecans, mixing until each is well distributed.

Divide dough in half. On a greased baking sheet, form dough into two logs. Press down on logs with the palm of your hand, until each is about an inch thick, with at least two inches between them. In a small bowl, whisk additional cinnamon and sugar together, and sprinkle mixture lightly over tops of logs.

Bake at 325°F for 25 minutes. Turn off oven, and remove Mandel bread. When cool to the touch, slice bread into 1 inch slices, but keep slices together (unlike biscotti, which get separated upon second baking). Return bread to oven (which remains off, but still warm) and leave in until both oven and bread have cooled a bit. (I realize this last direction is somewhat ambiguous, but such were Grandma Sara’s directions. I removed mine after about a half hour, and this seemed about right.) •



## RUArt No. 4: *The Tail*

It's midday and you're hungry. So, you decide to head to the Weiss cafeteria for a bite to eat. But, before you enter the canteen, take a moment and look on the wall to your left. You will see mounted on the wall a massive and colorful aluminum sculpture made by none other than Frank Stella. Born on May 12, 1936 in Malden, Massachusetts, this Pollock-inspired artist eventually made his way to NYC in 1958. Here, Stella found his own style, rejecting the abstract expressionist movement, and produced a number of pieces reflecting his ever-evolving but always novel approach.

*The Tail* was constructed in 1988 and represents Stella's transformation toward creating more three-dimensional art. Interestingly, this piece is part of a series dedicated to Herman Melville's *Moby-Dick*, in which each artwork is named after a chapter—in this case, chapter 86.

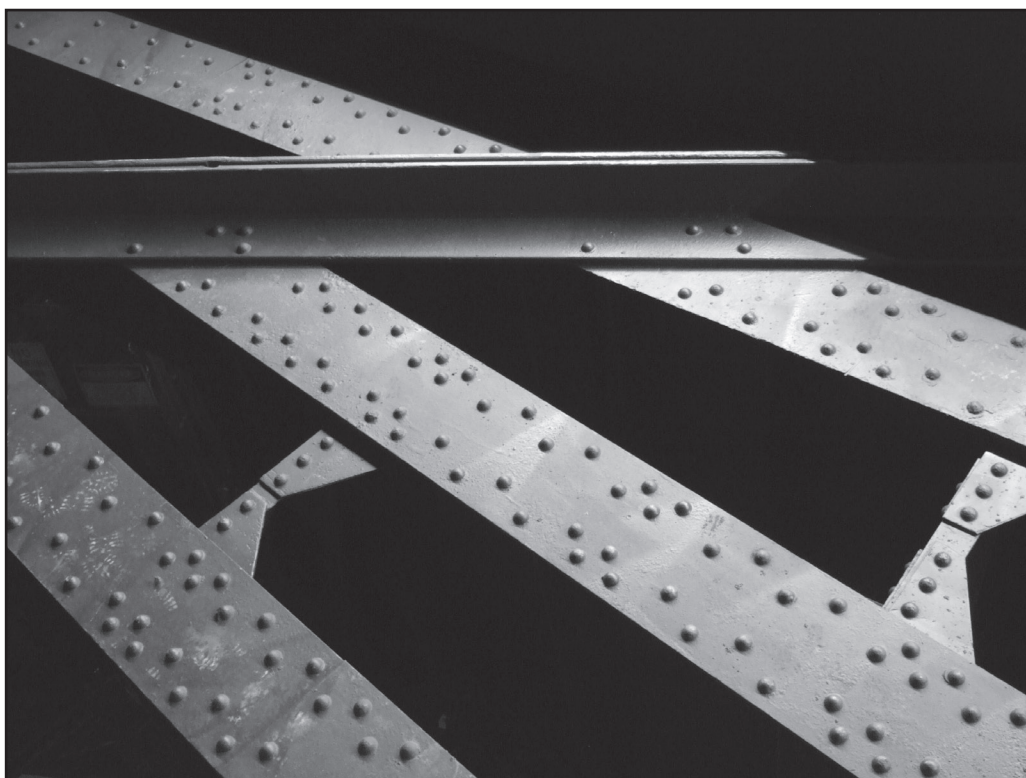
This installation made its way to RU in 2001 through the philanthropic efforts of David Rockefeller. Like many, I often breeze right past this work, barely noticing its presence. But, from now on, I will set my gaze



Photograph by Jeanne Garbarino

upon its beauty, even if only for a few seconds. I encourage you to do the same—there aren't many places you can see this caliber of art on a regular basis, and for free! After all, the primary job for many of us is to observe, so why not do it when we aren't at the bench? You never know, you could just look up and find a famous piece of art... ☺

## *Life on a Roll*



*On the High Line* by Elodie Pauwels

