Issue 46
March 2008

Natural Selections

A NEWSLETTER OF THE ROCKEFELLER UNIVERSITY COMMUNITY

COCO144

Graffiti in the Lab

Manuel Castellano-Muñoz

If you have recently walked through the corridor in the lower level of the Bronk Building, you might have noticed that the wall next to the elevator has been covered by plastic sheets for almost two months. "Oh, it's being repaired," you might have thought. Well, the truth is far from that! Behind all those plastic sheets is a graffiti mural. *Natural Selections* got in touch with the painter of the mural, who turned out to be a Rockefeller employee. His artistic nickname is Coco144.

Photo by Daniel Andor

"Dr. Hudspeth wanted a mural for the outer wall of his lab at Bronk. He wanted color," explained Coco, "He has been extremely supportive and very brave to take on a challenge like this. He gave me some articles, drawings, but he kept on insisting that it didn't have to be science specific. But I did want to incorporate something that had to do with his research, so I did my own interpretation of what I've been seeing, what he studies, and everything else that I can improvise on."

Coco never had any formal training in art, but he has a born talent. He belonged to the first generation of painters who started painting in the New York subway system in 1970. In 1972 he co-founded a group called United Graffiti Artists, the first to take the energy from the subways and streets to painting on canvas. After their first show in The City College of New York in 1972—when they were just 13 to 15 years old—they collectively took part in many events around the city, including collaborations with dance groups, projects in museums, and shows at art galleries in Soho. Although the group disbanded in 1976, the graffiti culture in New York didn't. It took off again in 1977, when the hip-hop movement came up strong. Since then, new generations of artists have kept raising the quality of the graffiti, which received increasing respect around the world. "I don't like to put it into a terminology, or try to break it down," says Coco, "It is what it is. It's a mural, yeah, because it's large scale. It's also a painting."

Coco has been at the Rockefeller University for 20 years in Plant Operations. His artistic projects have been shown in the United States, Puerto Rico, Mexico, Cuba, and Europe. In the last ten years he has been incorporating scientific subjects into his murals. "It's always my name, but I paint it in a form that you don't know it's really my name."

He collaborated with a pediatrics group (*Pediatrics 2000*) in the past, exploring the crossover between medicine and art. This new mural at RU is another bridge he is crossing from art to science. Although they might be seen as completely different fields, science and art share similarities: "This is like my experiment," explains Coco, "You have to do a certain amount of research, studies, you go through experiments until you get it right." Coco is delighted to paint science. "To me, there is nothing but pros. The only thing that has really given me a challenge on these pieces is the space, because I had it contained two feet away from the wall. I have not had the opportunity to step back and look at it."

During the last two months, Coco has managed to execute some of the graffiti techniques in a tiny sheltered space while plenty of people passed by without noticing him. For instance, in order to paint an enlarged version of a hair cell bundle that he got from a sketch, he photocopied it on transparent paper, put it over a projector before a 10-by-14-foot wall, and drew it on paper following the projected image on the wall. After that, he brought it to the Bronk building, glued it onto the wall, traced his reference lines, took the paper off the wall, and then started to paint. He has done that with two or three pieces. The rest has been freehand.

The mural, which has been modeled after eight weeks of work at night and during the weekends, will color the wall of the Bronk building. Make sure to stop by and take a look at it! ⊙

News from the SRC

Adria Le Boeuf

Dear Fellow Students,

We are working for you! The Student Representative Council (SRC) has been advocating on your behalf and we would like to tell you what we've accomplished.

Bronk Fund

This is just a reminder that recently the much-beloved Bronk fund had been in danger of diminishing too fast to sustain itself. To solve this problem, while students can still receive up to $125 per year, for each dollar paid by the Bronk fund, the student must pay a dollar as well. For example, if you buy a $125 ticket to see a wonderful show, the Bronk fund will give you back $62.50. This way we get more culture per Bronk-fund-dollar and we keep the Bronk fund available to future students.

Courses, external and internal

Courses, both internal and external, were a major topic at the SRC's recent meeting with President Paul Nurse, Dean Sidney Strickland, and Assistant Dean Emily Harms. First, we discussed the need for more internal courses, especially a basic statistics course and a basic neuroscience course. The Dean's Office agreed that a basic statistics course would be valuable and they are currently looking for an internal or external person to teach such a course. In addition, Paul, Sid, and Emily were interested in knowing what other courses the students felt to be lacking. The SRC is currently polling students on this topic. If you have not yet responded, please e-mail us at src@rockefeller.edu with the subject line "more courses."

Also, because of the highly specialized courses offered at Rockefeller, many students here take valuable and rigorous courses at Marine Biological Laboratory in Woods Hole and Cold Spring Harbor Laboratory, but receive no credits for them. A number of individuals have complained about this, citing the fact that the time commitment and the rigor of these external courses can be significantly greater than for courses offered at Rockefeller, but yet credits are not awarded.

In our recent meeting with Paul, Sid, and Emily, we brought up this topic, and it was met with both openness and resistance. The issues are: 1) these external courses are variable both in terms of course hours and their focus on theoretical versus practical training; 2) these courses have no evaluative component; and 3) the motivation for taking these external courses should not be for the credits. The SRC proposed that students who've taken an external course consisting of more than 30 course hours could perhaps write a grant proposal on the course material (as is done for many Rockefeller courses) to be evaluated by a willing and appropriate Rockefeller professor. The idea was again met with both openness, if we can provide them with an appropriate set of rules, and resistance, stemming from the fact that the motivation for taking these courses should not be for credit. Regardless, the topic was left open for further discussion. If you are passionate about pursuing the issue, e-mail the SRC at src@rockefeller.edu with the subject line "get credit" and we will connect you with each other.

Alumni Contact Information

While we have been unable to create a career development office here at Rockefeller, we certainly have significant untapped resources: our alumni. Rockefeller alumni have a wide-variety of interesting and inspiring careers both in and out of academia. Right now, an alumni database exists, but permission is needed from the alumni themselves to share the information regarding where they are stationed, in what position, and how to contact them. If a student needs to contact someone specific or contact people in a particular field, the current procedure is to contact the Dean's Office, which will reach out to the alumni on the student's behalf and ask for permission. Since this is unfortunately a rather long, drawn-out process, the Dean's Office is asking all alumni if they would be willing to make such information available to and be contacted by current Rockefeller graduate students. Luckily this is the ideal time for such an outreach because of the upcoming 50th anniversary of the graduate program.

In the same vein, many graduating students would like a continuing mode of connection to the Rockefeller community. One way many schools accomplish this is by maintaining a forwarding e-mail account for each alumnus after he leaves the university. We are currently working with the Dean's Office and IT to implement such a system, probably in the near future. Your forwarding address is likely to be the same address you've had during your time here.

Housing Concerns

A persistent issue we hear about from students regards communication with the Housing Department. As an example, many of us just recently discovered the resource studentrepairs@rockefeller.edu, which is apparently quite an efficient way to get things fixed in one's apartment. However, few people knew of this fine resource until recently, when an e-mail was sent out to the students' list.

To uncover the root of the communications breakdown between the student body and the housing department we would like to ask you, the students, to tell us where you've had communication problems with housing. As scientists, we all know the best way to understand a system is to get data. Please e-mail src@rockefeller.edu with the subject line "housing" and let us know about the issues you've had.

One area of particular concern in the student-and-housing-department-communication realm is the Student wait-list for Postdoc Housing. We are currently working with the Dean's Office, the PDA and the Housing Department to achieve greater transparency in the wait-list system. Currently, the Housing Department is working with IT to create an online system that would allow students and postdocs to check their status and placement on the wait-list by logging onto a Web site.

Lastly, we announce two welcome changes to our surroundings: 1) the Housing Department has agreed to spruce up the atmosphere in the hallways of Sophie Frick and GSR by repainting them in a less "institutional" color, and 2) the Faculty Club will soon be receiving whiteboards, most likely in the area near the fireplace, to further enable inebriated scientific discussions. ⊙

Turning the Tide

Winning the Revolution's Southern Campaign

Jason Crockett

Just as the Ides of March proved fatal for Julius Caesar, so too did they foretell disaster for the British army in the American Revolutionary War. On March 15, 1781, British and American forces clashed near the small community of Guilford Courthouse, North Carolina. Although he was outnumbered by more than two to one, Lord Charles Cornwallis led his soldiers to victory against a ragtag group of Americans commanded by General Nathaniel Greene. However, the British triumph came at an extraordinary cost. In securing an unimportant piece of land with no strategic value, Cornwallis lost more than one quarter of his men. As a result, he abandoned his plan to pursue Greene's army inland and instead marched to the coast, where he hoped to receive fresh supplies and troops from the British navy. Seven months later, Cornwallis surrendered to George Washington at Yorktown, Virginia, and the war was over.

Statue of Nathaniel Greene, hero of Guilford Courthouse

In 1781, Guilford Courthouse was an out-of-the-way county seat in rural North Carolina, but the events that brought the two armies to this tiny town had begun four years earlier. Impressed by the American victory at Saratoga in 1777, France pledged to help the rebels in their struggle for independence from Britain. With fighting in the North at a stalemate, the British quickly changed their strategy to focus on subduing the southern colonies. The redcoats easily captured Savannah and Charleston before moving into the interior of the South, where they hoped loyalist factions would aid their cause. After another American defeat at the Battle of Camden in the summer of 1780, George Washington appointed Nathaniel Greene as the new commander of the southern armies. Raised as a Quaker, Greene started the war as a private and was soon promoted to general because of his military prowess. His leadership quickly began to change the tide.

Greene boldly divided his fractured and ill-equipped army, forcing Cornwallis to do the same. After American forces routed 1,200 British troops at the Battle of Cowpens in early 1781, Cornwallis became determined to crush Greene. At this point, neither army was at full strength. Both were short on supplies, and Cornwallis now had only about 2,000 men compared with the 4,000 at Greene's command. Cornwallis pursued Greene through the North Carolina countryside, but the Americans avoided a large battle. Finally, after weeks of skirmishes, Greene decided to face Cornwallis at Guilford Courthouse, where he set up a series of three defensive lines. The land was thick and wooded, which favored the defenders, and the British had to complete an exhausting 12-mile march to meet the Americans. However, many of Greene's troops were undisciplined militiamen who had a tendency to abandon their positions once the fighting started. Sure enough, the British quickly broke through the Americans' first line. Heavy combat led the second line to fall back as well, and when his left flank collapsed, Greene ordered the remainder of his troops to retreat.

After the battle, Cornwallis gradually realized that his victory had come at a terrible cost. More than 500 of his soldiers were killed or wounded, and the remaining men were exhausted. The Americans, in contrast, lost only six percent of their army to casualties, and even the militiamen who had fled during the early fighting were expected to eventually return to the ranks. Greene might have lost the battle, but the result helped his overall strategy succeed. Unable to continue his pursuit of the Americans, Cornwallis made his way to the coast to regroup and care for his sick and wounded men. Greene, meanwhile, secured the interior of the South, leaving the British pinned with their backs to the sea. Support for the war in London now began to wane. When news of the battle reached the British capital, Charles James Fox, a member of Parliament, lamented, "another such victory would ruin the British Army."

In fact, there was no need for another such victory. On October 16, 1781, Cornwallis surrendered to a combined American and French army at Yorktown. Although there were still many redcoats in America, with more than 20,000 in New York alone, the tide had turned after Guilford Courthouse. Britain agreed to recognize the independence of the thirteen colonies by signing the Treaty of Paris in 1783, thus changing the course of world history. Today, the Guilford Courthouse battlefield lies within the city limits of Greensboro, a city named for the general who lost the battle that helped win the war. Nathaniel Greene settled in Georgia after the revolution, content to stay out of the limelight surrounding the early days of the new United States. He died in 1786, remembered by those with whom he served as one of America's best soldiers. Even today, he is perhaps the only one in American history whose biggest success came from a loss. ⊙

http://www.nps.gov/guco/

Graffiti in the Bronk building by Coco144, reviewed in the cover article, will open to the RU community soon.

Photography and collage image by Daniel Andor

Rockefeller Film Series

Alexis Gambis

The Rockefeller Film Series is constantly evolving and effortlessly attempting to bring the sciences and the arts together. We are happy to announce two exciting screening/panel discussion evenings in the next few months. The first is the premiere of the film *Dark Matter* by Chen Shi-Zheng. It is Shi-Zheng's debut as a director after a long-standing successful career as a choreographer, singer, and actor. This film was awarded the Sloan Prize at the Sundance Film Festival in 2006 for its excellence in the depiction of science in fiction. The screening will take place early April (date to be determined) and will be presented in collaboration with the Museum of the Moving Image (MMI) and the Imagine Science Film Festival (ISFF, http://www.imaginesciencefilms.com). David Schwartz, curator of the MMI will host a panel discussion with the filmmaker after the screening. Later, the Rockefeller Film Series and ISFF will present an evening with young aspiring filmmakers. Five selected short fiction films about science will be shown on campus. It is an ideal moment for young scientists to mingle with young filmmakers and brainstorm on how to translate laboratory intrigues into filmmaking.

In the meantime, we present two films for March. We begin with *Rocket Science* on March 3. With caring warmth and surprising humor, this indie was a favorite at the Sundance Film Festival. It captures the painful ups and downs of a teen struggling through adolescence while carrying more than a normal burden. *Rocket Science* marks the first feature film from Jeffrey Blitz, the documentary filmmaker who made the highly entertaining *Spellbound*.

On March 17, we will finally show the well-crafted *No Country for Old Men* by the Coen brothers. With *No Country for Old Men*, the notorious brothers return to the crime milieu of *Blood Simple* and *Fargo* by adapting Cormac McCarthy's novel about a man who finds and takes a stash of money, and the unstoppable thug tracking him down. Javier Bardem's stroll down the hotel corridor, and his nonchalant demeanor as he handles the oxygen-tank-turn weapon will give you goose bumps. It is also absolutely amazing how music is replaced by a void in the film, the crying of the desert wind, the thumping of leather boots, and of course, the muted shots of Bardem's favorite toy. ⊙

Markus Library Consortium Resources

Carol Feltes

The Markus library is delighted to remind the Rockefeller research community of some of the very special collaborations and resources that the Library provides in order to be able to bring you broader, faster, and more effective access to the world's scientific literature.

1. Libraries of the Tri-Institutional Consortium (Rockefeller University, Memorial Sloan-Kettering Cancer Center, and Weill Cornell Medical School libraries) are 'blended' in our common online library system, called Tri-Cat. Within Tri-Cat, you can see and search the complete holdings of all three libraries. Furthermore, all three libraries are physically open and accessible to you.

2. We are also proud to be a continuing partner in the National Library of Medicine's regional network of information centers. This network provides our own community with rapid access to the medical literature in the libraries of all partners.

3. The State Library of New York has significant collections of books and journals in the life sciences. Any Rockefeller faculty member who is an M.D. can register for direct access to these resources. All other members of the RU community can submit requests through Markus Library, and we will obtain requested articles. Online holdings are available to anyone at http://www.nysl.nysed.gov/.

4. The Biological Information Sources Consortium (BISC) is a group of libraries whose collections complement each other in a variety of areas in biology. They all collaborate with us to share resources.

5. METRO is a consortium of 300 libraries in the greater New York area. If you desire to visit any member library in the New York area, we can provide you access through METRO. ⊙

For more details, please visit http://librarynews.rockefeller.edu/wp-content/uploads/2008/02/marketing-message-jan-08-final.pdf.

The PDA announces:

The Tri-Institutional Career Symposium

Tuesday, March 25th, 2008

Memorial Sloan-Kettering Cancer Center

Rockefeller Research Laboratories Auditorium

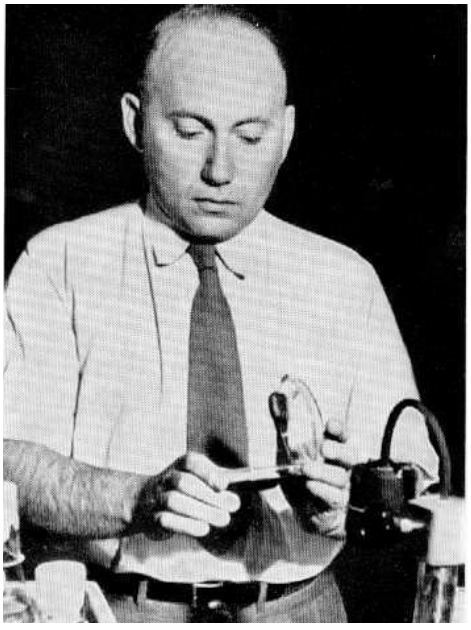
A Tribute to Joshua Lederberg (May 23, 1925 – February 2, 2008)

Zeena Nackerdien

Search for the name of the 1958 Nobel laureate, Joshua Lederberg, on the internet, and page after page point to his vision and groundbreaking discoveries. In recent weeks, those electronic tributes have taken on an added poignancy as scientists and other beneficiaries of his intellect paid homage to a revered man. Josh, as we all knew him, ranks with the great scientific pioneers because of the range of his expertise and insight. Not only did he help revolutionize genetics by discovering two of the three mechanisms of gene transfer (conjugation and transduction), but he also made valuable contributions to the "nuts and bolts" of microbiology (replica plating and protoplast induction of *Escherichia coli* K12 by penicillin). He was an authoritative scholar on a variety of subjects as well as a wordsmith; he coined the words "plasmid" and "exobiology," the latter in partnership with Carl Sagan.

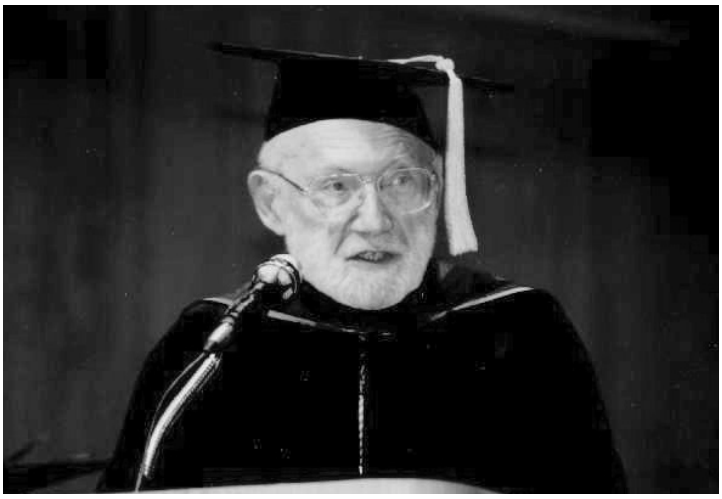
To cover Josh's life and work *in toto*, and with any degree of authority, is the task of "apter craftsmen," to use his own words. This tribute presents only selected highlights, though one must emphasize the boundless curiosity that his Ph.D. advisor, Edward Lawrie Tatum, and George Beadle, who both shared the Nobel Prize with Josh, likely saw in him and that others came to know in his later years in his role as a scientific statesman.[1]

Josh, Beadle, and Tatum shared attributes of leadership and excellence, which helped them forge lasting scientific and social bonds. Josh, a rabbi's son born in Montclair, New Jersey[1] found a kindred spirit in George Beadle, a farmer's son born in Wahoo, Nebraska.[2] Beadle was a contemporary of major scientists like Barbara McClintock, the maize cytogeneticist who received a Nobel Prize for her discovery of mobile genetic elements (transposons) and Boris Ephrussi, whose achievements included the observation that the yeast petite phenotype had its genetic basis in the mitochondrion. Beadle was one of those rare scientists who switched model organisms with great ease, progressing from maize to fruit flies, where he was aided by the chemistry skills of Tatum, and eventually to the bread mold, *Neurospora crassa*. His collaboration with Tatum using Neurospora auxotrophs to develop the "one gene/one enzyme" hypothesis and the latter's background on the nutritional requirements of bacteria set the stage for the entrance of the prodigy, Joshua Lederberg.



A young Joshua Lederberg

Scientific commentaries and plaudits started arriving soon after his colleagues read the summary of Josh's work in the 1946 paper, "Gene Recombination in *Escherichia coli*."[3] He used the properties of double and triple mutants to discover that bacteria could sexually exchange genes.[1] Beadle's biographers cite excerpts from his congratulatory letter to Tatum regarding his student's discovery, "The sex life of bacteria seemed darned interesting…It looks to me like the most important discovery in bacteriology in the last 100 years."[2] Rockefeller University (RU) was to become the last scientific home of both Tatum (*d*. 1975) and Josh.



Joshua Lederberg

Josh's groundbreaking work continued with, among others, Norton Zinder, Josh's famous graduate student. Norton and Josh studied genetic exchange in Salmonella[4] and published their seminal work demonstrating transduction.[1] Norton later identified the first phage that contained RNA as its genetic material.[5] He was appointed as an RU professor in 1964.

One anecdote from the period when Josh was serving as the fifth president of RU illustrates his spirit of generosity. Earlier Nobel nominations for Barbara McClintock's discovery of genetic transposition in maize (work done in the 1940s) had been unsuccessful and Marcus Rhoades, who concurred with the opinion that McClintock's work was a forerunner to the operon model of Jacob and Monod, wrote to Josh asking him to "lead the charge" that culminated in her overdue Nobel prize (1983).[8] Josh readily complied, emphasizing the value of "her work on the mechanism of control of gene action in maize, involving the action and interaction of two independent loci."[8]

Josh's connections with RU pre-dated his 1978 appointment as president. He was intimately familiar with the work of Oswald Avery (1944-2005) who, together with MacLeod and McCarty, identified DNA as the genetic material in bacterial transformation.[9] In an interview, Josh recollected the trio's publication from their time at RU as having been one of the molding influences on his career.[1] Some of Josh's later research interests have been told to the RU newsletter, *Benchmarks*, by RU Associate Professor David Thaler.

Iwona Stroynowski (one of Josh's students at Stanford in the late 1970s and now a professor at the University of Texas Southwestern Medical Center at Dallas) offered these comments, "At the time when restriction enzymes and gene splicing were in their infancy, Josh was asking his students when the first human being will be successfully cloned. Needless to say, we did not rise to his expectations and failed to acknowledge such a possibility as anything other than science fiction. Josh was never afraid to challenge established wisdoms and differentiate important ideas from details and he did so openly, no matter who listened." Suffice it to end by also quoting Josh, "As the debate is alive…that is where the scientific method operates."[1] In 2006, a grateful nation awarded him its highest prize,

continued on page 7

New York State of Mind

This month,* Natural Selections *features Lars Brichta, Postdoctoral Associate in the Greengard Laboratory
Country of Origin: Germany

1. How long have you been living in New York? A little longer than a year now.

2. Where do you live? Like most of the postdocs, on the Upper East Side. I live at 70th Street and really enjoy that—it's very close to the RU campus, yet I have a fifteen minute walk getting to and coming from the lab to get some fresh NYC air.

3. Which is your favorite neighborhood? The Upper West Side. I think it's a great neighborhood to live in with a lot of character, many bars, restaurants, and stores, plus the crowd is mixed, rather casual, and there are many young people. The right combination of everything.

4. What do you think is the most overrated thing in the city? And underrated? Overrated: to spend New Year's Eve in the city. Typically, entertainment in NYC is unique and hard to compete with—not so on this day of the year. It's fun if you're at a private party, but going to Times Square is more of an exhausting and disappointing experience and everything else is rather average.

Underrated: I'm not really sure if there are any underrated things in a place like NYC. Pretty much everything seems to be impressive if you only mention it together with the city's name. Maybe the Chinatown buses are underrated, though. I think they are much better than their reputation—I have taken them many times already and it has always been safe, plus they are by far the cheapest way to get to DC, Philly, Boston, or even Virginia as a friend of mine told me a while ago.

5. What do you miss most when you are out of town? Definitely the skyline—I can't imagine that I'll ever get tired of it, plus the energy you can feel in Manhattan, the cultural diversity, and being able to get groceries even at 3 a.m.

6. If you could change one thing about NYC, what would that be? Sometimes the subway is a little annoying. Especially the F line is almost always on a weird schedule and skipping various stations, such that you either can't get on and have to walk to another subway station, or you can't get off and all of a sudden you are in Queens or Brooklyn. An F train that is actually coming and running on a regular schedule would be perfect.

7. Describe a perfect weekend in NYC. Dinner on Friday night, maybe at one of the Sushi places here on the Upper East Side. After that, some Margaritas at Mustang Grill would be fun. Getting up not too late on Saturday (as early as possible after the Margaritas), catching a train from Penn Station and spending most of the day at Jones Beach on Long Island (since it's the perfect weekend, it's summer of course). Dinner back in the city at the Cilantro, and after that watching a movie at the Angelika Film Center in Greenwich Village. Sunday would definitely be the day to sleep in. Having a late breakfast at home with fresh bagels from the store around the corner, then taking a walk to Central Park, relaxing in the grass, listening to some music and watching some of the crazy activities going on there. And Sunday night, dinner and a good beer at the Loreley beer garden at the Lower East Side.

8. What is the most memorable experience you have had in NYC? When I moved into my first apartment here in New York, I realized after a while that some uninvited guests were living in the kitchen. As you can probably guess, I'm talking about cockroaches. In Germany, that would be considered very dirty. So I was extremely embarrassed to call the building manager and admit that I have cockroaches in my apartment. And I was somewhat shocked when I was told that the apartment would be put "on the list"—because the exterminator is coming in every Monday anyway. A little later, I realized that cockroaches are almost everywhere in Manhattan and it is a very common problem here… Oh, and on top of that I've learned that the most common cockroach species in NYC is the German Cockroach. Pretty ironic I thought.

9. If you could live anywhere else, where would that be? I have no intention to move away from NYC, but if I had to pick another place, it would probably be Los Angeles, with an apartment somewhere close to the beach.

10. Do you think of yourself as a New Yorker? Why? I don't consider myself a New Yorker at all. There is a woman who lives in the Senior Center at 70th and 1st, very close to my apartment. She is in a wheelchair and when she has to run some errands sometimes, she relies on random pedestrians and asks them to push her from one block to another. Once, I had the pleasure to push her for a bit and she told me she was born here and has spent all her life in the city. This woman is a real New Yorker for me. ⊙

continued from page 6

the Presidential Medal of Freedom.

Our sympathies and thoughts are with Josh's loved ones: Marguerite, his wife of 40 years, Seymour and Dov, his brothers, Anne and David, his children, as well as Isabel and Jacob, his grandchildren. ⊙

Acknowledgments: Mary Jane Zimmerman, Josh's secretary of 30 years, and David Thaler provided input.

References:

1. http://profiles.nlm.nih.gov/BB/. *The Joshua Lederberg Papers*. Washington: National Library of Medicine (NIH).
2. Berg P, Singer M., *George Beadle, An Uncommon Farmer—The Emergence of Genetics in the Twentieth Century*. New York: Cold Spring Harbor Laboratory Press; 2003.
3. Lederberg J, Tatum EL. Gene Recombination in *Escherichia coli*. *Nature* 1946;158:558.
4. Zinder ND, Lederberg J. Genetic Exchange in Salmonella. *J Bacteriol* 1952;64(5):679-99.
5. Loeb T, Zinder ND. A Bacteriophage Containing RNA. *PNAS* 1961;47:283-289.
6. Lederberg J, St Clair J. Protoplasts and L-type Growth of *Escherichia coli*. *J Bacteriol* 1958;75(2):143-60.
7. Joseleau-Petit D, Liebart JC, Ayala JA, D'Ari R. Unstable *Escherichia coli* L Forms Revisited: Growth Requires Peptidoglycan Synthesis. *J Bacteriol* 2007;189(18):6512-20.
8. Comfort NC. From Controlling Elements to Transposons: Barbara McClintock and the Nobel Prize. *TIBS* 2001;26(7):454-457.
9. http://profiles.nlm.nih.gov/CC/. *The Oswald T. Avery Collection*. Washington: National Library of Medicine (NIH).

Maharishi, TM & Beyond

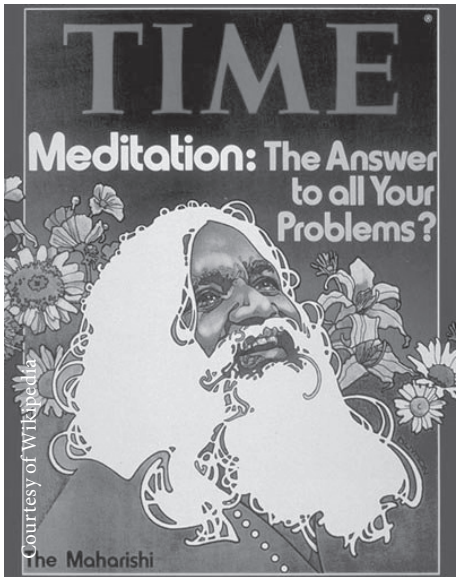
Engin Ozertugrul

Maharishi Mahesh Yogi, who introduced the West to Transcendental Meditation (TM), died in the Netherlands on February 5 at the age of 91. TM was originally viewed with skepticism but eventually gained worldwide acceptance and medical credibility. The movement really took off after the Beatles visited Maharishi's ashram in India in 1968. Maharishi had a profound influence on the Beatles' late career. Other famous practitioners of TM include the Beach Boys, Rolling Stones, Mia Farrow, Sheryl Crow, Sting, radio host Howard Stern, and singer and song writer Donovan. Comedian Andy Kaufman and magician Doug Henning were also students of Maharishi, while Hollywood directors Clint Eastwood and David Lynch have both practiced the technique. Maharishi left six million TM practitioners and worldwide TM organizations behind.

TM was dismissed as hippie mysticism in the beginning. However, Maharishi's relentless persistence on its scientific validations was unquestionably remarkable. Partly due to his efforts, there have been more than 600 scientific studies on the effects of the TM program that have been conducted at 250 independent universities and research institutes in 33 countries throughout the world during the past 40 years.

Reported individual health benefits aside, creating coherence in world consciousness and changing the global mood are among TM's claims. These claims aim at working for the good of the society. However, some people might simply do it in order to get elected, to salve a guilty conscience, and for love of the spotlight. On the other hand, we also do it because there are many with the same thoughts, and thought is infectious when there is a channel in which it can flow. In this sense, TM's claims do not have to be transcendental.

It is indeed sound practice to separate scientific theory from spiritual values, but to deny that there is any validity beyond the findings of science is absurd. It is no wonder that much of today's science revolves around controlling pain. We humans don't like pain and seek to avoid it. We are doing pretty well at it, and will do better. Perhaps we think that we are dedicated to the search for knowledge, but is that all? The old great question still abides: are we also dedicated to a search for truth? In another sentence, has the word "truth" any meaning beyond convenience? There is plenty of evil in the world, and there long will be. There is also compassionate kindness. The whole can present to all a life worth living. Yet this is by no means a final and satisfactory answer to the great question above. For the sake of argument, suppose we've conquered them all: diseases, poverty, violence, hate, etc. Is this why we are on the earth? Just to be comfortable? Just to create a soft utopia? Is that all there is, and have human beings no other mission? If we build a utopia would we then be eternally happy? If not, then what?



Courtesy of Wikipedia

Here's where faith comes in. Faith enters science in the form of privilege; it is the privilege of human beings to learn to understand. The essence of our being does not merely aim to prevail; it aims at knowledge for the sake of understanding. We have motivation, consciousness, and altruism. We can't define them or prove their presence. Neither can we give any reason why we should have them. However, having these qualities, we are going to use them. They have been refined and brought to us by the process of evolution, and we hope to pass them to next generations even though we live in perilous days. We shall continue to delve and ponder even if we know that bombs will fall and things we love may perish. We shall do so, so that our children's children may weigh them more than we do, and shall know a little more why all this is so. ⊙

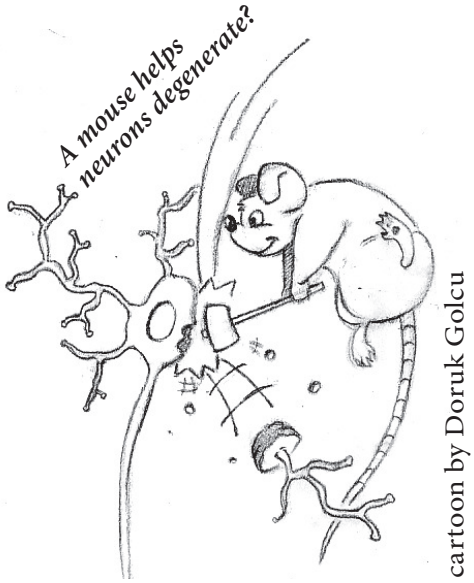
Science Deconvoluted

ORIGINAL PAPER: *The Synaptic Vesicle Protein CSP alpha Prevents Presynaptic Degeneration*. Fernandez-Chacon et al. *Neuron*. 2004 Apr 22;42(2):237-51.

NEWS: EFE News Agency, *Un ratón sin una proteína servirá para degeneración neuronal (A mouse without a protein will help neuronal degeneration).*

Caught something?

Submit your bad science headlines to *Natural Selections*



cartoon by Doruk Golcu

In Our Good Books

The reading suggestions have been kindly provided by staff members of the downtown bookstore McNally Robinson.

Survival of the Prettiest: The Science of Beauty, by Nancy Etcoff

An alarming catalog of what we find beautiful and why, written by Harvard Medical School psychologist Nancy Etcoff. Her goal here is to acknowledge the power and relevance of physical beauty. She achieves her goal, albeit through a chiefly Euro-centric and heterosexual point of view. Still, as a collection of seemingly immutable biological facts and their social implications—expected, unexpected, ignored, and denied—this book may cause you to doubt your sexual free will just as it absolves you of your physical prejudices–with all that such absolution implies. ⊙