12-2012

BenchMarks 2012, December 14

The Rockefeller University

SCIENCE FOR THE BENEFIT OF HUMANITY

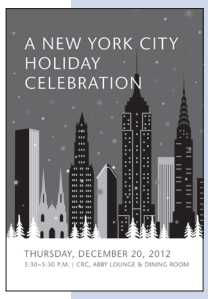
BENCHMARKS

THE COMMUNITY NEWSLETTER OF THE ROCKEFELLER UNIVERSITY

FRIDAY, DECEMBER 14, 2012

ANNOUNCEMENTS

Annual holiday party is December 20. Celebrate the season with friends and colleagues: this year's holiday party will showcase the diversity of New York City with food, drinks, music, dancing and entertainment, in Abby Lounge and Dining Room and throughout the CRC, from 3:30 to 5:30 p.m. For more information, please contact Anne Debassac, Human Resources, at x8379 or adebassac@rockefeller.edu.



Dr. Stebbins to deliver holiday lecture. C. Erec Stebbins, associate professor and head of the Laboratory of Structural Microbiology, will present a talk to area high school students titled "Bacteria's Deadly Design: How Earth's most prevalent life-form uses a microscopic syringe to invade and attack" on December 27 in Caspary Auditorium. The lecture is open to high school students only. Tickets are required. For more information, contact Gloria Phipps, x8967.

Flu shots and Tdap vaccine available. Occupational Health Services is offering flu shots to Rockefeller and HHMI employees and students from 10 a.m. to 4 p.m. weekdays in room 118 of the Hospital Building. No appointment is needed. Also, the Tdap vaccine, which protects against diphtheria, tetanus and pertussis (whooping cough), is available to those who have not had a shot containing the pertussis vaccine as an adult; a prescription from your physician is required. For more information, please call OHS at x8414.

Announcements for this page may be submitted to zveilleux@rockefeller.edu.

BENCHMARKS

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Joe Bonner, Director of Communications

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CAMPUS NEWS

No scientific losses from Hurricane Sandy

by ZACH VEILLEUX

When water from the East River first spilled over its banks and began washing onto the FDR Drive late in the evening of October 29, the several dozen or so administrators and essential personnel monitoring the storm knew it was not likely to stop at the curb. The lowest levels of several campus buildings were vulnerable — and some damage was going to be inevitable.

Over the previous three days several dozen members of the Plant Operations and Custodial teams had been working to prepare the campus for high winds, flooding and a possible blackout. A 20,000-gallon diesel fuel tank had been topped off, outdoor furniture was secured, doors and windows were checked, roof and storm drains were cleared, sandbags were piled against sub-basement doors and security cameras were repositioned to monitor flood-prone locations. Turner Construction, the contractor for renovations under way in Flexner and Welch Halls, ensured that all loose construction materials were brought indoors and that barriers and fences around the work sites were secure. Arrangements were made for key personnel to work extra shifts and stay over in guest rooms. Messages were sent telling non-essential personnel to stay home. The university was as prepared as it could be.

But flooding like that had never happened before, at least not in the past few decades. Nobody could predict how high the water would come, or exactly how it would enter buildings. The nearly 13-foot storm surge downtown had been dramatic — but how far the waters might rise six or so miles upstream was anyone's guess. The lowest floors of several university buildings have ground-level access to the FDR Drive, useful for moving heavy equipment like boilers and generators in and out of mechanical spaces. Significant flooding from the river would threaten electrical circuits that feed labs, water pumps that provide domestic water and the electronic controls that regulate boilers.

PHOTOS: CLAIRE WANG (LEFT); MICHAEL MURPHY (RIGHT)

Overflow. Two views of floodwater from Hurricane Sandy: the FDR Drive, near RRB (left) and 62nd Street, near Scholars Residence.

So as the river rose — it peaked at 10:15 p.m. 32 inches above the FDR pavement — and began pouring into the Flexner mechanical room, Smith Hall Annex D level and the boiler room located beneath the hospital, the strategy was to mitigate the damage as effectively and safely as possible and wait for the water to recede.

The first area to see damage was in Smith Hall Annex. A backup server room located on the D level was filling with floodwater, threatening equipment. Starting at 8 p.m. IT personnel began an organized shutdown of the equipment, turned off the underfloor power distribution system and elevated equipment that could easily be relocated. The D level facility houses redundant servers that take over if the primary equipment, located in Weiss high above the water, should fail. Because the D level room, which once served as the university's only data center, was identified

continued on page 2

FROM MARC TESSIER-LAVIGNE

Implementing the strategic plan

As many of you know, a major activity during my first year at the university was the development of a strategic plan that will guide the university over the next several years. This plan, which reflects many months of intensive work by the strategic planning committee as well as essential input from faculty, staff, postdocs, students and trustees, was approved by our Board in June.

But now that the work of creating the plan is behind us, the equally hard work of implementing it has begun. And in the five months that have elapsed since June, much has been done toward realizing the ambitious initiatives that our plan contains.

The Executive Officer's Group, which meets monthly, has been tracking progress. But because not all of this work is visible to the community at large, I want to take a moment to provide a status report for several of the initiatives contained in the plan. As expected, in some areas things are progressing quite rapidly whereas in others we are still gearing up.

1. Faculty recruitment. Faculty recruitment efforts are proceeding on two fronts. Among junior faculty we have scheduled 10 candidates from our recently completed fall search to give talks beginning this winter (this is in addition to four candidates from our spring 2012 search who were selected for interviews this fall). We are also working to deepen our applicant pool by beginning to actively identify and reach out to promising scientists who may not be responding to our advertisements or considering Rockefeller for their careers. Our faculty members have been seeking recommendations from colleagues at other institutions and scouting for talent in scientific meetings, as well as encouraging authors of prominent and exciting papers in top journals and recipients of prestigious fellowships to apply.

A separate committee is working on mid-career faculty recruitment. Faculty members representing each of the university's research areas have evaluated a list of 56 nominees solicited from the entire faculty. As the committee continues to meet in the months ahead, other names will be suggested. Potential candidates are being approached and will be invited to give seminars and visit campus.

2. Education. The Dean's Office, after consultation with various faculty groups, has decided to reinstate, on a trial basis, in-person applicant interviews, which were eliminated when the application process was streamlined

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No scientific losses from Hurricane Sandy (continued from page 1)

as being potentially susceptible to flood damage several years ago, it is now used only for backup equipment. (The Weiss server room, located on the third floor, was built in 2007 and houses the primary equipment.) As an additional layer of protection, the university's mission-critical data is also backed up off-site.

"Although the shutdown of mirrored servers resulted in some minor issues with latency, no data was threatened and all critical campus services remained fully functional throughout the storm," says Armand Gazes, director of IT operations and networking, who oversees the university's data facilities and was on site throughout the storm.

Meanwhile, the situation was also becoming critical in Flexner, where, at about 10 p.m., water reached the bottom of newly installed circuit breakers — huge electrical panels that route hundreds of thousands of watts of electricity from Con Edison to equipment in Flexner and Smith Halls. Jim Schaeffer, manager of the maintenance department and the university's chief electrician, recommended they be shut down.

"If water gets into those circuit breakers while they are live, they can short out and be damaged beyond repair. But if they are shut down preemptively, they will work fine once they dry out," says Alex Kogan, associate vice president for plant operations and housing. "So the decision was made to turn them off and switch the north campus over to emergency power provided by our diesel generators, which use a different distribution system located a floor above."

Although the plan hit a small hitch — an emergency circuit accidentally mislabeled during installation wasn't immediately switched on, leaving a few labs without emergency power until the problem could be correctly diagnosed by university electricians — the outage proved to be short and normal power was restored at about 1:30 a.m.

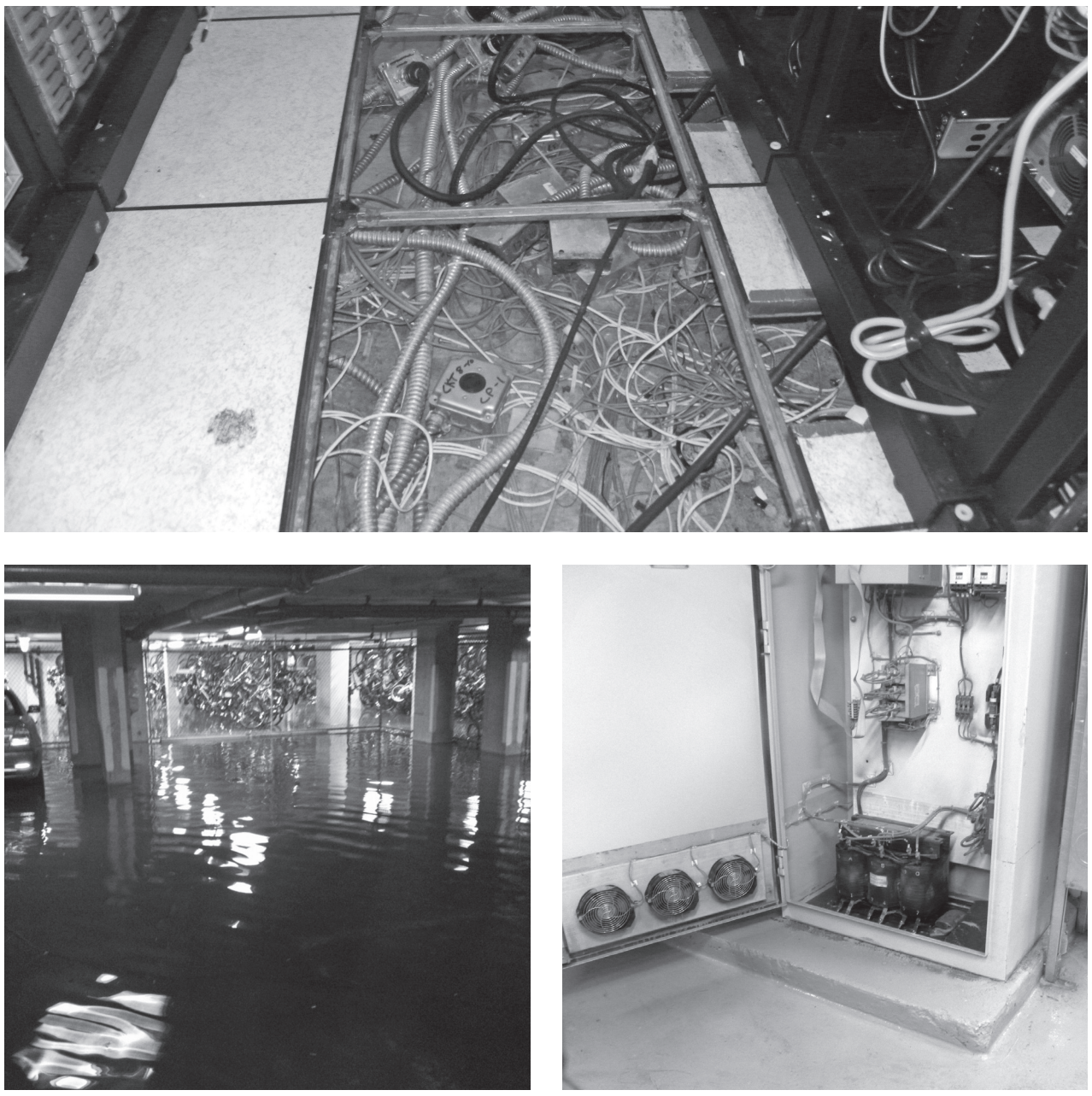
By morning, as the extent of the damage throughout the region became clear, Rockefeller was operating in a mostly normal state. Although the floods had damaged some equipment and the campus had lost two trees, both near the President's House, a thorough survey of the buildings indicated no structural damage or loss of scientific assets. There were no injuries to personnel and no loss of research animals. Although Internet connectivity was unstable on Tuesday due to the primary service provider's loss of both primary and backup power, and the backup provider's unusually high load, the university's internal network was fully functional.

"Considering the magnitude of the storm and the amount of damage it inflicted in our area, we are fortunate to have escaped with relatively little loss," says Marc Tessier-Lavigne, the university's president. "Thanks to the hard work and dedication of nearly 100 personnel, many of whom worked long hours and faced tough commutes, the university was able to reopen just 48 hours after Sandy departed."

Staff from Plant Operations, Security, Human Resources, Information Technology, the Comparative Bioscience Center, Laboratory Safety and Environmental Health, Custodial and Housing all contributed to storm preparation and recovery efforts. In the hours and days following the storm, there was much work to be done to get everything back to normal — from picking up fallen branches to replacing waterlogged equipment. Cleanup and repairs will take several weeks, and when those are done, decisions will need to be made about how and where to fortify or relocate susceptible equipment.

The damage totaled roughly $500,000. Losses include damaged water and fuel pumps; three damaged elevators, two of which are freight cars serving the boiler room and are not heavily used; stored network and electrical equipment in the Smith Hall Annex server room; and two broken windows, in Welch and Bronk. Flooring and sheetrock damaged by the water need to be replaced. And at Faculty House, spare appliances and building materials kept in a lower-level storage room were damaged by flood waters.

"Although we got through this event well, and were even in a position to offer assistance to institutions in the area that sustained much worse damage, there are always lessons learned, and my team is already working on implementing improvements that will help us when the next disaster strikes," says Mr. Kogan.



PHOTOS: JAMES ROGERS

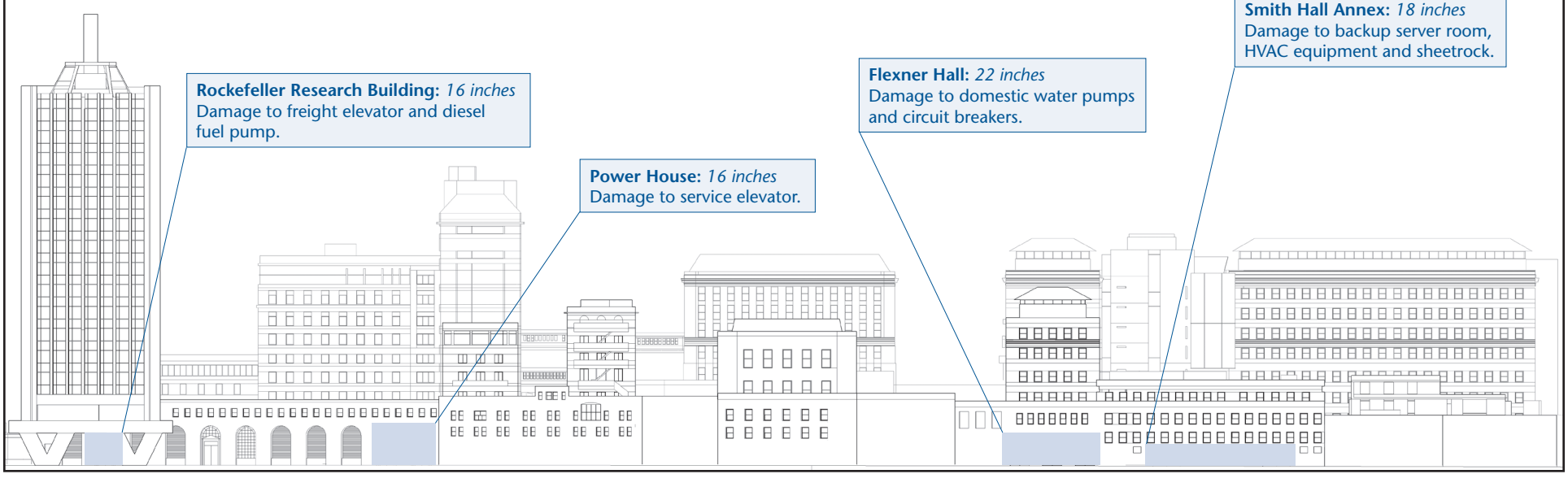
Wind and water. Flooding and gusty winds caused damage in several places on campus. Damaged wiring in the Smith Hall Annex backup sever room (top); flooding in the parking garage and bike room beneath Faculty House (left); waterlogged electrical equipment in Flexner (right).

Inflate in case of flooding

PHOTO: ZACH VEILLEUX

While the cleanup work from Sandy continues, Plant Operations personnel are also making plans for the next time the East River floods. Among several improvements being considered is the purchase of a Tiger Dam system (left), which was demoed near the entrance to Founder's Hall in early December. Filled with water from a fire hose or pumped out of the river itself, these 50-foot-long, 18-inch diameter tubes can be stacked in a pyramid formation to block floodwater. More effective and easier to deploy than sandbags, they would likely have prevented much of the damage that occurred to the lower levels of the Power House and Flexner Hall with Sandy. "This is one of several products we're investigating to better protect vulnerable areas from the river," says Alex Kogan, associate vice president for plant operations. "Our goal is to have better options to prevent water infiltration before we are next faced with this type of disaster."

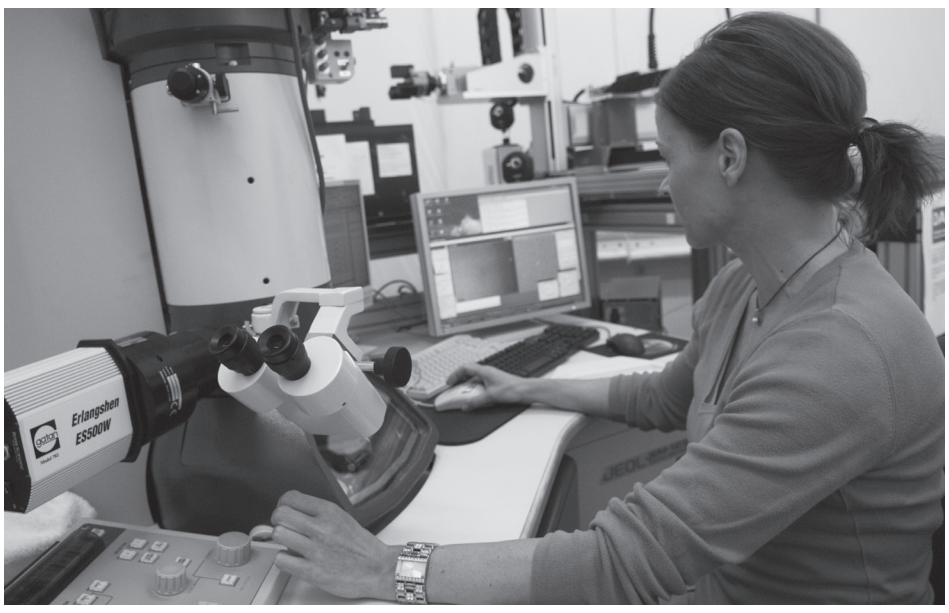
Areas of flooding from Hurricane Sandy

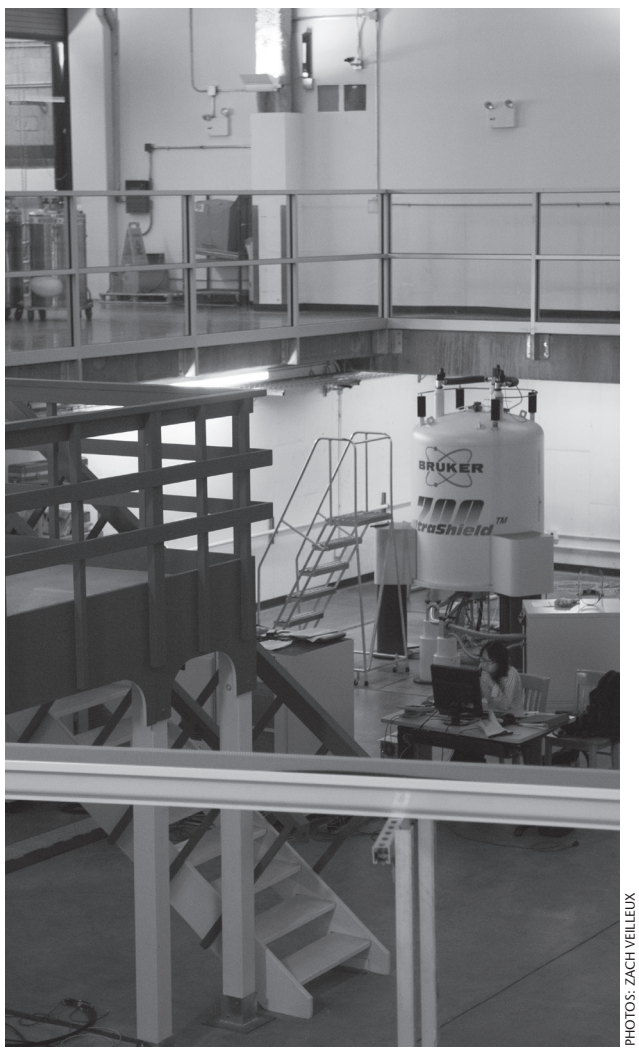


Structural biology center provides machines for large scale projects

by LESLIE CHURCH

With momentum gaining at the New York Genome Center and several new institutional partnerships beginning on Roosevelt Island and downtown Brooklyn, the academic landscape of New York City is poised for a new era of collaboration. But the idea behind these alliances — that more can be accomplished when institutions share resources than when they work alone — is not new.





PHOTOS: ZACH VEILLEUX

Structurally sound. The structural biology center in Harlem houses nine nuclear magnetic resonance spectroscopy machines (above) in a facility that was formally a gymnasium (top). The massive equipment uses very powerful magnets and radio waves to determine a protein's structure by analyzing the distance between the atoms inside it. The center also has several cryoelectron microscopes (left) that allow researchers from member institutions, including Paula Upla, to create a 3D image of a molecule without staining or fixing it.

At the New York Structural Biology Center (NYSBC), large scale facilities for studying macromolecules have been available for over a decade. The center was established by a consortium of nine biomedical research institutions to address a growing problem in research: newer, better technology is constantly being rolled out, but with costs in the millions of dollars, individual institutions might be disinclined to foot the bill if only one or two labs are using it.

The NYSBC's membership, which includes the other Tri-Institutional affiliates and Columbia University, made an initial investment in the center totaling $9 million and thereafter have paid an annual member fee. Now worth $75 million, the facility gives members access to the latest-generation instruments for an allotted number of weeks each year.

The center sits on the south end of the City College of New York's Harlem campus near 133rd Street. Nine NMR (nuclear magnetic resonance) machines are housed in an old gymnasium once used by the college, humming day and night with experiments that may run as long as one to two weeks. Although the center was initially devoted exclusively to NMR, it has since expanded to encompass several other technologies, including x-ray crystallography, cryoelectron microscopy and protein production.

NMR uses extremely powerful magnets — nearly half a million times the strength of the Earth's magnetic field — and pulses of radio waves to determine the distance between the atoms that make up a protein.

The more powerful of the machines sit atop giant cylinders of solid concrete tied directly into the bedrock that lies underneath New York City, providing the utmost stability from outside vibrations that could disrupt the data. With its two 900 megahertz systems, the NYSBC is the premier facility for NMR in the western hemisphere. The center is also working to acquire a new dynamic nuclear polarization NMR device that will provide a 100-fold increase in sensitivity of the imaging process, the first of its kind in the United States.

Although Rockefeller has some on-site facilities for NMR, in the 400 to 600 megahertz range, and for x-ray crystallography, its capabilities are limited in comparison.

"The equipment at Rockefeller is valuable for certain aspects of NMR and crystallography work, but when the scientists need to look at larger proteins or get a higher resolution image, they access the Structural Biology Center," says John Tooze, vice president of scientific and facility operations at Rockefeller.

The center's cryoelectron facility, located in newly constructed, acoustically shielded rooms adjacent to the NMR equipment, consists of four machines of varying strength, providing a valuable supplement to Rockefeller's less powerful equipment.

Cryoelectron microscopy is a more recent technology in the field of structural biology that allows a sample to be studied without staining or fixing it in any way, thus facilitating observations of it in its natural environment. The center recently added a dual-beam device that uses both an electron and an ion beam column to create a 3D image of the molecule.

Several labs at Rockefeller make regular use of the NYSBC equipment. The Laboratory of Cellular and Structural Biology, led by Michael P. Rout, has been doing NMR research at the center for the past few years. The lab studies nuclear pore complexes using a range of NMR machines, and is currently looking at the structure of FG nucleoporins, a family of proteins that act as a filter within the pore complex.

"The NYSBC allows us access to world class instrumentation in areas that are not our main expertise," says Dr. Rout. "It has opened up projects in both NMR and cryo-electron microscopy that would otherwise not have been possible."

Beyond the microscopes, the NYSBC also has a high throughput facility for protein production. The New York Consortium on Membrane Protein Structure can generate up to 1,000 clones per week. The consortium, which brings together researchers from NYU, Columbia, Rutgers, CUNY and elsewhere, is made possible by a $20 million grant as part of the NIH's Protein Structure Initiative.

"Collaboration between researchers is a major goal of the center," says Willa Appel, the center's executive director. "The consortium on protein structure has created a tremendous intellectual enterprise to address membrane proteins, which are a huge challenge. They're the least well-known class of proteins and perhaps the most important, particularly for the development of drugs."

The lab developed methods for making membrane proteins and is continuously turning out new findings on their structure — producing rainbow-colored 3D images of twisting, tangled swirls of amino acids.

A new venture is also unfolding at the Brookhaven National Laboratory on Long Island, where the center operates two synchrotron beamlines for x-ray crystallography in collaboration with the National Synchrotron Light Source (NSLS). A third-generation synchrotron, dubbed NSLS-II, is currently under construction at Brookhaven as part of a project sponsored by the U.S. Department of Energy, and the center is building a new beamline there that will exploit NSLS-II's novel capabilities.

The synchrotron, a particle accelerator that uses extremely bright x-ray, infrared and ultraviolet beams to study samples in intricate detail, will measure a half-mile in circumference and produce x-rays up to 10,000 times brighter than the current NSLS.

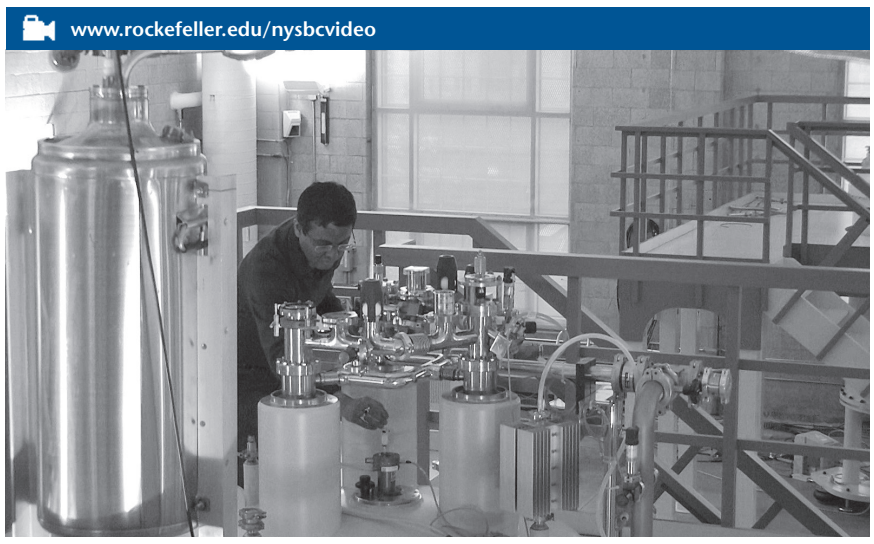
Thirty-six full-time staff members work at the NYSBC, the majority of them scientists who offer instruction and assistance for researchers who want to utilize the technology but may not know much about it.

"It started out that with x-ray crystallography and NMR, the scientists had to be card-carrying experts in the technology," says Wayne Hendrickson, scientific director of NYSBC, a professor at Columbia University and a Howard Hughes Medical Institute investigator.

"We've created an environment where someone who doesn't know anything about these techniques, but who has a project amenable to them, can come in and our staff will help that person apply the right tools to their work. The technologies available here can be used to supplement other avenues of investigation in any number of fields, and the researcher doesn't need to become adept in them to take advantage of what they offer."

Caution: scientists at work

www.rockefeller.edu/nysbcvideo



With nine NMR spectrometers and four cryoelectron microscopes, the New York Structural Biology Center is a one-stop shop for scientists who want to create images of their proteins. Watch a video of the science in action at www.rockefeller.edu/nysbcvideo.

FACULTY NEWS

Robert Darnell named president of New York Genome Center

by ZACH VEILLEUX

Sometime during the last decade, as he developed technology to explore the role of RNA in neurological disease, Robert B. Darnell realized that the talented, highly educated molecular biologists in his lab were spending more and more of their time doing something that they had never been trained to do: processing computational data. The price of sequencing was falling and the amount of information being generated was staggering. If their work was going to proceed at the pace Dr. Darnell wanted it to, he was going to need a new kind of assistance.

This realization, and the developments that followed it, led to Dr. Darnell's involvement in the establishment of the New York Genome Center (NYGC), now on its way to becoming one of the largest genomics research facilities in North America, bringing together resources from 11 area institutions to integrate sequencing, bioinformatics and data management capabilities in one centralized location. And it ultimately made Dr. Darnell the logical choice to serve as the NYGC's first president and scientific director, a position to which he was named in November.

In his role, Dr. Darnell will direct all aspects of the NYGC, including its scientific and research activities and the recruitment and development of a world-class scientific team in genomic research, computational science and medicine. He will lead a collaboration that will help push forward genomic science, ultimately providing advances that will lead to a new era of personalized medicine, accelerating the development of new diagnostics and treatments for human diseases, and providing an engine for life science commercialization in the region.

Dr. Darnell's lab pioneered translational studies in paraneoplastic neurologic syndromes, which linked tumor immunity to autoimmune brain disease and have led to new antitumor strategies being tested in cancer patients. But studying these patients also led his team to discover neuron-specific systems that regulate RNA expression, and to the invention of HITS-CLIP, now the gold standard with which to study RNA regulation. This opened the door to understanding the complex world of what is now sometimes referred to as the "dark matter" of the genome — the 75 to 80 percent of our DNA that is transcribed into RNA but that does not encode protein domains.

"In 2003, when we first developed CLIP technology, we sequenced 400 RNA tags and mapped them to specific sites from among the billions of sequences present in our genome, for a cost of $4,000. Today we can sequence over 30 billion tags for that same $4,000, and do it in a single day," says Dr. Darnell, who is Robert and Harriet Heilbrunn Professor and head of the Laboratory of Molecular Neuro-oncology. "This is truly transformative; it allows us to begin to look at the next generation of genomics — understanding the role of RNA dark matter in biology and in disease — in an unbiased and unrestricted manner. But the downside is that enormous datasets are being generated, and fed to a wet lab full of scientists trained in molecular biology.

PHOTO: COURTESY NYGC

PHOTO: ZACH VEILLEUX

Genomic infrastructure. Architectural rendering of the outside of the New York Genome Center's new facility at 101 Avenue of the Americas (top); Dr. Darnell (bottom).

"Our initial response was to think and learn about genomics and bioinformatics on our own, and we were lucky enough to recruit and collaborate with a number of extremely talented individuals to help us. But we also recognized that data management and data analysis was really being done on an inadequate basis from within our own group. Helping NYGC develop was, for me, a logical extension of the perceived needs within my laboratory, within The Rockefeller University and within the groups of my colleagues around New York City."

Founded just two years ago, in August 2010, the NYGC is an independent, nonprofit organization that leverages the collaborative resources of leading academic medical centers, research universities and commercial organizations. It is currently building out its 7,000 square foot facility at 101 Avenue of the Americas. The $47 million build-out will be completed by the middle of next year and will eventually house up to 500 employees.

"Leading the New York Genome Center is a position for which Bob is exceptionally well-suited, given his vast experience in the field of genomics and translational research," says President Marc Tessier-Lavigne, a member of the NYGC's board. "The university's link to NYGC is going to be a great asset for us in the coming years, as the center facilitates the sharing of data and resources and increases the quality and speed of research in the greater New York City area, and Bob will be an excellent leader."

Work from many labs, at Rockefeller and elsewhere, has shown that small domains within RNA dark matter can be critically important in cell function and in disease. "I believe that the scope of the problem, and its potential to transform basic and clinical medicine, is so enormous that it will only be surmounted by a multipronged pooling of minds and scientists, ranging from clinicians to genomic biologists to computing experts to mathematicians," says Dr. Darnell. "The NYGC is the expression of this belief, and will bring together, in a not-for-profit academic consortium, the greatest minds in genomics from nearly every scientific institution in New York, for the benefit of humanity."

CAMPUS NEWS

New science outreach director aims to show students it's cool to be nerdy

by LESLIE CHURCH

The first goal of the Science Outreach Program's new director is to squash the stereotype that all scientists have Albert Einstein hair and socially awkward personalities. She won't have to look hard for evidence: she herself is living proof. Jeanne Garbarino, who was named director of the university's longstanding program to introduce high school students to real-world biological research, has been a postdoc in Jan L. Breslow's Laboratory of Biochemical Genetics and Metabolism studying intracellular cholesterol transport since 2008. She has very neat hair and is quite personable.

"One of my passions is to get girls more involved in STEM [science, technology, engineering and math] fields. A lot of times their interest tapers off in middle school, and I'm hoping we can use Rockefeller's outreach programs to bring them back, show them the many impressive role models right here on campus," Dr. Garbarino says. "Show them that it's cool to be nerdy."

The university's Science Outreach Program brings high-achieving high school students and interested K-12 teachers to Rockefeller's labs for a total immersion, hands-on introduction to research for seven weeks in the summer. Participants are matched with a mentor in the lab who guides them through all aspects of conducting research, and by the end of the program many students have helped to discover something that was previously unknown. Ted Scovell, the program's previous director, left this summer to return to teaching.

Dr. Garbarino's own nerdy inclinations took her from a B.S. in biology at SUNY Geneseo to a Ph.D. in nutritional and metabolic biology at Columbia University, but it was not without its challenges. Dr. Garbarino grew up in the Bronx in a blue-collar family — her parents have both been ticket sellers for Metro North since she was 10 — and was the first person in her family to go to college.

"I realize how important it is for young people to have role models in those schools that don't have the same resources as the elite schools do," Dr. Garbarino says.

Having first-hand knowledge of life in academia opened Dr. Garbarino's eyes to the challenges faced by students at the graduate level, too — challenges she hopes to address at Rockefeller in her new position.

PHOTO: ZACH VEILLEUX

"Graduate students need more communications training," says Dr. Garbarino. "They need to be able to give an elevator pitch about their research in a way that's exciting and understandable. Being able to communicate effectively is a skill that can be used in whatever career they decide to go into. Plus, the more we share our work, the more we can make science a part of everyday discussion in society."

Dr. Garbarino's résumé boasts an array of such experience, and it all started with a job writing for *Natural Selections*, the university's student-run publication. From there she started a blog called *The Incubator* with another postdoc and a graduate student, which led to her own blog, *The Mother Geek*, and to a job as an editor at *Double X Science*, a Web site where Dr. Garbarino writes evidence-based science stories geared toward women and mothers. Her popular "Pregnancy 101" series, for example, includes hand-sketched diagrams explaining the science of how a pregnancy test works. Dr. Garbarino has gigs blogging for *Scientific American*, *Nature* and *The Huffington Post*, and she is codirector of two science communication initiatives on campus: the Science and Media Lecture Series and SpotOn NYC, which brings together scientists and media professionals from around the city to discuss how science is communicated online.

"Jeanne is a skilled scientist, and has also been consistently involved in science communication, education and outreach," says Sidney Strickland, vice president for educational affairs and dean of graduate and postgraduate studies. "Her scientific experience and enthusiasm for thinking about science education in new and innovative ways will greatly benefit the Outreach Program."

Dr. Garbarino plans to channel her communication experience into new outreach initiatives, like resurrecting *The Incubator* blog and inviting students and postdocs to write about research, policy and any other science topic that could strike up an online conversation.

"I want to encourage students here to get as involved as they can — they can start a blog, speak to classrooms, judge a science fair, discuss science on social media — the more faces we have representing science, the easier it is to debunk the stereotypes."

NEW TRUSTEE

Venture capitalist David Sze named to Board

by ZACH VEILLEUX

The university's newest Board member, elected at the June 6 meeting, is David Sze, a partner in the Menlo Park, California offices of venture capital firm Greylock Partners. Mr. Sze, who was introduced to Rockefeller by President Marc Tessier-Lavigne, will serve on the Committee on Scientific Affairs and has a particular interest in faculty recruitment and promotion.

Mr. Sze joined Greylock in 2000 after a 10-year career in product management and development at consumer internet and media companies, including Excite, one of the most recognizable internet brands in the late 1990s, Electronic Arts, a video game publisher, and HBO. He started his career in management consulting with Marakon Associates and The Boston Consulting Group. He has a B.A. from Yale University and an M.B.A. from Stanford University.

At Greylock, Mr. Sze focuses on consumer internet, social networking, media convergence and mobile technology. His portfolio has included Facebook, LinkedIn and Pandora as well as Digg, Nextdoor, Oodle, SEVEN, VUDU and WhoSay. He was ranked number four on the 2012 Forbes "Midas List" of top tech investors.

Mr. Sze first got to know Dr. Tessier-Lavigne when they both lived in the Bay Area. He says he developed a great deal of respect for Dr. Tessier-Lavigne's work at Genentech, and was particularly struck when he learned that leading Rockefeller University was the only job Dr. Tessier-Lavigne could imagine leaving Genentech for.

"As I have come to learn about Rockefeller, I have been impressed by how the university's approach to bioscience is similar to our approach to technology at Greylock. In both cases, the key is to identify excellent people with creative ideas, and to give them resources and time to develop their discoveries," Mr. Sze says. "It's a very human philosophy, and it puts the focus on investing in people and having enough humility to realize you won't always know where the next great discoveries are going to come from."

"The bottom line is that its results are unparalleled, and it has an enviable history and strong institutional values. I'm honored to be involved with Rockefeller."

"David is an outstanding addition to the Board not least because he has a unique perspective on innovation from his work in Silicon Valley," says Dr. Tessier-Lavigne. "He also has deep expertise in the commercialization of technology, and he will bring new ideas and help make new connections for Rockefeller."

PHOTO: ZACH VEILLEUX

With Mr. Sze's election, the Board currently numbers 42.

AWARDS AND HONORS

Rockefeller's Pearl Meister Greengard Prize awarded to RNA researcher Joan Steitz

Joan A. Steitz, a pioneer in the field of RNA biology whose discoveries involved patients with a variety of autoimmune diseases, was awarded the 2012 Pearl Meister Greengard Prize from The Rockefeller University last month.

The prize honors female scientists who have made extraordinary contributions to biomedical science and carries an honorarium of $100,000. It was presented at a ceremony on November 29 at Caspary Auditorium by oceanographer and explorer Sylvia Earle, a National Geographic Explorer in Residence.

PHOTO: SCOTT RUDD

Championing women. Joan Steitz (left) receives the Pearl Meister Greengard Prize from oceanographer and explorer Sylvia Earle in a ceremony at Caspary Auditorium in November. Dr. Steitz was honored for her contributions to RNA research and her role as a champion for women in the sciences.

"Joan Steitz, in addition to being a leader in the field of RNA biology, has been a role model for young women seeking careers in biomedical research," says Paul Greengard, Vincent Astor Professor and head of the Laboratory of Molecular and Cellular Neuroscience. "Her success, in the face of gender discrimination early in her career, exemplifies the spirit of the Pearl Meister Greengard Prize."

The prize was established by Dr. Greengard and his wife, sculptor Ursula von Rydingsvard, in 2004 with proceeds from his 2000 Nobel Prize. The winner is chosen by a committee of 10 jurors, including Marc Tessier-Lavigne, president of The Rockefeller University, and past presidents and Nobel Laureates Torsten N. Wiesel and Paul Nurse.

"Any recognition that calls attention to women's accomplishments in science is important for the future participation of women," says Dr. Steitz. "I am deeply honored to be a recipient of the Greengard Prize."

Dr. Steitz is Sterling Professor of Molecular Biophysics and Biochemistry at Yale University and an investigator at the Howard Hughes Medical Institute. She is best known for discovering and defining the function of RNA-protein complexes called small nuclear ribonucleoproteins (snRNPs), which occur only in the cells of higher organisms. These cellular complexes play a key role in the splicing of pre-messenger RNA, the earliest product of DNA transcription. Both DNA and pre-messenger RNA typically contain numerous nonsense segments called "introns." Working in the nucleus, snRNPs cut the introns from pre-mRNA and splice together the resulting segments, which together make up messenger RNA.

Dr. Steitz's research may yield new insights into the diagnosis and treatment of lupus, an autoimmune disease that develops when patients make antibodies against their own DNA, snRNPs or ribosomes, the body's protein-making factories. She and her colleagues are also studying other snRNPs involved in excising a rare, divergent class of introns and still other snRNPs involved in pre-ribosomal RNA processing.

Dr. Steitz earned her B.S. in chemistry from Antioch College in 1963. She became the sole woman in a class of 10 to begin graduate studies in biochemistry and molecular biology at Harvard, and the first female graduate student to work under Jim Watson's guidance after another male professor questioned her aspirations for a Ph.D. because she was a woman. During postdoctoral studies at the Medical Research Council's Laboratory of Molecular Biology in Cambridge, England, she used early methods to determine RNA sequences where ribosomes initiate protein synthesis on bacterial mRNAs. She was appointed assistant professor at Yale in 1970, and in 1979 Dr. Steitz and her colleagues described snRNPs, the building blocks of the spliceosome.

She has received numerous accolades for her work, including the Albany Medical Center Prize in Medicine and Biomedical Research, the Gairdner Foundation International Award, the UNESCO-L'Oreal Award for Women in Science and the Rosalind E. Franklin Award for Women in Science. She is a member of the National Academy of Sciences and the Institute of Medicine, and she received the National Medal of Science in 1986. Since 2007, she has served as a member of Rockefeller's Committee on Scientific Affairs, a committee that advises the president and the Board of Trustees on all scientific matters.

Strategic plan

(continued from page 1)

in 1998. Beginning this spring, prospective students who are likely to be accepted will meet with three to five faculty members before a final decision is made. The goal will be to better identify students who will be a good fit for our unique, highly individualized program, as well as to give top applicants more one-on-one attention before they make their decision about where to enroll. Additional student-directed events will also be held for applicants in order to increase interactions between incoming and current students. Our expectation is that these efforts will enhance our ability to recruit high quality graduate students who are likely to succeed at Rockefeller.

3. Center for Genomic Medicine. We are continuing to plan for the development of a new interdisciplinary research center, the Center for Genomic Medicine. Jeff Friedman, who has been leading this initiative, has worked with a planning committee to develop a seminar series for leaders in genetics and bioinformatics that will serve as the first step toward informing and developing the university's expertise in these areas. Two speakers were here last spring and several more are scheduled for the coming months. Planning for programs and infrastructure is still in progress.

4. Drug Discovery Initiative. A planning committee consisting of Barry Coller and J. Fraser Glickman, along with counterparts at Weill-Cornell Medical College and Memorial Sloan-Kettering Cancer Center, has developed a proposal for the creation of a jointly owned corporate entity that would work to help faculty develop their translational projects to a proof-of-concept stage that would then lead to partnerships with companies for further development. As a first step toward this goal, the initiative would work to enhance Tri-Institutional resources and personnel in medicinal chemistry, biologics and animal pharmacology and toxicology. While this initiative is still very much in the planning stages, and would require approval and funding commitments from all three institutions before it could begin, it's off to a very exciting start.

5. Master planning. As you may remember, we retained Rafael Viñoly Architects to evaluate existing infrastructure and develop a master plan for the campus last year. Their proposal to construct a "river building" to be built over the FDR Drive would make use of air rights the university owns over the highway to create new lab space without adding bulk to our existing campus or blocking views of the river. In June the Board voted to approve funds to develop this design further and to seek city approval for the project. Viñoly has been working on the plans necessary to file with the NYC Department of Buildings, and we are engaged in conversations with the mayor's office over our proposal. We hope to have a sense of whether or not this project is feasible — from an engineering as well as financial perspective — within the next several months, at which point we can decide if and when we will move forward with it, or develop alternatives.

University honors Norton Zinder with symposium and annual lecture

by LESLIE CHURCH

Norton D. Zinder, the pioneering geneticist and molecular biologist who helped lay the foundation for the new field of molecular biology in the 1950s and '60s, was honored with a memorial symposium in November. An annual endowed lecture is also being established in his name. Dr. Zinder, who died this past February after a long illness, was John D. Rockefeller Jr. Professor Emeritus at Rockefeller, where he spent his entire research career.

Dr. Zinder's groundbreaking research on the genetics of bacteria and the viruses that infect them, called bacteriophages, provided important information about the mechanisms of heredity. In the 1970s, his active involvement in public policy helped shape early guidelines for recombinant DNA research. Decades later, Dr. Zinder was one of the forces behind the Human Genome Project.

The memorial symposium, held November 19, featured 15 panelists. In addition to the campus community, more than 100 guests attended. They included members of the Zinder family, as well as many scientists who had trained with Dr. Zinder — a group often referred to as the "Zinder Kinder."

Each year, the new Zinder Lectureship will bring an outstanding scientist to the university to deliver a talk on a cutting edge research topic. The lecturer will also be invited to spend time on campus, engaging with faculty and students, and sharing insights, ideas and information in the spirit of scientific exchange that Dr. Zinder embodied. To date, more than 70 friends, former students and postdocs of Dr. Zinder and Rockefeller faculty have made gifts totaling $220,000 toward the $300,000 goal to endow the lectureship.

"Norton was one of the founders of microbial genetics. His early discoveries anticipated the development of recombinant DNA, and helped give rise to what has become molecular biology," says Michael W. Young, vice president for academic affairs and Richard and Jeanne Fisher Professor in the Laboratory of Genetics. "Bringing similarly innovative scientists to Rockefeller to have discussions about their work is the best way we can honor Norton's legacy."

The Zinder Lecture will be part of the Friday Lecture Series.

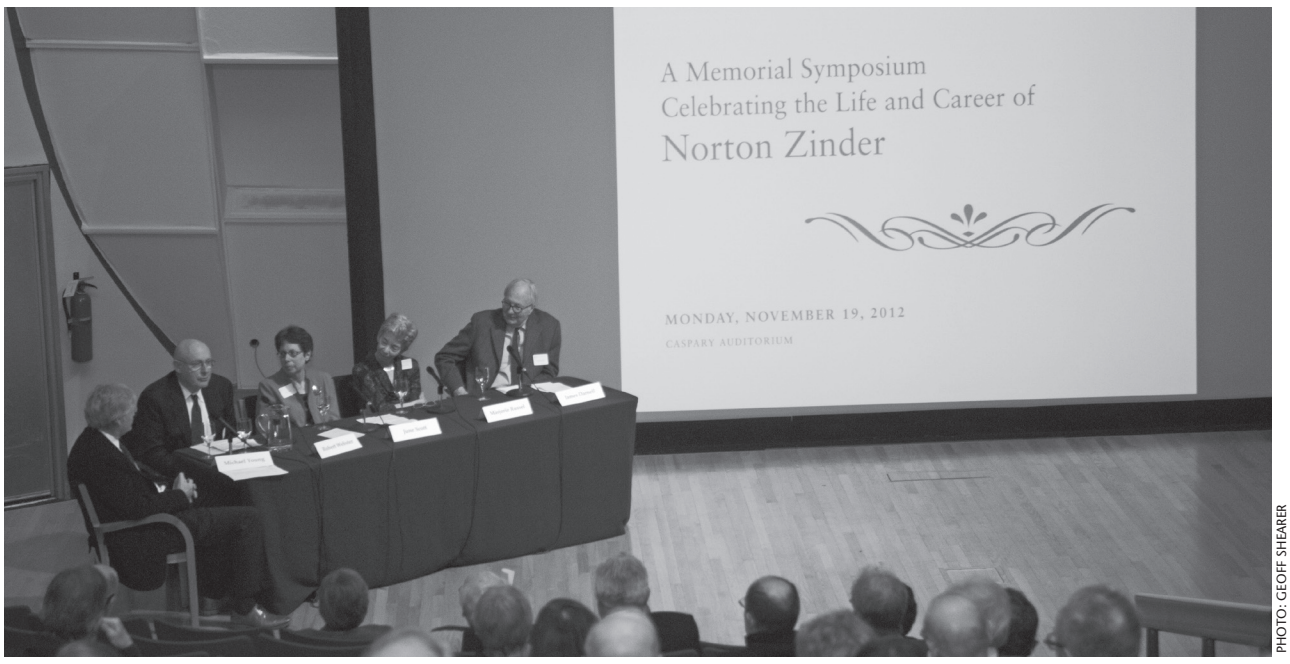


PHOTO: GEOFF SHEARER

Symposium panelists. Rockefeller's Michael W. Young moderates a panel on Dr. Zinder's scientific contributions. From left: Dr. Young, Robert E. Webster, from Duke University School of Medicine, June R. Scott, from Emory University School of Medicine, and Marjorie Russel and James E. Darnell Jr., from Rockefeller.

Rockefeller opens its doors to Open House NY

by LESLIE CHURCH

PHOTO: ZACH VEILLEUX

Be our guest. Science Outreach Director Jeanne Garbarino gives a tour of the Rockefeller campus for Open House New York, an annual event that showcases notable architecture and culturally-significant spaces throughout the five boroughs.

For those without access, the Rockefeller campus can seem shrouded in mystery. But on a rainy weekend this October, the university opened its doors and let the city in as part of Open House New York weekend. The annual event showcases hundreds of the city's most architecturally and culturally significant spaces, many not usually open to the public.

At Rockefeller, members of the Communications and Public Affairs staff, along with Science Outreach Director Jeanne Garbarino, led hour-long tours of campus highlights, including the Collaborative Research Center, Caspary Auditorium and the university hospital, and discussed how the university's buildings and architecture are a means of facilitating scientific discovery. The university's participation was seen as a low-cost way to engage with interested members of the community to increase awareness of Rockefeller locally and help promote bioscience in the city.

In all, 72 visitors, most with no prior knowledge about the university, attended the tours — 47 were from Manhattan, 17 from the outer boroughs and suburbs and eight from out of state.

Now in its tenth year, Open House New York was founded by architect Scott Lauer as a small grassroots nonprofit dedicated to educating the public about New York City's architecture and design.

The event has grown from its first weekend with 84 sites to more than 250 this year. It attracted 200,000 visitors citywide.

MILESTONES

PROMOTIONS, AWARDS AND PERSONNEL NEWS

Awarded:

Elaine Fuchs, the 2012 Academy Medal for Distinguished Contributions in Biomedical Science from the New York Academy of Medicine, for her innovative and imaginative approaches to research in skin biology, its stem cells and its associated human genetic disorders. The medal is given to eminent scientists in biomedicine, particularly those with a special interest in translating research findings to advance human health. Dr. Fuchs is the Rebecca C. Lancefield Professor and head of the Laboratory of Mammalian Cell Biology and Development.

Charles M. Rice, the Prize of Pathophysiology Professor Lucien Dautrebande from the Belgian Royal Academy of Medicine, for his description of the molecular and cellular basis of hepatitis C infection in humans. Dr. Rice is the Maurice R. and Corinne P. Greenberg Professor in Virology and head of the Laboratory of Virology and Infectious Disease. He will receive €100,000 for the award, which is given every three years to an individual or team of researchers who have contributed to the progress of human or animal pathophysiology, with particular reference to advances in therapy.

Brad Rosenberg, the NIH Director's Early Independence Award, given to exceptional early-career scientists who demonstrate the ability to establish their own research programs without the need for traditional postdoctoral training. The five-year, $2.1 million grant will support Dr. Rosenberg, who completed his M.D.-Ph.D. through the Tri-Institutional program in May, as he sets up a research program at Rockefeller on the immune system. He has been named a John C. Whitehead Presidential Fellow.

Published:

Entering an Unseen World, by **Carol Moberg**, senior research associate in the Laboratory of Cellular Physiology and Immunology. The book details the lab of Drs. Albert Claude, Christian de Duve and George Palade, and how it gave birth to modern cell biology, with contributions from 22 scientists who worked in the lab over the years, including several still affiliated with the university — Günter Blobel, Dr. de Duve, Samuel Dales and Miklós Müller. It will be published by The Rockefeller University Press in mid-December.

Neuroscience in the 21st Century, edited by **Donald W. Pfaff**, professor and head of the Laboratory of Neurobiology and Behavior. It's a 3,200 page, five-volume overview of both basic science and clinical issues in modern neuroscience aimed at premedical, medical and graduate students. The digital text and accompanying videos will be available for free to students and research professionals in developing nations via the HINARI Access to Research in Health program. It is published by Springer.

Hired:

Sofia Axelrod, postdoctoral associate, Young Lab.

Mariana Babayeva, member of the adjunct faculty, Coller Lab.

Noah Berland, research assistant, White and Levy Center for Mind, Brain and Behavior.

James Bibb, member of the adjunct faculty, Greengard Lab.

John Borsavage, campus security officer, Security.

Tristan Brennan-Torell, doorperson, Housing Scholars Residence.

Kerry-Ann Bright, research assistant, Rice Lab.

Jerry Chang, postdoctoral associate, Greengard Lab.

Antonia Chen, research assistant, Tessier-Lavigne Lab.

Mark Field, visiting professor, Rout Lab.

Kevin Franklin, animal attendant, Comparative Bioscience Center.

Rachel Gilmore, research assistant, Rice Lab.

Timothy Hopson, nursing assistant, Hospital Nursing Inpatient.

Connie Hsaio, research assistant, Greengard Lab.

Jin Young Kang, postdoctoral associate, MacKinnon Lab.

Michelle Kean, postdoctoral fellow, Chua Lab.

Charles Li, research assistant, Allis Lab.

Cherisse Loucks, postdoctoral associate, Konarska Lab.

Cindy Meyer, postdoctoral fellow, Tuschl Lab.

Vincent Minouflet, foreign research intern, Pfaff Lab.

Rohit Mital, visiting student, Tavazoie Lab.

Lilian Nogueira, research assistant, Nussenzweig Lab.

Jessica Pellegrino, visiting scientist, Tarakhovsky Lab.

Amy Quinkert, postdoctoral associate, Pfaff Lab.

Anna Rising, visiting assistant professor, Sakmar Lab.

Alberto Ruzo, postdoctoral associate, Brivanlou Lab.

Gerthon Saint Preux, animal attendant, Comparative Bioscience Center.

Paul Sauer, foreign research intern, Konarska Lab.

Andrew Siliciano, research assistant, Ruta Lab.

Colleen Smith, circulation assistant, Rockefeller University Press

Fumio Soeda, visiting professor, McEwen Lab.

Nadine Soplop, research support associate, Electron Microscopy Resource Center.

Dorien Staljanssens, visiting student, Sakmar Lab.

Inna Tabansky, postdoctoral associate, Pfaff Lab.

Julia Teitel, laboratory administrator, Tarakhovsky Lab.

Abigail Thomas, clinical research nurse, Hospital Nursing Outpatient.

Jillian Tintle, development assistant, Development.

Mary Vasquez, copy editor, Rockefeller University Press.

Kevin Vega, research assistant, Rice Lab.

Masashi Yamaji, postdoctoral fellow, Tuschl Lab.

Niu Yu, visiting student, Chua Lab.

Vyacheslav Yurchenko, visiting scientist, Tarakhovsky Lab.

Xiuzhong Zheng, research assistant, de Lange Lab.

Promoted (academic appointments):

Eric Schmidt, to senior research associate, Heintz Lab.

This publication lists new hires, awards and promotions. Staff promotions are listed yearly; academic promotions and appointments are listed monthly.