“GREAT UNIVERSITIES CREATE KNOWLEDGE through both graduate and undergraduate programs. At The City University of New York, our “Decade of Science initiative” is moving at full speed in fields that are critical to our nation’s future. At CUNY’s Energy Institute, for example, world-class professors, and outstanding graduate and undergraduate students are conducting ground-breaking research to expand America’s energy capacity to make our nation less dependent on foreign oil. The City University of New York’s research programs are where students learn how to bring our scientific innovations to life.”

— Matthew Goldstein
Chancellor

IND, SUN AND WAVES can generate clean, renewable electricity, but cheap and efficient batteries don’t yet exist to store that power. So the CUNY Energy Institute is developing million-watt batteries for utilities and high-performance storage for electric vehicles. SANJOY BANERJEE (above right), a City College distinguished professor of chemical engineering, leads a CUNY team of 20 faculty members and their student researchers. They include LORRAINE LEON (Ph.D. 2010, National Science Foundation fellowship), and JUDE PHILLIP (B.E. 2010, Ph.D. applicant), who investigate and develop chemical and biological approaches to improve electrodes for energy storage.
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THE FIRST WORD

Sustaining What Lincoln Began

Remember the Beatles’ song “A Day in the Life?” “Woke up, fell out of bed, dragged a comb across my head?” Let’s imagine a day in your life. You woke up, fell out of bed — and brushed with fluoride toothpaste. You gulped an electrolyte sports drink after your workout. You drove to work, seatbelt in place, GPS plotting a route.

At work, you checked your e-mail and Googled (several times). You told a coworker about your daughter’s high school biology project: not frog dissection but sequencing brine shrimp DNA. Buying lunch, you were surprised that the scanner read that crumpled bar code. On the way home, you stopped at the hospital, where your father was feeling fine after laser cataract surgery that morning. At home, you convinced your son to put aside his video game and walk the puppy.

On TV, Doppler radar predicted rain. A spacecraft smashed into the moon, seeking water. You surfed cable stations, thankful that the kids’ TV was V-chip-protected. And turning off the light, you marveled at the world you live in.

All of the inventions in this day resulted from research conducted at universities. Health care, communication, transportation, agriculture, construction, manufacturing, energy, the environment: None would be the same without academic research. Consider the polio vaccine (thanks to CCNY alumnus Jonas Salk), insulin, the electron microscope, ultrasound, pacemakers, MRIs, computers, the Internet, search engines, traffic management, dog vaccines and cancer therapy, to name a few.

Academic research depends on highly educated faculty with the facilities, support and time to pursue ideas; skilled students and postdoctoral researchers; government support for such inquiry and its translation to commercialization; and businesses and investors willing to take a risk to bring new ideas to market.

Government support is critical. In 1862, in the midst of the Civil War, President Lincoln signed the Morrill Act, enabling the development of public universities, and Congress chartered the National Academy of Sciences. During World War II, government-funded university research developed radar, medical drugs and atomic weapons. Post-Sputnik, Washington pumped money into research. And in the 1980s, the Bayh-Dole Act allowed federal grant recipients to benefit by commercializing the products of their research.

That federal investment has paid off handsomely. Research universities are engines of prosperity, generating economic growth, jobs and the services and tools that companies need. Public institutions educate almost 80 percent of U.S. students.

Yet between 1987 and 2006, the average share of public universities’ operating revenues from state sources dropped from 57 percent to less than 41 percent. Meanwhile, other countries are eagerly investing in higher education, particularly in sciences, technology, engineering and math. Take engineering — the choice of 20 percent of students in Asia, 13 percent in Europe, but just 4 percent in the United States, according to the Chronicle of Higher Education. From 1995 to 2005, published articles in science and engineering grew by over 16 percent in China — and by just 0.6 percent in the United States.

When research productivity slows, when science and engineering graduation rates lag, our country’s innovation slumps too.

President Lincoln recognized that the future depends on an educated citizenry. What would Lincoln say, 200 years after his birth, when the United States is the only one of the 30 countries in the Organisation for Economic Cooperation and Development whose 25- to 34-year-olds are less educated than its 55- to 64-year-olds?

Today, more than ever, our country must encourage advanced learning and advanced research. Robust government support of public universities like CUNY is critical to maintaining a partnership that has fostered the nation’s innovation and improved its quality of life. It is truly an investment in our future.
Record Enrollment Brings Top-Notch Students — And Great Challenges

ENROLLMENT at The City University of New York is at an all-time high, driven by students seeking value in a tough economy. The number of students enrolled in credit-bearing courses — 259,000 — jumped from 243,000 in 2008 and broke the 253,000 record set in 1974 when CUNY did not charge tuition. Overall, University data show an increase of 6 percent for the 2009-2010 academic year.

“The University’s strong enrollment gains make a powerful statement,” says Chancellor Matthew Goldstein. “Students and families connect with CUNY’s consistent focus on academic quality, on providing value and on the changing needs of our students, present and future.”

Not only are the numbers up, but the academic qualifications of the new students also are stronger, which underscores the University’s growing reputation as a high quality option for families looking for an affordable education. Applications from students with averages greater than 85 percent increased by about 2,000 compared to last year.

“Preliminary indications are that at most of our senior colleges we will see significant increases in mean SAT scores and high school grades in comparison to the students who entered in the fall of 2008,” says Executive Vice Chancellor and University Provost Alexandra W. Logue. “The data also indicate that students are taking more credits, which is an excellent predictor of increased student success.”

The largest enrollment increase was at the community colleges. This year, applications were up 60 percent by those who picked a community college as their first-choice school.

But Goldstein warns that this pace can’t be sustained.

“We need to be mindful that we have a moral dilemma,” he says. “We have a very weakened economy where many people are coming to the University to shore up their skills, to present themselves into the marketplace as professionals who have acquired new talents and then find the kind of job that they want.”

While it is important to provide this education, he says, “we cannot lose sight of the fact that there are limitations to what we can do in terms of full-time faculty, academic support services, class size and the physical constraints of having enough classrooms during the day and into the evening.”

It is essential, he says, that the University finds the proper balance “between inviting students to study but not losing the kind of values we hold dear to provide the best kind of experience.”
A Home Away From Home — And Close To Class

UNTIL THIS YEAR, Dear Aunaetitrakul, a Queens College senior, had to commute to class from her home in the suburbs, and the trip could be a grind. But in the fall, Aunaetitrakul moved into The Summit, a new residence hall that opened on campus in August. “I live in Manhasset, LI, and now I don’t have to worry about being late to class any more,” says the political science and media studies major. “I can pretty much walk to my classes and have more time to myself.”

Although it’s still a commuter school for most students, the University is taking steps to provide some housing.

With 155,738 square feet, The Summit has 144 units, accommodating 506 bedrooms — 489 of them rented to students. There are 13 room configurations but the typical unit is either a fully furnished two- or four-bedroom suite. Rents vary depending on the unit’s size and location, but the price per semester ranges from $4,250 for the shared two-bedroom suite to $6,250 for the single four-bedroom suite.

Each suite has a kitchenette with a full-size refrigerator, stove, oven, microwave and sink. The building is equipped with high-speed Internet and extended basic cable; residents also have access to a fitness center, study lounges and a meditation room.

“I love it, it’s so convenient, and it’s more than I expected from a college”, says freshman Daniela Celi, who confessed she probably wouldn’t have come to Queens College from Orlando, Fla., if it weren’t for the new residence hall. “Here we’re basically getting an apartment,” she says. “No kids are this lucky to have something like this.”

Queens College students are offered 10-month housing contracts with the option to extend for an additional two months, says

Mary Ann Caws’ Election to the American Academy of Arts & Sciences

MARY ANN CAWS’ ELECTION to the American Academy of Arts & Sciences in the spring came as a great surprise to her. “I’m simply delighted,” says Caws, distinguished professor of French, English and comparative literature at the CUNY Graduate Center. “I’m just as pleased as I can be.”

Being elected to the academy, which ranks Benjamin Franklin and Ralph Waldo Emerson among its members, is one of the highest honors in the United States.

Michael Sorkin, distinguished professor of architecture and director of the Graduate Urban Design Program at the The City College of New York, also was elected. The two were inducted into the academy in October, bringing the total number of members from CUNY to 14.

Caws and Sorkin aren’t the only professors with fresh awards on their resumes. Six faculty members were awarded Guggenheim Fellowships, tying the University for first place in the nation for the highest number of winners, along with Princeton University and Johns Hopkins University.

Guggenheim winners are playwright Thomas Bradshaw, assistant professor of English at Medgar Evers College; Benjamin Carter Hett, associate professor of history at Hunter College and The Graduate Center; Jonathan H. Shannon, associate professor of anthropology at Hunter College and The Graduate Center; Victoria Sanford, associate professor of anthropology at Lehman College and The Graduate Center; Heather Hendershot, associate professor of media studies at Queens College and The Graduate Center; and Robert Courtney Smith, associate professor in immigration studies, sociology and public affairs at Baruch College and The Graduate Center.

Caws’ expertise covers a range of avant-garde literature and art and written or edited 60 books. She is most known for her work on surrealist poetry, including that of Rene Char, whose work is very close to her heart, says. Her most recent book, Provencal Cooking: Savoring the Simple Life in France, is a cookbook and memoir.

Caws, who began teaching at Hunter 40 years ago, is still fascinated by the willpower of her students. “They seem imbued with an exciting openness that I have not seen anywhere else,” she says. “I wouldn’t give up (teaching them) for anything.”

Sorkin has written hundreds of articles on architecture. He was the architectural critic for The Village Voice for 10 years and is a contributing editor for Architectural Record.

The American Academy of Arts & Sciences was founded in 1780 by John Adams, James Bowdoin, John Hancock and other scholar-patriots to undertake studies of complex and emerging problems. Current projects focus on science, technology and global security; social policy and American institutions; the humanities, culture and education.

Guggenheim Fellowships are American grants that have been awarded annually since 1925 by the John Simon Guggenheim Memorial Foundation to those “who have demonstrated exceptional capacity for productive scholarship or exceptional creative ability in the arts.”
A New Beacon of Tolerance Amid Diversity

THE HOLOCAUST REPOSITORY at Queensborough Community College has a new home — a $6 million, 8,000-square-foot structure on the Bayside campus. The Harriet and Kenneth Kupferberg Holocaust Resource Center and Archives, its collection originally housed in the library’s basement, opened on Oct. 18 after six years of planning and construction.

Eduardo J. Martí, the college’s president, says the center will serve “as a constant reminder to our students and to the community of Queens of the value that this institution places on educating current and future generations about the ramifications of prejudice, racism and stereotyping. It will be a beacon of civility for the residents of Queens.”

Queensborough is the only college in the state with a Holocaust center. It is a learning laboratory, not a memorial or a museum, according to Arthur Flug, the center’s executive director. It features customized multimedia and interactive displays that combine historical data and interviews conducted by students with Holocaust survivors living in Queens. Starting this semester, student volunteers are being trained as docents and teamed with Holocaust survivors (24 volunteer at the center) to lead guided tours. The center also has a gallery devoted to genocides that occurred around the world, including Armenia, Cambodia and Rwanda.

The archives, available to visitors, include 5,000 books; 1,200 videos; 500 videotaped interviews of survivors; dissertations; periodicals; paintings and carvings by world-renowned artist Rosemarie Koczy, who was a child victim; and 1930s art created by U.S. cartoonists depicting Superman and other superheroes battling Hitler.

“Queensborough is the perfect place for the center because our students represent over 140 nationalities, and Queens is the most diverse county in the U.S.,” says Flug. “We use the lesson of the Holocaust to teach our students to identify and react to hate crimes in a way that provides them with life skills.”

The new facility is the legacy of Queens College alumna Harriet Kupferberg, who died last year, and her husband, Kenneth Kupferberg, who died in 1993. Their gift of $1 million to the college in 2007 kicked off a fund-raising campaign for a $5 million endowment that will ensure that the center’s programs operate in perpetuity. (See Page 8 for story about the Kupferberg family.)

Charles Thanhauser, the architect of the center, says it was “a challenging CUNY commission, because you don’t want to make it seem like a celebration of death. On the other hand, you don’t want it to be something that ignores the somberness of the topic … We did want it to have a hopeful feeling.”
Clinical Training for Aspiring ‘Car Doctors’

EVEN BEFORE GRACE CLAUDIO learned to drive, she knew how to repair cars. Now she’s nearing graduation from Bronx Community College’s automotive technology program. She’s one of only three women among the program’s 193 students but Claudio, who boxes in her free time and has helped her dad with home repairs since she was 11, says being an auto mechanic is her calling.

“I like working with my hands, putting things together and figuring out what’s wrong with the car — you’re a car doctor,” says Claudio, 20, who expects to graduate from the two-year program this fall with an associate degree in applied science.

Clement Drummond, director of the program, says that even though there’s a recession, the automotive service industry is hiring. He also points out technologies that students learn are also applicable to servicing the transportation and construction industries as well as other related fields.

“The service industry has always survived recessions because people will always need vehicles repaired,” says Drummond. “This program is a way to fast-track you to a different career.”

The program’s curriculum, facilities and equipment recently were revamped with $1.2 million in grants and in collaboration with the college’s Center for Sustainable Energy and Office of Institutional Advancement. In June, it received master certification from the National Automotive Technicians Education Foundation and the National Institute for Automotive Service Excellence.

“The teachers are always here to help you and to show you how to fix things in case you missed something in class,” said Khadijah Alston, another woman in the program who plans to become an automotive technology professor. “They’re very positive.”

In the shop, students disassemble and study Honda VTEC and Honda and Toyota hybrid engines. But the students’ favorite aspect of the program is piecing together a 1965 MK3 Cobra replica, a low-slung, sleek two-seat racing car with an engine donated by Ford Special Vehicle Team, a division that develops high-performance cars. Claudio, who is president of the Cobra Club, the car’s assembly team, is interning at the Master Mechanix auto-repair shop in Yonkers in preparation for the BMW training school in Manhattan, which she hopes to attend after graduation. She’s following in the footsteps of Faith Xikis, a recent graduate. Xikis became a certified BMW specialist and is a service manager at Urban Classics Ltd., a repair and restoration shop in Brooklyn. She is also pursuing a master’s degree in business at Baruch.

“The automotive technology program is a great opportunity,” says Xikis, who started fixing cars at 12 under her uncle’s watchful eye. “The teachers were very informative, and I wasn’t intimidated by all the guys. I tutored a few of them.”

“The teachers are always here to help you and to show you how to fix things in case you missed something in class. They’re very positive.”

— Khadijah Alston

Professor George Patchoros, right, discusses an engine with students Khadijah Alston, center, and Eddie Morales.
Analyzing Soldiers’ Comments About Music’s Role in War

Advances in audio technology have revolutionized how American soldiers listen to, share and produce music on and off the battlefield, says Jonathan Pieslak, associate professor of music at City College and the Graduate Center, and author of a recently published book, Sound Targets: American Soldiers and Music in the Iraq War.

“Music is present in tanks and on the iPods that soldiers put in their flack jackets,” says Pieslak, who interviewed returning veterans to learn about the roles of the music they compose, listen to and play, in war and in American military culture.

Pieslak discovered soldiers listen to heavy metal bands like Slayer and Metallica and rap artists like Eminem and Lil’ John to motivate themselves for combat.

“Soldiers spoke about how music put them in a predator mind set, how music would help them step outside of themselves, help them become a monster, help them become inhuman,” says Pieslak who also analyzed some of the troops’ original lyrics and explored the use of heavy metal in contemporary military recruiting campaigns and in basic training. “To me that suggests some level of psychological transformation.”

Pieslak encountered soldiers who listened to country, pop and other genres while praying, sleeping or playing video games. Others wrote and composed original music for soldiers’ memorial services. Pieslak also writes about the use of music as an interrogation technique and torture tool. “If you put someone in a room and play music for them for five days at a [high] level, there are medical studies that show that sleep deprivation will lead to psychosis,” he says.
**LESSONS IN LEADERSHIP**

**THE KUPFERBERGS**

**A High-Powered Family**

By Neill S. Rosenfeld

The twins — like so many CUNY students, the children of immigrants — joined the first entering class at Queens College, worked on the Manhattan Project and, with two other brothers, founded what has become a leading electronics manufacturing firm. They never forgot where they came from. One twin endowed cultural programming and refurbished performance and museum venues at Queens College. The other’s widow endowed Holocaust programs at Queensborough Community College.

“I credit Queens College with all of the things I’ve been able to do,” says Max Kupferberg, 90, who with his wife of 63 years donated $10 million for programs, exhibitions and renovations at what is now called the Selma and Max Kupferberg Center for the Visual and Performing Arts. It includes Golden Auditorium, the Godwin-Ternbach Museum, the Art Center and the Louis Armstrong House Museum and Archives. When Colden had a board, Max was its only president.

Harriet Kupferberg, widow of his twin Ken, gave $1 million to kick-start an anticipated $5 million program endowment. Her goal was to ensure that far into the future, students would connect the sacrifice of the Jews in World War II with the broader ramifications of prejudice, racism and stereotyping. The programs are now based in a spanking new, publicly financed building, the Harriet and Kenneth Kupferberg Holocaust Resource Center and Archives.

Besides these personal gifts, the Kupferberg family foundations have long supported more than 40 organizations in Queens and beyond.

“I was brought up in Flushing when it was a small town,” says Max, speaking at his firm’s modest building in jam-packed Flushing. “When we moved here in 1926, there was only one apartment house in Flushing and a lot of farms.”

His father, a cabinetmaker, and homemaker mother came from Romania in 1903 and raised seven children. His other brothers, Jesse and Jack, opened a radio repair business at home, which they ran until they were drafted into World War II.

Harriet, who died in 2008, was a teacher, served on the Queensborough Community College Fund Board for more than 30 years and chaired the college’s campaign for the Holocaust center, which was founded in 1983 in two basement rooms.

“Harriet, who died in 2008, was a teacher, served on the Queensborough Community College Fund Board for more than 30 years and chaired the college’s campaign for the Holocaust center, which was founded in 1983 in two basement rooms.”

— Max Kupferberg

Queens College was just opening when Max and Ken graduated from Flushing High School in 1937.

“It was perfect for me. All we had to pay for was our books and lab fees. And they provided work for us, so we’d have enough money to get back and forth to college, maybe $10 a month,” he recalled. To earn that money, they photographed students at registration and recorded students’ voices both when they started the required public speaking course and when they finished it.

They majored in physics, but Max stressed the importance of their broad liberal arts education. “Queens College taught me how to speak, how to read, how to understand — all the things that are most important in one’s life,” he says.

Ken graduated in 1941 and attended Columbia University until he was drafted. Accomplished in physics and math, he was assigned to Los Alamos, NM, the headquarters of the top secret Manhattan Project, which developed the first atomic bombs. When scientists considered detonating them with an FM radio signal, Ken said his brother Jesse had the needed expertise; Jesse, too, was summoned to Los Alamos.

Max graduated in 1942, headed to NYU and was draft-deferred while working on a Navy project. Nevertheless, he applied to Los Alamos and joined his brothers.

The Manhattan Project’s scientific director, J. Robert Oppenheimer, suggested that Max spend two weeks visiting different research teams to decide what interested him. He later attended seminars with renowned physicists Enrico Fermi, Edward Teller and Niels Bohr. “When I was 26 years old, to have that kind of exposure was fabulous,” he says.

When the world’s first nuclear weapon was tested in the New Mexico desert, Ken was in a bunker a thousand yards away, while Max was five miles distant, both measuring radioactivity. “We could feel the heat on our faces,” he recalled.

Max, Ken and Jesse devised and built new instruments to advance Manhattan Project research. After the war, they and brother Jack founded Kepco, which manufactures electronic power-supply controls. The family-owned company is now run by their children.
Holocaust center, which was founded in 1983 in two basement rooms.

She had grown up in a household that fought against Hitler’s attacks on and then slaughter of Jews, for before the war her father struggled to extricate Jews from Eastern Europe, according to center executive director Arthur Flug. Sixteen years old when the war started, she understood the passion and motivation of young people faced with crisis. That helps explain why she became personally involved with the center’s interns, who come from a student body that speaks more than 50 languages and represents more than 135 nationalities.

“She used to say, ‘I had my internship in my living room’” before and during the war, Flug says. The student internships she championed, which include meeting Holocaust survivors, make those terrible events real.

“She said that if you teach the Holocaust as a history lesson you are doing a disservice to the people who died in it. We teach it as the greatest hate crime ever perpetrated” – a crime, Flug added, that unfortunately has too many modern parallels.

Experience, passion and a concern for the well-being of other people have been at the center of the Kupferbergs’ lives.

“You’ve got to give back so other people can follow,” says Max Kupferberg, who survives his brothers and still works at Kepco. “That’s how you build a strong community.”
EVERY WAR produces its own generation of veterans who return with distinct experiences, aspirations and struggles. For many of the Iraq-Afghanistan war generation, coming home means going back to school, and CUNY is emerging as a national leader in recruiting them into the classroom and developing programs to smooth their transition from military life.

Enrollment by veterans and reservists in CUNY colleges has been growing by about 10 percent a year, says Wilfred Cotto, University coordinator of veterans affairs, and stands at nearly 2,000 students. And many more will be coming: Increased education benefits under the new GI Bill took effect Aug. 1, and a key provision is a monthly expense stipend that is tied to the cost of living where the student veteran attends school. Under the new bill — the first change in education benefits since 1984 — veterans who enroll in a CUNY college will have their full tuition paid directly by the Department of Veterans Affairs and receive $2,700 a month for living expenses.

“According to the VA, there will be 10,000 veterans returning to New York City over the next few years, and they will be looking for education,” says Cotto, a Brooklyn native who retired from the Navy in 2005 after a 28-year career. His appointment in 2007 to a post that had been vacant for 12 years was itself a sign that CUNY officials recognized that veterans were not only a growing student population but one that required special attention. Projecting that its 23 colleges and institutions will constitute one of the largest student veteran populations in the country, the University this year committed $1.25 million for a host of programs and initiatives and made them permanent in its budget.

Student veterans find that the University is a welcoming place.

“I think CUNY is the perfect university for veterans,” says Don Gomez, a veteran of the Iraq war and a 2009 recipient of the Truman Scholarship. “There is an attitude that comes with being a student at a CUNY school that I don’t think exists at many other colleges. It’s similar to what I remember in the Army. Going to school in New York can be tough, there’s a lot to contend with, but there are also rewards that come from the experience. Like the Army, the CUNY experience is what you make of it.”

Each college has a veterans’ resource office and several have full-time staff. Others have plans to add them. Among the more active and responsive campuses has been City College, primarily because of the advocacy of some of its student veterans. Gomez started a student veterans’ association on campus and pushed for the veterans’ affairs office. “It’s had a huge impact,” Gomez says of the office — most conspicuously in cutting through the red tape of the dual bureaucracies involved in getting education benefits. “The frustration can be overwhelming,” Gomez says, “especially to someone who is just coming back from overseas and is used to flawless efficiency.”

City College has also given the campus veterans’ association an office with a paid staffer of its own. “It’s very isolating for a lot of veterans who come back to school,” says Aubrey Arcangel, 27, a political science major who made several trips to Washington to lobby for the increased GI education benefits as director of the New York City chapter of Student Veterans of America. “When I came back, I missed that feeling of being part of something bigger than yourself. I missed the camaraderie of my unit. There’s a large disconnect between a 24-year-old war veteran and a 19-year-old college student who gets his image of the military from movies like ‘Rambo’ or ‘Black Hawk Down.’ You always get the question no veteran likes to
hear: ‘Have you killed anyone?’ So just to have a place to go and hang out with other veterans is very therapeutic.”

At Hunter College, which has one of the University’s larger student veteran populations, the School of Social Work has received national attention for developing initiatives to make support for veterans part of the fabric of the campus. Now in its second year, the Project for Return and Opportunity in Veterans Education places graduate social work students on CUNY campuses to assist and counsel veterans — and to build a self-perpetuating structure of veterans helping other veterans. “It’s not just an asset but an asset multiplier,” says Roger Sherwood, the Hunter social work professor who directs the program and is a Vietnam-era vet. The Hunter program is one of 20 nationwide to receive a $100,000 grant from the American Council on Education and the Wal Mart Foundation. Many veterans say they joined the service out of high school because they weren’t ready for college but came out of the service ready, willing and able to return to the classroom. Others needed some time.

After her discharge from the Army in 2004, August Coleman, now 28, got a job as an aide in a psychiatric hospital. Then came a turning point. “I got punched,” she recalls. “It made me realize I needed to go back to school to be more than I was and not just stay there for 20 years.” Coleman is a nursing student at Hostos Community College — and a “veteran peer advocate” for CUNY’s Office of Veterans Affairs. “I do outreach to veterans, see if they need any assistance,” she says, “I went into a computer lab and saw someone who was on the VA website. So I went up and started talking to him — how long has he been back, how’s he adjusting, does he need anything.”

Recently, Coleman and others from the University veterans office spent a Saturday doing “outreach” — a day of reverse recruiting at Fort Hamilton in Brooklyn, the Army’s only active post in the metropolitan area.
T BROOKLYN’S P.S. 396, special education teacher Shavon Paul is keeping a watchful eye on the small group of students in her class. She teaches six boys, all of whom have autism. Suddenly, one boy begins to wail. His arms flap in the air. His blue shirt crinkles. Paul tries to verbally soothe him, but it doesn’t work and this might mean a setback. A year ago, he used to cry constantly but not any more.

Quickly, Paul moves the boy to an empty table, sets down the magnetic counting maze he’d been working on and asks him to continue. The boy quiets down and the room seems to sigh with relief.

A few evenings earlier, after a similarly grueling day in the classroom, Paul had logged online to a Hunter College post-master’s degree applied-behavior analysis certification course — one of two offered by the University.

The course is geared to educators and other professionals who work with autistic students. It is also part of a broad effort by the University, partially centered at Hunter, to address the growing incidence of autism, a potentially devastating neurobiological communication, social and behavioral disorder.

The varied autism initiatives in education and research under way at CUNY are aimed at a similar goal: to create a cadre of local educators, therapists, health and other professionals, scholars and parents who understand autism. At Hunter, much of the focus is behavioral. At Brooklyn College, a range of educational approaches is explored, and at City College, researchers are looking at the role class size plays in educating students who have autism. At Queens College, which like Hunter is home to a branch of the state-funded Regional Centers for Autism Spectrum Disorders, there is also a bilingual outreach to the immigrant community.

Increased public awareness of autism has been largely driven by the increase in the number of children who have the disorder. Fifty years ago, only about one in 10,000 children were diagnosed with autism. Autism Speaks, an advocacy and fundraising organization, believes the figure is much higher today. Citing recent data from the federal Health Resources and Services Administration the group believes it’s one child out of 91.

The increase has been especially hard on public school systems that have been unable to provide adequate teacher training and support. The newly formed autism center at Hunter, which involves the college’s five schools, was a direct response to the situation in New York City. According to the city’s education department, in June this year the system was serving 7,664 students on the autism spectrum in public and non-public schools, a figure which does not reflect children under five who have already been diagnosed.

“Our programs support the families and practitioners who work with these children, drawing upon Hunter’s strengths in teacher training, research and community outreach,” says Hunter president Jennifer J. Raab.

CUNY Distinguished Lecturer John Brown, who teaches the class Paul takes, notes that “I have tons of New York City school teachers taking classes that are not required so they can serve their students with autism more effectively.”

Officials at Autism Speaks believe the rise in the number of affected children makes autism more common than the pediatric versions of AIDS, diabetes and cancer combined. Some experts say the increase is due to better diagnosis. But many who have worked in the field of developmental disabilities for years disagree and even the CDC notes that “a true increase in the number of people with an ASD (Autism Spectrum Disorder) cannot be ruled out.” Autism Speaks states on its website that “there is no established explanation for this increase, although improved diagnosis and environmental influences are two reasons often considered.”

Still, the cause is not known, and there is no cure. Fifty years ago, many blamed cold, distant parents and so called “refrigerator mothers” were often sent to therapy while their children remained untreated or were institutionalized. Now, many researchers believe a genetic predisposition combined with environmental toxicity at a vulnerable time...
Graduate student Arlene Bradley-Lester works with an autistic child at his home.
in the development of a child may be at the root of the disorder.

INNOVATIVE APPROACHES

The post-master’s degree applied-behavior analysis course sequence that Paul takes is formally known as an “Advanced Certificate in Applied Behavior Analysis.” Taught by Brown, a seasoned and well-respected behavior analyst hired last year by Hunter College, it provides course-of-study programs at the college. Apart from these programs, students who would like to gain certification must perform 1,500 hours of fieldwork that adheres to Behavior Analyst Certification Board guidelines and take an examination conducted by the board.

Classes are offered at the Hunter campus and online. The methods advocated by the course have been praised by the American Academy of Pediatrics and the New York State Department of Health.

Although Paul is confident of her skills as a special education teacher and has learned a lot on the job, she enrolled in the Hunter course because she wanted to know more about autism. Every child is different, she says, and the disability strikes with varying levels of severity.

“I have questions about how to deal with certain situations,” Paul says. “And that course also puts words and meaning to what is taking place. It helps me to speak the language to another person who is in the same field.”

According to Brown, Paul did the right thing by moving the distraught student to another table. The technique — re-direction — often involves a split-second decision to find the right distraction, one that will enable a student to continue working. Brown says re-direction is based on general data, science and technology — and the specific data and needs that apply to the particular student. That, the professor emphasizes, can require complicated analysis and re-analysis. For example, what do you do if Plan A does not work? Behavior analysis, Brown says, is a method of determining whether the technology works for a particular student in a particular situation. “It is science, not a random bag of tricks.”

Also at Hunter, psychologist Michael Siller is researching toddlers who are at risk for autism — including younger siblings of children who already have it. He and his staff also teach parents how to encourage their children’s communication during play time. “Behaviors that raise concerns that a child might have autism typically begin between 12 and 24 months. So Siller is studying warning signs, such as lack of shared eye contact, affect and communicative gestures or the presence of repetitive play to see if some of these behaviors can be effectively targeted during early intervention.”

Children who have older siblings with autism are believed to be at higher risk due to genetic and/or environmental factors. Researchers are trying to find out whether developmental delays associated with autism can be extinguished, modified or prevented by early intervention. Siller’s playtime work with children addresses this possibility and builds on earlier research he conducted at the University of California, Los Angeles.

Siller often carries a bag with special toys to the houses of his participants, who either have autism or are at risk for it. “Most children with autism find it difficult to include their parents when playing with a toy,” Siller says, although he is careful to emphasize that many parents with typical children also need help with these skills.

Melinda Cornwell, an undergraduate student and mother of a son with autism, is among those who assist Siller as a research assistant and playtime “interventionist.” She says she tries to help young children at risk for autism discover that playing with another person can be rewarding and fun — a concept that is not always simple for children with autism to grasp.

Siller has also written a workbook for parents: Our Special Play Time: Finding Ways to Improve Play Time With My Young Child. The book illustrates concrete steps for parents to help their children connect and develop enthusiasm for toys, playmates and their relatives.

Many autistic children have sensory deficits. They feel objects too intensely or not enough or have trouble sitting still for long. Frequently, handling these issues is left to occupational therapists during individual sessions while teachers remain baffled about what to do about them in the classroom.

To address this, Hunter Assistant Professor in Early Childhood Special Education Donia Fahim teaches a master’s degree class in which sensory integration is one of the evidence-based practices taught. Teachers scan a checklist informing them of their own sensory issues such as adjusting their earrings or necklaces. The checklist, she says, helps teachers better understand their students’ behaviors.

After discussing the checklist, Fahim provides strategies for overly fidgety children. These include teaching them to recognize when they are upset and using relaxation strategies and self-management skills. Teachers need to help students learn to ask for a break when they are over-stimulated, she says. They need to teach students that “time out” is not a reward or punishment but a way to regulate their behavior.

Hunter professor Shirley Cohen co-designed and trains New York City public school teachers in the innovative “ASD Nest” program. The program, at 15 elementary schools, mixes typical and high-functioning autistic children in the classroom, which Nest advocates say benefits both groups. The students who have autism model the typical students. The typical students learn to live in a world where people have differences.

During recent visits to Nest classrooms in Manhattan and Queens, it was often difficult to distinguish the children who had autism from those who didn’t.

At P.S. 112 in East Harlem, for instance, students planned for a teleconference with NASA. An autistic student who has communication difficulties was asked what her role in this activity would be. “To communicate with NASA!” she said triumphantly.

At Hunter and Queens, the state-funded Regional Centers for Autism Spectrum Disorders have, despite relatively small budgets, creatively provided training and conferences for professionals as well as parents of autistic children. The programs are directed at Hunter by Cohen and, at Queens College by Fredda Brown. These two professors estimate they have helped to educate hundreds of classroom teachers, graduate students, parents and others working with autistic students. Fredda Brown says that during the past year, the Queens center has provided training to about 200 graduate students from multiple disciplines, 225 New York
City public school and Nassau County educators and 125 people at a second annual conference. In August, the Hunter regional center also offered a three-hour training session in autism mandated by the state for the certification of special-education administrators, supervisors and other educators.

**OTHER EFFORTS, NEAR AND FAR**

Several CUNY professors are reaching out to potentially underserved communities at home and abroad. In Flushing, Queens assistant professor of special education Peishi Wang provides training and support in Mandarin to family members of the Chinese immigrant community who are affected by autism. Fahim at Hunter, who has worked with autistic individuals in Africa and the Middle East, is now setting up training courses for teachers and parents in Nigeria, Kenya and Egypt. And Hunter psychologist Tricia Striano is working with colleagues in Sardinia to conduct a study on eye-gaze processing in autistic children. The research aims to establish more reliable diagnostic tools and new intervention strategies for first-year infants.

At Brooklyn College, as part of its “cross-paradigm” approach, speech-language pathology and special education experts collaborate and provide a certification program to students from a variety of disciplines, including social work and psychology.

A City College study shows that children who have autism need small classrooms and quiet environments in which to learn. This data may be helpful to those who say additional funding is necessary to educate autistic children.

Whether at home or abroad, autism remains a conundrum and like Paul, many teachers believe the more education they have the better.

Patricia Mahalko, who teaches higher functioning second graders at P.S. 186Q in a Nest program in Bellerose, Queens, is also earning her applied-behavior analysis certification. Recently, she signed on to the same online session as Paul and a number of other New York City public school teachers. One of her missions that evening online was to ask how to handle highly inappropriate personal questions innocently posed by one of her students.

One day in the summer, Mahalko visited the Nest students she teaches during the school year. She peeked into a classroom and held her breath when a boy was asked to pretend that he was in ancient Greece and to play a game popular with children of that time and place.

“He doesn’t like to pretend,” Mahalko said. But sometimes, with autism, breaking large tasks into smaller ones helps. Mahalko nodded as the student’s summer teacher asked him to try to pretend for just one round of the game. He did that — and then kept playing. He stayed in ancient Greece. At that, Mahalko let out a sigh of relief.
FIELD STUDY

Colorful Caribbean anemone Ricordea florida, above, photographed on a night dive off Little Cayman Island using special filters to capture fluorescence. Clockwise at right: David Gruber wearing advanced gear used for Red Sea deep dives; view of the Central Caribbean Marine Institute on Little Cayman; shallow Red Sea corals in Eilat, Israel.
DAVID GRUBER, assistant professor of biology and environmental science at Baruch College and the Graduate Center, spent last summer exploring the mysteries of deep coral reefs in the Caribbean and Red Seas. His work is part of a larger effort to protect and conserve coral reefs, which are highly endangered.

Gruber’s goal was to understand the relationship and differences between the deep corals (at least 300 feet) and shallow corals. He collected samples off the coast of Little Cayman Island where corals are found at both depths, to examine molecular and physiological differences. He is also working to extract novel fluorescent proteins from the deep corals. So far, Gruber and his colleagues have discovered 28 of the roughly 130 known fluorescent proteins, which have become one of the most useful biomedical tools — leading to breakthroughs in AIDS and cancer research.

The aim of diving in the Red Sea was to undertake a cross-comparison of the Caribbean corals and understand how corals modify their calcification and physiology under climatic change. The ultimate goal for Gruber is to determine whether the deep coral reef will serve as refugia during global warming, as it has during
Beneath the Beauty
Lie Practical Uses

From previous page

“I was amazed to see such different physiological adaptations among the deep corals,” says Gruber, who collaborated on the project with an international team of scientists. “We know almost as little about the deep coral reef as we know about the moon.”

Gruber’s work has gained national recognition. On Oct. 1, Nature magazine highlighted new findings about the evolution of fluorescent proteins by Gruber and his colleagues. He is also among 13 young post-doctoral researchers in the country named to the first class of Ewing Marion Kauffman Foundation fellows. Gruber’s discoveries, according to the foundation, could have various practical and potentially profitable biomedical and drug applications.

“The new coral fluorescent proteins we’ve discovered have some very interesting properties, unlike those already known, that may illuminate neurological processes that have been studied only indirectly,” says Gruber, who brought back with him samples of corals, hundreds of photos of the reefs and several hours of video. “It’s always exciting to find fascinating fluorescing compounds in unlikely places.”
Coral Reefs have long been under stress from global warming, disease and ocean acidification. Scientists estimate that 60 percent of the reefs are already dead or in decline.

But the reefs have a special friend from England’s royal family — Prince Edward, Earl of Wessex, who has been promoting their preservation for six years. In the spring, the prince visited the Macaulay Honors College to have some strong English tea and scones with clotted cream and to drum up publicity for the cause.

“What we’re doing to oceans today is absolutely despicable but because we can’t see it, nobody takes any notice of it,” said the prince.

“This is just one small effort to try to bring to people’s attention what’s really going on below the oceans.”

The City University of New York stepped in to help when the Central Caribbean Marine Institute, on Little Cayman Island, launched the Coral Reef Conservancy at Macaulay last summer.

David Gruber is cofounder and scientific adviser of the conservancy.

The prince has been the royal patron of the institute since 2003. And it was Gruber, who is friends with Carrie Manfrino, president of the institute, who had the idea to host an event at the college.

“I think it is fantastic that His Royal Highness Prince Edward has taken a personal interest in reef conservation,” says Gruber. “Reversing coral decline is bound to be a global and coordinated effort.”

The Coral Reef Conservancy is a worldwide initiative focused on preserving coral reefs through educating the public about their decline and by implementing solutions for reef recovery around the globe. Gruber hopes that with Prince Edward’s support the reef initiative will generate the magnitude of attention that the rainforest campaign has achieved. And he’s getting CUNY students involved. In January, he will bring students from his tropical reef ecology class to the institute, where they will gain field experience and examine the changes being reported on reefs around the world.

“By bringing CUNY students to Little Cayman Island and teaching them about the coral reef, they can soak up the latest information on the world’s second most diverse ecosystem,” says Gruber.
Huge reflective sails could divert killer asteroids, City Tech scientists say.

By Neill S. Rosenfeld

This is not science fiction: A 25 million-ton asteroid that’s 90 stories tall really is hurtling toward Earth. On Easter Sunday, April 13, 2036, it could smash into our planet somewhere between Kazakhstan and Venezuela. It’s named Apophis after the Egyptian god of darkness and the void.

If it plunged into the Pacific, Apophis would spawn tsunamis that could hammer the West Coast with 50-foot waves for an hour or more. If it hit land, it could kill tens of millions of people; NASA says it would strike with 68,000 times the force of the atom bomb that leveled Hiroshima.

By comparison, when a meteor a fifth its size exploded in the air over unpopulated Siberia in 1908, it flattened 80 million trees over 800 square miles (larger than New York’s five boroughs and Westchester County, combined). Its shock wave broke windows and knocked people off their feet hundreds of miles away.

Panic spread when Apophis was first spotted in 2004, for the chances of collision initially were put at 1 in 37. NASA’s recent calculations now peg the threat at 1 in 45,000 or less.

Heave a sigh of relief but beware of the unknown. When Apophis passes Earth in 2029 and burns as it falls toward the sun, it could calve into smaller pieces or emit a tail, which would act like a rocket and change its direction unpredictably. If Apophis or its fragments enter one of two “keyholes” in space, there could be impact when it returns seven years later.

Apophis — although a wake-up call for planetary security — is almost beside the point. Comets and asteroids have hit Earth before, and a big one most likely triggered the mass extinction that snuffed out the dinosaurs 65 million years ago. NASA predicts a 1 in 100 chance that an asteroid at least 140 meters (459 feet) in diameter will smash down within 50 years with enough force to obliterate a state or a coastline. Apophis or some other hunk of rock — the name really doesn’t matter, for the threat is equally dire. But it can be averted.

Gregory Matloff, a New York City College of Technology assistant professor of physics and a NASA consultant, favors deflecting asteroids with space-based solar sails. These are sheets of reflective metal less than a tenth the thickness of a human hair. A solar sail 50 meters (164 feet) on a side could travel alongside a large asteroid for a year, continuously focusing the sun’s rays on it, burning off part of the surface and creating a jet that could steer the asteroid away.

And, Matloff says, there’s no better asteroid to try this on than Apophis, since we know it’s coming and have ample time to prepare a mission to divert it.

Solar sails also could keep satellites in position without fuel, power missions across the solar system faster than rockets and provide limitless electricity by converting sunlight to microwaves and transmitting them to Earth.

Matloff, who has theorized about solar sails for more than 30 years, is part of a dynamic team of City Tech physicists who are developing plans to send a solar sail around the sun and back in two years and to divert an asteroid.

**A Solar Sail Timeline**

1577 Six-year-old Johannes Kepler sees the Great Comet; devises laws of planetary motion (1615-1621), reasons that sun’s action causes a comet’s tail (book Opera Omnia, 1619).

1619 Russian science writer Yakov Perelman correctly concludes that light pressure is too small to overcome gravity but does not consider using sails to increase force.

1877 Scottish physicist James Clerk Maxwell describes electromagnetic fields and radiation, postulates light pressure.

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1924 Konstantin Tsioihkovskii, father of Soviet astronautics, suggests using solar pressure to drive spacecraft.

1924-1925 His associate, Latvian Fridrichs Tsander, is first to suggest large solar sails as means of interplanetary propulsion, with detailed theoretical and technical analysis.

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1931 Rockwell Engineering’s Carl Wiley writes influential article about space travel using solar sails assembled in orbit.
refining the science behind solar sails in a steady stream of papers and conference presentations.

Together and individually, Matloff and physics professor Roman Kezerashvili have explored possible materials, thicknesses and construction techniques for solar sails.

During the summer, Kezerashvili and assistant professor Justin F. Vázquez-Poritz galvanized the International Academy of Astronautics conference in Aosta, Italy, which focused on missions to the outer solar system and beyond. They described how the Einsteinian curvature of space-time would affect the steering of solar sails.

“Everyone in the room got excited,” says Les Johnson, deputy manager of the Advanced Concepts Office at NASA’s Marshall Space Flight Center in Huntsville, Ala. “They’re the first to assess how general relativity might affect close-approach [to the sun] solar sails. With Roman’s nuclear physics background and Justin’s relativity and string theory background, they’re looking at this from the side. They’re covering things that those who have worked the field haven’t thought about and really need to.”

Meanwhile, assistant professor Lufeng Leng, a photonics and fiber optics researcher, joined Matloff in a paper that suggests using the lowest-tech optical device — a lensless pinhole camera — to monitor the health of solar sails after they’re deployed. Now, firing

**1958** Richard Garwin, Defense Department consultant at IBM’s Watson laboratory, publishes first technical paper in western scientific journal, Jet Propulsion; coins phrase “solar sailing.”

**1958** Ted Cotter of Los Alamos National Laboratory proposes spinning the sail for stability without a structure.

**1958** NASA launches Echo 1 (left, with design team), first U.S. passive communications satellite (aluminum-coated Mylar plastic balloon; microwaves bounce off it); first time NASA includes solar pressure in calculating trajectory. Solar pressure moves “sateloon” but doesn’t collapse it.

**1960** In Project Needles, U.S. places 500 million hair-like copper wires in orbit to see whether they’d work as passive communications relay satellite; MIT sends messages coast to coast. Needles burn up harmlessly in atmosphere, verifying prediction that sunlight pressure would lower their orbit.

**1964** Arthur C. Clarke publishes influential science fiction story, “The Wind from the Sun,” describing a competition by solar sailing craft in a race to moon.

**1967** Astro Research Corp. engineer Richard MacNeal suggests a “heligyro” — long, thin blades rotating around a central core, like a helicopter; first proposes two blades 5,700 meters long, 1.5 meters wide, 6 microns thick (3.5 miles by 4.9 feet by .0002 inches); later suggests 30-kilometer (18.6-mile-long) blades.

Continued on Next Page
up the lasers in her lab, Leng measures the optical properties of meteorite samples, seeking a better understanding of how light interacts with regolith (the loose rocky, icy or dusty surface covering of celestial bodies). This is a first step toward building a more accurate model of how a solar collector could deflect an Earth-threatening asteroid or comet.

This is impressive work for just four members of a 14-person physics department, not to mention a department that is only three years old and from an institution that awards more associate degrees than bachelor’s degrees.

“Everyone thinks that City Tech is a teaching institution, not a research institution,” says Kezerashvili, the physics department chair. “But as I see it, we’re a physics department with excellence in teaching and in research. Our faculty publishes in the most respected journals.”

Unlike conventional chemical rockets that roar into space on pillars of fire and smoke and burn an ever-dwindling supply of fuel with each course correction, solar sails require no propellant once unfurled in space. That gives them greater range than any existing rocket without in-flight refueling, which has never been attempted. Solar sails function like boat sails, but instead of wind, they’re driven by photons from the sun. A photon is a unit of light, a particle that lacks mass but packs electromagnetic energy and momentum. When photons hit the sail, they bounce off, transferring their momentum and pushing it. If sails directly face the sun, ceaseless photon bombardment would continuously accelerate them, speeding them across the solar system and beyond. If sails are angled, they will spiral toward or away from the sun, allowing them to be steered, just as a boat tacks by shifting its sails in relation to the wind.

“Solar sails are the only way we can take the first steps into interstellar space,” says NASA’s Johnson, who formerly managed interstellar propulsion for the agency and has co-authored two books with Matloff. They also hold a 2003 patent that marries a photon-driven propulsion for the agency and has co-authored two books with Mattolff. They also hold a 2003 patent that marries a photon-driven propulsion to steer the spacecraft and draws power from a planet’s magnetic field, which can be used to perform orbital maneuvers.

“We looked at fusion, fission, electric propulsion and more, and what we could build in the near term,” Joshson says. “The only two options are solar sails and nuclear fission, and fission is too expensive and complex. Solar sails would be. You could go further and further out with sails before you hit a technical barrier. They wouldn’t get you to a star any time soon — say in a thousand years — but they’d get you there.”

But what happens to an exquisitely thin sheet of metal as it flies through space, ceaselessly scorched by the sun and cosmic radiation? That’s where Kezerashvili, a theoretical physicist, comes in.

While talking with Matloff, Kezerashvili says he realized that “solar radiation not only pushes solar sails, it also destroys the materials from which they’re built.” He scribbled equations on the blackboard. Matloff said no one else had thought about this, and that led to a series of papers in the Journal of the British Interplanetary Society and other journals.

They considered what would happen on a microscopic level to a twin-walled, hydrogen-inflated solar sail made of the metallic element beryllium, with walls 10 to 20 nanometers thick (one nanometer is 3 to 10 atoms wide). Beryllium, while toxic to mine and handle, became their favored material, for it is three times lighter than aluminum and has a high melting point. They investigated how harsh solar radiation could degrade beryllium, affect the sail’s structural integrity and allow hydrogen to escape, which would deflate the sail.

For materials science, all of this is very well known, but from a cosmic point of view, it was something new,” Kezerashvili says.

Their other papers looked at topics including sail thickness, the performance of a single-layer sail, the relative merits of different metallic films, and whether it’s wise to mitigate the electrostatic pressure that ultraviolet radiation causes when it ionizes the sails, creating a positive charge. (An ionized sail will deflect protons hurled by the solar wind, which transfer their momentum and increase the sail’s speed, but too much electrostatic pressure can rupture a hollow-body sail. The trick is finding the right balance of thickness, material and amount of inflation gas.)

Vázquez-Poritz, versed in string theory, brought a different perspective to what he calls “the theoretical playground.” (An amalgam of quantum mechanics and general relativity, string theory is the leading candidate for a “theory of everything” that would describe all matter and the interactions of the four fundamental forces: gravitational, electromagnetic, weak and strong.)

Newton said that gravity is the force between two masses, like two molecules or the sun and Earth. Einstein said that objects move in curved trajectories and accelerate not because there’s gravitational force but because they follow the curvature of spacetime (for as he conceived it, space and time are not different, but a single geometric manifold, and traversing it is like a marble rolling across the curves of a rumpled sheet).

“Newtonian gravity was enough to get man to the moon, but the closer you get to the sun, the stronger the curvature of spacetime and the less you can ignore Einstein,” Vazquez-Poritz says.

Suppose you want to unfurl a solar sail where it will get the fastest start for a trip across the solar system. Since the force of photons diminishes the farther you get from the sun, just as your perception of a flame’s heat lessens the farther away you pull your hand, you’d want to open the solar sail extremely close to the sun — say

**A Solar Sail Timeline continued**

Continued from Previous Page

1974-75 NASA turns Mariner 10’s solar panels (above) like sails to turn craft while maintaining trajectory, allowing more visits to Mercury than on-board liquid fuel system would allow.

1975 Battelle Memorial Institute engineer Jerome Wright proposes sending solar-sail craft to rendezvous with Comet Halley in 1986.

1977-78 Louis Friedman leads NASA Jet Propulsion Laboratory team to design Halley mission, a helicopter with a 7.5-kilometer-long blades (4.7 miles long). Later saying it can’t be build for 1981 launch, NASA ends solar sail research for 20+ years.

1986 U.S. issues patent for solar sail design using a thin metal film to Kim Eric Dreuder, who begins patent application with discussion of Wiley, Clarke, MacNeal, JPL program. He earlier pioneered the concept of transporting mined materials from asteroids toward Earth and wrote an early popular book on nanotechnology (Engines of Creation, 1986, revised 2007).

1993 Russians deploy first solar sail in space. Leaving Mir space station, Progress resupply vehicle releases Znamya, a spinning, 20-meter (66-foot) mirror, its boom unrolls into a tubular mast; electric motor draws aluminum Mylar sail up the mast.

2001 NASA hires contractors to build two prototypes of 400-square-meter solar sails (2002). Each has four triangular sails, 20 meters (66 feet) on outside, supported by booms. They automatically unfold from suitcase-sized box.

2004 Japan Aerospace Exploration Agency (JAXA) achieves first deployment of thin-film solar sails, testing two designs and deployment techniques in...
at .05 astronomical units (or AU, where one AU is the distance from the sun to the Earth; the first planet, Mercury, orbits at .39 AU).

Why is getting a fast start so important? Consider this: NASA launched Voyager 2 in 1977 to study the heliosphere (the area covered by our sun’s solar wind, which starts at 1 million mph), the termination shock (where the solar wind slows below the speed of sound, which is 1 mile in 5 seconds) and the heliosheath (where pressure from the interstellar medium causes the solar wind to form a cometlike tail). It took 30 years for Voyager to reach the heliosheath, some 80 to 100 AU away, and it will take at least as long to reach the 200 AU heliopause (where the solar wind stops).

But, Kezerashvili and Matloff calculated, a solar sail deployed at .05 AU could speed to the heliopause in just 2½ years. In 30 years, it could explore a vast swath of the Oort Cloud — a reservoir of long-period comets and other space debris — that stretches from 1,000 to 50,000 AU away or farther.

“You ask me why do I want to come so close to the sun with a solar sail?” says Kezerashvili. “I want to know what happens beyond the solar system, and if I launch something, I should know the result during my lifetime.”

He and Vázquez-Poritz considered Kepler’s third law, a mathematical formula conceived in the early 1600s that describes the relationship between the longer orbital periods of planets far from the sun and the shorter orbital periods of planets close to the sun. In two papers, they argue that deviations from Kepler’s law occur when the curvature of spacetime and solar radiation pressure act simultaneously on a solar sail-propelled satellite. In short, if you open the sail close to the sun and don’t account for Einstein, you might miss your target by more than 1 million miles.

“This could be an ideal way to test the effects of general relativity,” Vázquez-Poritz says. “With a solar sail, we could measure effects that otherwise would be too small to measure.”

He adds that solar sailing could thus become the second technological application of general relativity. The first is the Global Positioning System, which calculates your position by detecting minute differences in timing between signals from different orbiting satellites.

Soon after Kezerashvili and Vázquez-Poritz presented their papers at the International Academy of Astronautics in Italy this summer, Matloff presented one on a different topic that he co-authored with undergraduate Monika Wilga. Call it celestial hitchhiking.

Before humans can travel far from the protection of the Earth’s magnetic field, they have to figure out how to shield themselves from potentially lethal cosmic rays. This high-energy, high-mass radiation is a major obstacle to a two- to three-year mission to Mars. Shielding needs to be heavy and launching it from Earth would be expensive — at $10,000 a pound, you’re talking about $50 to $60

6 Ways to Protect the Earth

An asteroid is bound to be on a collision course with Earth sooner or later. It’s happened before — witness the extinction of the dinosaurs and 75 percent of all species after what is believed to be a 6-mile-wide asteroid struck 65 million years ago, gouging the Yucatán Peninsula’s 190-mile-diameter Chicxulub Basin. Scientists worldwide suggest several ways of diverting the next known big one, 900-foot-diameter Apophis.

**Solar Sails**

One large sail, 50 to 100 meters (164 to 328 feet) across, directs sunlight onto a separate, smaller, thruster sail, which concentrates light on the asteroid’s surface. The resulting heat vaporizes the rock, ejecting material and creating a jet. That imparts momentum and pushes the asteroid away.

**Pros:** Comparatively simple technology. Only method to steer Apophis into safe Earth orbit for mining.

**Cons:** Solar sails this size have never been built, launched and unfolded in space. The sail must remain on station for a year to produce the required deflection.

**Kinetic Energy Impactor**

Like a battering ram, a 1-ton craft slams into Apophis at 5,000 mph or faster, changing its direction three years before it nears Earth. A velocity change of only .0001 mph suffices for deflection.

**Pros:** Proven technology. NASA’s 370-kg (814-pound) Deep Impact probe hit Comet Tempel 1 on July 4, 2005, gouging a crater bigger than a house and 14 stories deep to study ejected ice and dust.

**Cons:** Could cleave Apophis into smaller pieces with unknown trajectories. An off-center hit could impart spin, rather than changing direction.

**Nuclear Interceptor**

Detonating a nuclear bomb above the surface propels Apophis elsewhere.

**Pros:** Within current technology.

**Cons:** International law bars nuclear weapons in space. Apophis becomes radioactive.

**Nuclear Mining**

As in 1998 movie “Armageddon,” drillers burrow a nuclear bomb deep inside Apophis. The explosion pulverizes the asteroid.

**Pros:** Eliminates threat of a single huge impact on Earth.

**Cons:** Creates radioactive fragments of unpredictable size and trajectories. Drilling in space exceeds current technology.

**Surface Thruster**

A nuclear- or solar-powered ion-drive rocket engine lands on the asteroid, providing thrust that accelerates Apophis to the minimum .0001 mph for deflection.

**Pros:** NASA has proved ion-drive technology.

**Cons:** Rocket must be soft-landed, but asteroid’s surface composition is not known. Because Apophis rotates, rocket needs a sophisticated control system to apply thrust in only one direction.

**Gravity Tractor**

Gravity from a spacecraft hovering near Apophis, plus the craft’s thrust, tows Apophis away. Ex-astronaut Rusty Schweickart argues for this idea.

**Pros:** Avoids the rotation problems of a surface thruster.

**Cons:** The tractor needs to hover near the asteroid for a sustained period, remaining stable in an unstable environment and requiring much fuel.
billion in launch costs,” Matloff says.

But, he wondered, why not hitch a ride on a passing asteroid, much as a hermit crab climbs into an empty seashell?

Wilga, his Astronomy 1 and 2 student two years ago, is now heading into a physics major at Queens College and aims for a master’s in astrophysics. She searched the Web for near-Earth objects (NEOs, meaning asteroids and comets) with certain characteristics, including crossing the orbits of Earth and Mars and being in our neighborhood between 2020 and 2100. A few fit the bill.

“There’s a trade-off, of course,” Matloff says. “A ship must perform more powered maneuvers to rendezvous with the NEO. Also, total flight times for NEO-shielded missions may be a bit longer than for unshielded planetary transfers.”

The symposium committee selected all of the CityTech papers for submission to IAA’s journal, Acta Astronautica.

This hitchhiking notion flows naturally out of Matloff’s work on deflecting threatening asteroids. He favors a two-sail system. Over the course of a year or more, a large parabolic collector sail would reflect sunlight onto a smaller, maneuverable thruster sail that would concentrate an intensely hot beam of light on a point on the asteroid’s surface. Just as a child might use a magnifying glass to focus sunlight to set a dried leaf on fire, the thruster would vaporize rock, creating a controllable jet whose velocity would enable scientists to steer the asteroid safely away.

Leng is now in City Tech’s photonics lab, conducting experiments aimed at building a mathematical model of how that idea would work. Her research — still at what she calls “a very preliminary stage” — starts with meteorite samples borrowed from the American Museum of Natural History, where Matloff also is a Hayden associate in astrophysics.

Working with undergraduate math major Thinh Le, she directs differently colored laser beams at the samples. Since these 30-micron (.00117-inch) thin meteorite sections are embedded in epoxy glass, she has to account for how much energy the glass reflects and absorbs. “Basically, we measure the light intensity before it hits the sample and measure it again after to get the transmission coefficient,” or the amount hitting the meteorite. “Working with meteorites of different thicknesses, ‘we can get a bunch of curves and begin to build up a model.’”

A crucial question is how far the light penetrates below the surface, for a beam that penetrates too deeply will simply heat the asteroid, while a beam that penetrates just the right amount — perhaps a thousandth of a millimeter — would produce a steerable jet. It all depends on better understanding the penetration depth of electromagnetic radiation (like light) in NEO regolith.

Leng says that if she hadn’t joined the CityTech physics department, she might never have ventured into space research. “My past projects are all photonics, fiber optics and communication, so this is very exciting for me and my students. When they hear the word ‘space,’ wow! It’s amazing. They are fascinated by the idea.”

Scientists propose several ways to deflect Earth-bound asteroids and so far NASA has not settled on a preferred method, according to Robert B. Adams, who headed the team at the agency’s Advanced Concepts office that studied asteroid-deflection methods in 2007. Matloff was their solar sail expert.

“The solar collector is definitely on the table,” says Adams. So are ideas including a nuclear explosion away from the asteroid, a kinetic impactor that would ram into it and a gravity tractor, which would hover near the asteroid and use the gravity that naturally occurs between them to pull the asteroid slowly off its course.

“The solar sail hasn’t received as much attention, but it’s a good application with NEOs because it gives you more control over which way your thrust is generated,” Adams says.

He added that it’s probably wise to have a number of options available, because, under a 1988 congressional mandate, NASA is cataloging a dizzying number of asteroids and comets that are approaching Earth. Roughly 1,000 are wider than 1 kilometer (.6 mile); an estimated 21,000 are wider than 140 meters (459 feet), big enough to wipe out a coastline.

“We see a lot of asteroids after they’ve flown by,” Adams says. “If they’re coming from the inner solar system out, they’re difficult to spot because they’re coming from the sun. It’s unnerving to see one fly by close to us, and we didn’t know it existed.”

For example, there was only a 21-hour warning before an SUV-size asteroid called 2008TC3 exploded in a 1-kiloton (1,000-ton) fireball high over Sudan’s Nubian Desert on Oct. 7, 2008. Within an hour of discovery by astronomer Richard Kowalski at the NASA-sponsored Catalina Sky Survey, NASA’s Jet Propulsion Laboratory had predicted the time and location of that “small impact event,” one of several that occur each year.

NASA notified agencies ranging from the National Security Council to the Department of State, which alerted Sudan. By the time the asteroid entered the Earth’s shadow 19 hours after

**Definitions:**

- **Astronomical Unit (AU),** distance from Sun to Earth, 93 million miles.
- **Termination shock,** where solar wind becomes subsonic, 75-90 AU.
- **Heliosheath,** where interstellar pressure blows solar wind into comet-like tail, 80 to 100 AU.
- **Heliosphere,** where “bubble” of solar wind is too weak to repel interstellar medium; 100-200 AU.
- **Bow shock,** turbulent area where supersonic interstellar material hits heliosphere, perhaps 230 AU.
- **Oort Cloud,** reservoir of long-period comets 1,000-50,000 AU; its outer edge defines our Solar System’s gravitational boundary.
- **Alpha Centauri,** primary star in three-star system closest to Earth. Voyagers not headed here, but would take them 40,000 years to reach Alpha Centauri.
discovery, 26 observatories worldwide had reported 570 positional measurements. It was the first test of NASA's NEO Program and planetwide cooperation in this area — and it was sheer luck that this asteroid didn’t target a populated area, for there would have been scant time to evacuate.

Space resources may prove invaluable in combating climate change and restoring Earth’s ecolonical balance, according to a forthcoming book by Johnson and Matloff, Paradise Regained: The Re-greening of Earth, which is illustrated by C Bangs.

One much-discussed idea is using kilometers-wide solar sails to collect solar radiation and beam it down to Earth in the form of microwaves. Another idea is positioning a huge sail — or trillions of two-foot-diameter sails — to cast a shadow on Earth, uniformly reducing sunlight across the planet by a fraction in order to negate the heat gain caused by greenhouse gases.

But for the moment, dreams of solar sailing remain just that.

The first serious effort to mount a solar sail mission arose in the 1970s, after Battelle Memorial Institute scientist Jerome Wright came up with what would have been a headline-grabber.

Knowing that Comet Halley — arguably history’s most famous comet — would be streaking past Earth in 1986, Wright calculated a flight path for a solar sail-powered scientific mission. If launched in 1981, the craft could conduct a prolonged, fly-along study of the comet, he wrote. (The comet achieved rock-star status when it appeared in 1759, right on the schedule that English astronomer Edmund Halley had predicted in 1705. Through a close reading of history, Halley identified it as the first known periodic comet, meaning it flies by Earth regularly, in this case about every 75 years.)

Bruce Murray, then JPL’s director, ordered an engineering study and pitched the idea to NASA management. In late 1976, the agency green-lighted design work. Murray turned to Louis Friedman to run the lab’s Halley Comet Rendezvous-Solar Sail Project; four years later, they would join with astronomer Carl Sagan to form the nonprofit Planetary Society, which promotes space exploration.

Friedman, now the society’s executive director, recalls that his team first considered a one piece, 800-by-800-meter (about a half-foot-diameter) sail. It would have been a headline-grabber. But for the moment, dreams of solar sailing remain just that.

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Spotlight has been on manned missions. His U.S. Human Space solar sails and many other science projects.

Concentrate on sending astronauts to Mars, the agency eliminated ground. When President George W. Bush directed NASA to in the world’s largest space simulator, but never made it off the suitcase-sized box during launch. The two prototypes were tested in this century, when it commissioned contractors to build two spacecraft did fly by the comet.

If the agency had stuck with the heliogyro, it never would have made the rendezvous because deployment required an operational space shuttle — and that program was way behind schedule. Although Enterprise, the prototype shuttle, rolled out in 1979 and proved that the stubby-winged craft could glide and land, Columbia, the first operational vehicle to lift into space, didn’t fly until 1981 — and Halley wasn’t on its task list.

That pretty much ended NASA’s interest in solar sails until early in this century, when it commissioned contractors to build two differing prototypes of 400-square-meter sails that would fit into a suitcase-sized box during launch. The two prototypes were tested in the world’s largest space simulator, but never made it off the ground. When President George W. Bush directed NASA to concentrate on sending astronauts to Mars, the agency eliminated solar sails and many other science projects.

President Barack Obama is reviewing the agency’s goals and the spotlight has been on manned missions. His U.S. Human Space Flight Plans Committee recently recommended that Mars should be the ultimate, but not the first, destination. Rather, the United States, with international and commercial partners, should either return to the moon or take a “flexible path” to points in the inner solar system.

Whether solar sails will become a priority is not known, but NASA is considering another test. In 2008, the agency cannibalized earlier large prototypes to build two versions of NanoSail-D (D for demonstration), a 100-square-foot sail weighing under 4 kilograms (8.8 pounds). It hired the SpaceX firm to launch it, but the vehicle failed to reach orbit. Now it’s contemplating a 2010 launch for its twin. Although NanoSail-D would deploy in space, the intent was not to work as a true solar sail, rather, it would test using the sail as an atmospheric drag break to slow down a satellite as it re-enters the atmosphere after a mission.

Others are pursuing solar sail technology more aggressively. The Japan Aerospace Exploration Agency, whose adventurous projects get scant attention in the U.S. media, became the first to deploy thin-film solar sails in a 2004 suborbital flight. A second test followed two years later.

Meanwhile, in 2005 The Planetary Society used $3.5 million in private funds ($2 million from Cosmos Studios and the rest from space enthusiasts) to contract with Russia’s Space Research Institute to build and launch Cosmos 1. It was designed to be the first solar sail to be deployed from Earth’s surface. The New York Times Magazine called it one of the most innovative ideas of the year.

Cosmos 1 had eight triangular blades, each 50 feet long, arranged like an umbrella, but each blade could pivot independently. The intent was modest: By proving that the pressure of photons would raise its orbit, it would clear the path for substantial missions. However, the military Volna rocket, launched from a Russian submarine in the Barents Sea, malfunctioned, and Cosmos 1 was lost.

“We won’t do Cosmos 1 again,” Friedman says. “But motivated by NanoSail-D, we’ve become enamored of a smaller and lower-cost craft. We’re studying the possibilities and will raise private money to do that. This is the way to the stars.”

What’s in a Name?

I t began as 2004 MN4, a speck of light caught against the black of space by David Tholen of the University of Hawaii’s Institute for Astronomy, Roy Tucker of the University of Arizona’s Imaging Technology Laboratory and Fabrizio Bernardi, Tholen’s postdoctoral student. Working under a NASA grant, they were seeking near-Earth asteroids that usually are hidden by the sun’s glare.

Once they calculated its orbit, the International Astronomical Union gave this chunk of rock — tall as a 90-story building — a permanent number, 99942. The discoverers suggested a name to the IAU, one following the tradition of using Egyptian gods to name asteroids whose path is less than the distance from Earth to the Sun; but their suggestion cleverly recognized that in 2029 Earth’s gravity would alter 99942’s orbit to one greater than the distance from Earth to the Sun, which calls for a Greek god’s name.

“When we ran across a reference that said Apophis is the Greek name for the Egyptian god Apep, we thought we had both bases covered,” Tholen e-mailed.

Apep, an evil serpent, dwells in darkness and vainly tries to swallow Ra, the sun god, during his journey across the nighttime sky.

And how had they heard of Apophis?

“Mythology isn’t exactly a big interest of mine, so when it came time to pick the name of an Egyptian god for 2004 MN4, I started investigating names that I already knew based on those that I had heard while watching Stargate SG-1,” Tholen wrote. In that TV series, Apophis is a recurring villain bent on destroying the Earth. “Apophis just fit so well.”

Tholen told this story of discovering the asteroid: He and Bernardi were committed to using the 8.2-meter (27-foot) Subaru telescope atop Hawaii’s Mauna Kea volcano and, the next night, the 2.3-meter (7.6-foot) Bok telescope at Kitt Peak, Ariz. Since Kitt Peak requires an astronomer to train on the scope the night before using it, Tholen recruited Tucker, a former roommate.

In Arizona, the team’s top priority was trying to locate a near-Earth asteroid that they had noticed in Hawaii. They programmed the telescope to follow its suspected path, but it was lost in a star’s light. However, they did spot another asteroid — Apophis — on their two successive nights in Arizona. Tholen added that he and Bernardi had missed Apophis in Hawaii by a mere 120 arc seconds. (One arc second is 1/1,296,000th the diameter of a circle.) “It was just outside the field of discovery,” he wrote.

Luckily for the future of the Earth, they spotted it — on June 18, 2004, Arizona time (June 19 GMT).
A CHAMPION OF CLASSICAL and contemporary music, pianist Ursula Oppens has a lot to brag about. Twice nominated for a Grammy, she has also appeared as a soloist with major orchestras in the United States and abroad.

When Oppens, a distinguished professor in the Conservatory of Music at Brooklyn College, is not on stage, she directs conTEMPO, a new music group at the college. She also teaches at the CUNY Graduate Center. Oppens recently talked to Salute to Scholars about her busy life.

YOU WERE ONLY 25 WHEN YOU HAD YOUR DEBUT AT CARNEGIE HALL. DO YOU STILL CONSIDER THAT ONE OF YOUR GREATER EXPERIENCES?
Absolutely. It was one of the most astonishing experiences of my life. Especially since I was a New Yorker, so there were lots of people that I knew there.

IS THERE AN INTERESTING ADVENTURE YOU WOULD LIKE TO SHARE?
I was playing in Venice. It was in part of the Biennale. I wanted to play a very difficult piece by Elliott Carter called “Night Fantasies” by memory, I wanted to test myself. About two minutes into the piece, a men’s chorus started rehearsing Borodin in a room nearby. And I was so scared that if I stopped I would never be able to do it again. I just kept going. That was probably silly of me. I should’ve stopped.

WHY DID YOU TURN TO TEACHING?
It’s partially becoming older and really wanting to give something to younger people. I find it really exciting to have younger people find their own footing in the musical world.

WHAT IS YOUR SCHEDULE LIKE NOW?
I play about 30 to 35 concerts a year. My energies are divided almost equally, but I consider performing and teaching indivisible.

YOU PERFORM CONTEMPORARY AND CLASSICAL MUSIC IN THE SAME PROGRAM. WHY?
Because all music has history. One might say that I play older music in a program with new music to show part of this history, and I play new music when I am playing older music to remind the audience that the old music was once also brand-new. Also, I think the variety is pleasant.

BUT DO YOU SEE AN ADVANTAGE IN PLAYING THE WORK OF COMPOSERS WHO ARE STILL ALIVE?
Yes! When I play a piece, let’s say of Beethoven, I do have the score, but I know that I am also deciding it in the context of my time. So I’m not even trying to do a historically authentic performance. There’s nothing like being able to ask a composer, “What did you have in mind here?” Also, as a teacher, when I work with a composer and my student is working on the same piece by that composer, I will have, to the best of my abilities, firsthand knowledge about it. It’s a real privilege for one to take advantage of one’s own time.

DO YOU LISTEN TO MUSIC FOR FUN?
I won’t just listen casually. Not that my ears are tired, but listening passively isn’t something I usually do. I either listen if I’m curious to hear something, or I just don’t listen.

WHAT HAS SURPRISED YOU MOST ABOUT THE STUDENTS AT BROOKLYN COLLEGE?
A number of them have done other things while attending school. They are active, working musicians. I’m not sure I was expecting them to be quite as fantastic as they are.

WHAT MESSAGE WOULD YOU GIVE TO ASPIRING CONCERT PIANISTS?
The main thing for every young performer to realize is that it is a very varied profession and there’s no single model of what a career should look like, and they should just be alert to the chances of music as they develop around them.

HAS MODERN TECHNOLOGY MADE IT EASIER FOR CONCERT PIANISTS TO GET THEMSELVES OUT THERE?
Distribution of recording allows you to distribute from computer to computer without needing a store to stock your record label. But the basics of recording are just as difficult as they ever were. You need a good hall and a beautiful piano. That’s not changed by technology.
Hostos Community College has a new president: Félix V. Matos Rodríguez, former secretary of the Department of the Family for the Commonwealth of Puerto Rico. But Matos Rodríguez, a graduate of Yale and Columbia universities, is no stranger to the University. He was the director of the Center for Puerto Rican Studies, a nationally recognized research center at Hunter College, from 2000 to 2005 and is on leave from his tenured position there as associate professor of black and Puerto Rican/Latino studies.

At Hostos, Matos Rodríguez is shepherding a diverse population of 6,000 students: 75 percent are women, and 97.6 percent are minorities. Students represent 112 countries, and speak 75 languages.

What do you like about Hostos, and what would you change?

I like the mission of the college to help students from groups that have been traditionally left out of the opportunity of entering higher education. For changes, I’d love to be able to create something of a larger campus experience; we can use a lot more green space.

What is your vision for Hostos?

We have been known for our allied health programs such as nursing and dental hygiene, and I want to continue to expand on that — to have niches at Hostos traditionally associated with the instruction of students whose first language is not English.

The community colleges are getting a big boost from the Obama administration. What role do you see Hostos playing in that?

The first task is to lobby and educate the public about how important community colleges are for our economic recovery. I want to make sure that we create the partnerships with state, local officials, community groups and the unions. I want a real diverse offering of continuing education, workforce retraining and development programs.

In a letter to the college community, you said you’d like to know what students are concerned about. What did you find out so far?

There are little things that can make a dramatic difference in terms of how welcomed students feel. For example, some said that they do most of their copying and printing in the library, which opens at 9 a.m. So the students who have 8 a.m. classes weren’t able to make copies before class. But you can also print at the computer center, so we got them to open earlier and have copying services. So we’ve been trying to listen to them and do what they need.

What are the challenges of a mainly minority institution?

In the case of the South Bronx, minority demographics comes along with higher levels of poverty, higher levels of financial and social issues. Our students are the poorest students within the CUNY system, we have the highest number of female heads of households attending our institution, which is an additional challenge…. You need to make sure that internally and externally all the support that students need is here.
have in their own language, they become stronger students, and they learn faster and better. If you look at our data and you look at students that come from foreign high schools, they have very high graduation rates. But the other side is that we’re in a global economy, we’re in a global city. They are going to be more competitive on an economic perspective. For me, that’s a debate that shouldn’t be a debate because I don’t think that anyone, other than folks who have political agendas, is using language as a code word for other issues like immigration.

You’ve spent the last couple of years living in Puerto Rico. Winter is coming up. Aren’t you going to miss the warm climate?

Even though I spent most of my professional life between New York and Boston, the cold weather is one thing that I have never enjoyed.

President Félix V. Matos Rodríguez, above, has been listening to students’ concerns and trying to provide what they need.
A WEEK AFTER LAST YEAR'S catastrophic earthquake struck China's Sichuan Province, two CUNY professors arrived with a film crew to shoot an HBO documentary about the government's response to the disaster.

But their focus shifted when they found themselves unwelcome in what looked like a war zone. About 87,000 people, thousands of them children, died when they were buried beneath collapsed schools. And there was no apparent government rescue effort in place.

"The Chinese government tried to use the Sichuan earthquake as an opportunity to polish its image and to present to the global community a government that was very responsive and passionate," says College of Staten Island political science professor Ming Xia, a Sichuan native who served as translator. "We found a different theme; it was about a corrupt, irresponsible, also unaccountable, government."

Xia traveled to China with Peter Kwong, professor of Asian American studies, urban affairs and planning at Hunter College and of sociology at the CUNY Graduate Center, where Xia teaches international political economy.

On the second day, the crew — led by award-winning producers/directors Jon Alpert and Matthew O'Neill, with whom Kwong has worked on other films — stumbled onto a protest by parents who'd lost their children in school rubble and were marching on the provincial capital to demand answers about the buildings' shoddy construction. Because of China's one child policy, the majority of parents had lost their only child.

Xia, who speaks a local dialect but like Kwong has no family in the area, persuaded the grief-stricken parents to share their stories. Many described how their children, buried under debris, called from their cell phones crying for help. The rescue teams never came, so the parents dug for their children's bodies with bare hands.

"I really felt heartbroken," says Xia. "I often had tears when I was translating the film and screening it."

The parents' stories became the focus of the 38-minute HBO documentary, "China's Unnatural Disaster: The Tears of Sichuan Province" premiered in the United States on May 7th, four days before the first anniversary of the disaster, and is available on DVD.

Xia and Kwong are among the co-producers.

Alpert and O'Neill were denied visas to show the documentary at a film festival in China, but Xia says it was a big hit there even though the government didn't allow it to circulate; people uploaded it online and shared it.

Xia is proud of his work, although he's afraid to go back to China, where he's a faculty member at two universities. His crew members were detained and interrogated for several hours during their nine days there, and he's certain that he's on the regime's radar.

"Our presence was a threat to the Chinese government; this is why they tried to throw us out," he says.

It's not the first time Xia has defied the Chinese regime. At 16, he left Sichuan to study at Shanghai University and then became an assistant professor in the Department of International Politics at Fudan University in Shanghai. He taught courses on western political systems at a time when a democracy movement in China was on the rise.

In 1989, his students took part in pro-democracy demonstrations, and Xia was forced to choose between them and the Com-
to which professors were required to belong. His explicit support for his students and his disloyalty to the regime doomed his career. “I was accused as one of the ‘black hands’ in Chinese propaganda to manipulate and organize students,” he says.

Xia refused to “confess” his crimes to regain party membership. Instead he took the advice of a U.S. professor he met in Shanghai and left his country to start a new life in America. He arrived at Temple University in 1991 to pursue his Ph.D. in political science and in 1997 joined the faculty at CSI.

“As I stepped on the soil of the U.S., I told myself that I would not turn back,” says Xia. “I believe that the U.S. is the best country in the world, and it’s my home. I have never regretted my decision to leave China for America. I have never regretted my refusal to make self-criticism. I believe that I sided with the right direction of history. I have confidence that I will see China become democratic in my lifetime.”

He wants his students to pay close attention to world affairs and to be able to interpret political events. “I want them to be international: to have a cosmopolitan attitude toward learning and life,” says Xia, who is the author of several books on China and is working on one about the Sichuan earthquake as well as a trilogy about China’s criminal underworld.

Professor Ming Xia shows a class the documentary he helped produce about China's devastating 2008 earthquake.
ELINA SOTOMAYOR always believed that education would launch her two children from their home in an East Bronx housing project to a bright future.

“I always wanted them to do their best,” she says of daughter Sonia, the first Hispanic and third woman to serve on the U.S. Supreme Court, and son Juan, a medical doctor with a private practice. “But I never envisioned them becoming what they are.”

The importance of schooling wasn’t just talk in the Sotomayor household. At age 44, Sanchez, a widow who had to support her children alone, enrolled at Hostos Community College in the Bronx to become a registered nurse.

“I dreamed of being an RN,” she says, adding that she was also looking for a profession that would increase her paycheck. “It was a rough two years for us. I was always running around and trying to keep up with younger people at the college.”

Juan Sotomayor, a 1979 graduate of The Sophie Davis School of Biomedical Education at City College, remembers his mother’s calm, steady manner.

“We were good kids, and my mom wasn’t strict,” he says, “She was the railroad track, my sister was the engine. Mom set the rules of the house, and I followed my sister.”

We studied when we came home, it was natural and we enjoyed it. There was never any negative energy about it because Mom used to say, ‘Just do the best you can.’”

He remembers studying for hours at the kitchen table with his sister and mother in the evenings and on weekends.

“My sister’s strength was English, and mine was math,” he says. “We helped her get organized because it was a big shock for her to go back to school. But she did very well.”

Sonia Sotomayor also recalled those long evenings hitting the books when she honored her mother during a 1998 appeals court ceremony, according to The New York Times. “My mom was like no student I knew,” she said. “She got home from school or work and literally immersed herself in her studies, working until midnight or beyond, only to get up again before all of us [the next day].”

Celina Sotomayor, now 82, had faced hardship before. She was born Celina Baez, in Lajas, Puerto Rico, in 1927. Her family was so poor that her four siblings had to share one pencil.

Long plagued with health problems, her mother died when she was 9. Soon after, her father left the family and an older sister stepped in to raise the children.

Celina Sotomayor left Puerto Rico at 17 to enlist in the Women’s Army Corps, settling in Georgia. Although she didn’t speak English very well, the corps trained her as a telephone operator.

After leaving the corps, she married Juan Luis Sotomayor, a tool-and-die worker who supported the family while she earned a high school equivalency diploma at James Monroe High School. She then got a job as a telephone operator at Prospect Hospital in the South Bronx.

When her husband died of a heart attack at 42, Celina Sotomayor suddenly became the head of the family and its only breadwinner. Still, according to her son, she saved every spare penny to pay for a Catholic school education for her children and to buy a set of Encyclopaedia Britannica — the only set in their housing project.

“I can remember the enormous financial burden that purchase placed on my mother,” recalled Sonia Sotomayor in 1998.

Sonia Sotomayor went on to graduate from Princeton and Yale Law School. After attending City College, Juan Sotomayor earned his medical degree from New York University. He completed his pediatric subspecialty training at the Upstate Medical Center in Syracuse and did a fellowship in allergy, immunology and pulmonology at the Children’s Hospital of Philadelphia and the University of Pennsylvania. He has a private practice — the Allergy & Asthma Diagnostic Office — in North Syracuse.

Juan Sotomayor decided to become a doctor while in high school but he says that “CUNY played a pivotal role” in pointing him in the right direction. “I enjoyed the electives and my science courses there, they really grabbed me.”

After graduating from Hostos in 1973, Celina Sotomayor left her telephone operator’s post at Prospect Hospital to become its emergency room supervisor. She stayed at the hospital until it closed in the 1980s and then worked at a methadone clinic in the South Bronx, retiring in the early 1990s. Along the way she married Omar Lopez. They now live in a retirement community in south Florida.
Justice, But She Raised One.

“I always wanted them to do their best. But I never envisioned them becoming what they are.”

— Celina Sotomayor
LONG BEFORE Bernard Madoff, there was Charles Ponzi. And to find out more about this Boston swindler from the early 1900s, you might consult an unpublished, little-known manuscript about him in the special-collection room of the Lloyd Sealy Library at John Jay College of Criminal Justice.

The Fraud and Swindle Collection, bought by the college last year, includes 2,200 books and original manuscripts chronicling frauds from the 6th century B.C. to the late 20th century.

On the forgery shelf, books tell the stories of Clifford Irving’s Howard Hughes autobiography hoax and the phony diaries of Adolf Hitler.

Also in the forgery category are books on the Donation of Constantine, a forged document that for centuries gave the pope temporal power. “That was probably one of the most famous forgeries in history,” says Larry E. Sullivan, associate dean and chief librarian. The collection also contains transcripts of interviews that took place during the investigation of Mark Hofmann, notorious for forging Oath of a Freeman. Thought to be the first document printed in American history, it surfaced in the late 1980s when Sullivan was chief of the rare book division at the Library of Congress.

Books on P.T. Barnum and his famous sideshow hoax (among the acts: “George Washington’s nurse,” billed as 161 years old) also line the shelves and spill over to books on the spirit rappers — mediums who faked communication with the deceased (who supposedly replied via raps on a table). More timely books on real estate swindles also are available.

For art collectors, a section on forgeries might offer useful information about detecting fake Vermeers. And a collection on frauds would not be complete without books on gambling cheats.

But lately, in the post-Madoff economy, it’s The Ponzi Story that draws the most attention, says Sullivan. The unpublished memoir was written by Ponzi’s publicist, William H. McMasters, who
of Skulduggery

caught on to the swindler’s shady dealings and revealed all in a front page story in The Boston Post in 1920. The scam worked — for a time — by paying early investors big profits funded by others who bought into the deal later.

“I do not anticipate that another Charles Ponzi will ever appear in the financial world,” McMasters wrote.

The library acquired the collection in March 2008 before the current financial crisis was in full flower. “The hallmark of a good collector is that you anticipate trends,” said Sullivan. He bought the collection from a dealer who was brokering the sale from Illinois. The collector — retired Navy lawyer William Gall, who died last year — found The Ponzi Story in a bookstore in Vermont in 1990.

Since Ponzi’s name started resurfacing in the media during the Madoff scandal, the collection has become even more valuable, according to Sullivan.

Inside a cage built to keep them safe and secure, the books have been enclosed in protective clear covers and categorized by the swindle, the con and the crime — from the most common stock market frauds to instructions on detecting Hawaiian forgery. They will be held there until everything is cataloged and a special collections room is built for the library. Those who want to view the collection will need a reservation, but none of the material may be checked out.

Another prized holding is a rare first edition of Ponzi’s self-published autobiography from 1935. “A special collection always has a core of extremely valuable items that is buttressed by a larger gathering of research materials, which hold the collection together and make it cohesive,” says Sullivan. “I don’t know any other collection that has the depth and breadth on fraud and swindles that this one has.”

This rare first edition of Ponzi’s self-published autobiography is among prized library holdings.

... lately, in the post-Madoff economy, it’s The Ponzi Story that draws the most attention.

Here are a few of the 2,200 books and original manuscripts in John Jay College’s fascinating “Fraud and Swindle Collection.”

- Barnum and Bunk
  Edwin C. Riegel attacks the business practices of Macy’s, America’s largest department store. Published 1928.

- Frauds Exposed
  The infamous 19th century New York anti-vice crusader Anthony Comstock provides a lengthy, sensational expose of mail frauds and swindles. Published 1880.

- Romancin’ Through Floridy with Mandy and Me
  In this lively account, Philip Samuel Easley writes in colorful colloquial regional dialect about the buccaneering years of Florida’s real estate fraud schemes. Published 1926.

- The Sucker’s Manual
  “YOU, too can be a sucker, even if you have not yet shown any genius for it!” reads the first line of this ironic guide by Lewis Belmore on how to get swindled. Published 1930.

- The Devil and the Grafter
  “The devil” influences crime in America through clever remarks drawn onto illustrations about gambling, graft and other economic frauds in this book by Clifton R. Wooldridge. Published 1907.

- Caught Short!
  A victim of the 1929 stock market crash himself, entertainer Eddie Cantor gives a humorous account of losing everything on Wall Street. Published 1929.

- How to Cheat Your Friends at Poker
  Poker isn’t just about winning. Learn all the tricks to cheating your friends out of all their money without them even knowing a thing in this book by Penn Jillette and Mickey D. Lynn. Published 2005.
An Eclectic Writer Drawn By What He Doesn’t Know

By Tatyana Gulko

COLUM McCann says he will always be an Irish writer, but his passion for New York is undeniable. His latest novel, Let the Great World Spin, is set in 1970s New York and is testimony to the vibrant, diverse city he fell in love with as a summer intern for Universal Press Syndicate 25 years ago.

The book, inspired by the 2001 terrorist attacks on the World Trade Center, is an allegory for the destruction and recovery of New York that took place 30 years after that first job. “It’s an anthem for the city,” says McCann, a teacher in the MFA creative writing program at Hunter College.

His latest novel, Let the Great World Spin, is set in 1970s New York and is testimony to the vibrant, diverse city he fell in love with.

The novel never mentions 911. Instead, the image of tightrope walker Philippe Petit, gracefully and skillfully balancing his way between the twin towers one August morning in 1974, serves as a metaphor for the notorious historical event — “a spectacular act of creation in opposition to that spectacular act of destruction,” says McCann. “I thought it was a perfect if not the most obvious image.” The image also becomes the connecting thread that stitches together the lives of the colorful characters in the book.

The author of four novels, McCann has won numerous awards and much praise for his literary work. Let the Great World Spin is “one of the most electric, profound novels I have read in years,” wrote New York Times critic Jonathan Mahler. Earlier this fall, McCann was awarded a Chevalier des Arts et des Lettres by the French government, putting him alongside authors like Salman Rushdie.

Unlike his two previous best-sellers, also historical novels, Let the Great World Spin is a very American story. But at the same time, “it’s an international story because New York is an international city,” says McCann, noting the difference between it and the homogenous city of Dublin, where he grew up.

McCann, a New York resident for 16 years, worked four years on the book. Sometimes his students helped by conducting library database searches related to his book during research seminars that are part of the MFA program.

Other times, McCann says, meeting people around the city and hearing their stories served as a basis for the characters he created. “You end up like a sponge and soak in all the different details,” he says.

McCann began teaching at CUNY five years ago and has spent the last four in the MFA program. He credits the program for its...
intimate size, supportive administration and talented colleagues. McCann says he feels lucky to work with his friend and favorite author, Booker Prize-winning novelist Peter Carey, who started the program. But it is also the students from rich, diverse backgrounds who continue to surprise him with their stamina, perseverance and desire to learn. His only teaching experience has been at the University, and he says his students “are the kinds of students I want to work with.”

He tells them to open their minds and write about what they don’t know. “I want them to make valuable the little corners of human experiences that others don’t find valuable, and make that valuable,” he says.

Recently winding up an 18-city tour in the United States and Europe, McCann is at work on short stories, a film project and a play that will be performed in Italy next summer.
**Dancing in the Dark: A Cultural History of the Great Depression**  
Graduate Center distinguished professor of English and theatre Morris Dickstein  

In this timely cultural history of the 1930s, Morris Dickstein explores the anxiety and hope, the despair and surprising optimism of distressed Americans at a time of dire economic dislocation. Bringing together a staggering range of materials from epic Dust Bowl migrations and sharecropper photographs to zany screwball comedies, wildly popular swing bands and streamlined Deco designs, he highlights the pivotal role of culture and government intervention in hard times. The book shows how our worst economic crisis, as it eroded American individualism and punctured the American dream, produced some of the greatest writing, photography and mass entertainment in this country.

**The Saint and the Sultan:**  
*The Crusades, Islam and Francis of Assisi’s Mission of Peace*  
Graduate School of Journalism and Brooklyn College  

Paul Moses captures the lives of St. Francis and Sultan al-Kamil and illuminates the political intrigue and religious fervor of their time, revealing a startlingly timely story of interfaith conflict, war and the search for peace. More than simply a dramatic adventure, although it does not lack for colorful saints and sinners, loyalty and betrayal and thrilling Crusade narrative, the book brings to life an episode of deep relevance for all who seek to find peace between the West and the Islamic world.

**Watching What We Eat: The Evolution of Television Cooking Shows**  
John Jay College librarian Kathleen Collins  

Since the first black-and-white TV sets appeared in American living rooms in the late 1940s, we have been watching people chop, sauté, fillet and serve food on the small screen. More than just a how-to or an amusement, cooking shows are also a social barometer. Their legacy corresponds to the transition from women at home to women at work, from eight-hour to 24/7 workdays, from cooking as domestic labor to enjoyable leisure and from clearly defined to more fluid gender roles. This book illuminates how cooking shows have reflected and shaped significant changes in American culture and explores why it is that just about everybody finds them irresistible.

**Twenty Minutes in Manhattan**  
City College distinguished professor of architecture and director of the Graduate Urban Design Program, Michael Sorkin  

In his provocative journey past characters, neighborhood stores and bodegas, landmark buildings and overlooked streets, Sorkin’s walk takes the reader on a wry, humorous journey through a wry, humorous journey past characters, neighborhood stores and bodegas, landmark buildings and overlooked streets. His perambulations offer him and the reader opportunities not only to engage with his surroundings but to also consider a wide range of issues that fascinate Sorkin as an architect, urbanist and New Yorker. Whether despairing at street garbage or marveling at elevator etiquette, the book offers a testing ground for Sorkin’s ideas of how the city can be newly imagined and designed, addressing such issues as the crisis of the environment, free expression and public space, historic preservation and the future of the neighborhood as a concept.

**UN Ideas That Changed the World**  
Graduate Center presidential professor of political science and director of the Ralph Bunche Institute for International Studies Thomas G. Weiss, Graduate Center senior research fellow Louis Emmerij and University of Sussex honorary professor and research associate of the Institute of Development Studies Richard Jolly  

Ideas and concepts have been a driving force in human progress, and they may be the most important legacy of the United Nations. This book draws upon findings of the other 14 in the acclaimed United Nations Intellectual History Project Series. The authors not only assess the development and implementation of UN ideas regarding sustainable economic development and human security but also apply lessons learned to suggest ways in which the UN can play a fuller role in confronting the challenges of human survival with dignity in the 21st century.

**Anna In-Between**  
Medgar Evers College Provost Elizabeth Nunez  

Anna, this novel’s main character, has a successful publishing career in the United States and is the daughter of an upper class Caribbean family. While on vacation in the island home of her birth, she discovers that her mother, Beatrice, has breast cancer. Beatrice rejects all efforts to persuade her to go to the United States for treatment, although it is, perhaps, her only chance of survival. Anna and her father, who tries to remain respectful of his wife’s wishes, must convince her to change her mind. Nunez tells a story that explores our longing for belonging to a community, the age-old love-repulsion relationship between mother and daughter, the Freudian overtones in the love between daughter and father and the mutual respect that is essential for a successful marriage.

**Contested Space:**  
*Anglo-American Relations in the Persian Gulf, 1939-1947*  
Bronx Community College associate professor of history Simon Davis  

This book fills a gap on the Persian Gulf in accounts of global Anglo-American rivalries during the Second World War. It goes beyond existing country, oil and Cold War strategic studies to trace a broad ideological as well as material contest between two antagonists of overseas capitalism: neo-corporatist British “guided development” and American “new deal internationalism.” Frictions over how, respectively, to order or liberate the region and its peoples continued into the Cold War era, with the “special relationship” contingent on one power’s sublimation to the other.
CAN CREATIVITY BE TAUGHT?

"We all have some spark of creativity that can be developed and nurtured," says poet Kimiko Hahn, distinguished professor of literature and creative writing at Queens College.

As undergraduates, La Forrest Cope (B.A. 2005) took Hahn’s senior seminar in Asian-American literature and John McLaughlin (B.A. 2008) her poetry workshop. Seeing promise, she recruited them for the college’s master of fine arts program in creative writing and literary translation.

Like many adult students, they brought exceptional experience to their studies. Cope (M.F.A. 2009) was a backup singer and musician for superstars Michael Jackson and Luther Vandross and wrote a Grammy-winning hit for Whitney Houston. She is writing a novel about the music business titled, *Soul Shakers*.

McLaughlin (M.F.A. 2010) retired from the New York City Fire Department as a lieutenant. Now a city council member in Long Beach, NY, he is polishing a novel linked to his 9/11 experiences that he calls *Tethered to Dust*.

During their graduate work, Cope took Hahn’s poetry workshop and McLaughlin her class in poetics, or the craft of writing poetry. The goal was not to turn these prose writers into poets but, reflecting the MFA program’s cross-genre approach, to deepen their understanding of language, image and structure.

What’s it like to grow up singing in a Baptist gospel chorus or to stand in the ashes of the World Trade Center? It’s impossible to express feelings in the same way in poetry as in prose. Working in a different genre “gets you to look at things in different ways,” McLaughlin says. “You take these influences and develop your own style.”

Says songwriter Cope: “The mindful juxtaposition of poetry within prose creates another dimension, giving an author the opportunity to connect both emotionally and intellectually with a reader note by note and word by word.”

Hahn, author of eight books of poetry including her latest, the science-inspired *Toxic Flora*, that will be published next year, formed a group for professors in CUNY’s four M.F.A. programs (Brooklyn, City, Hunter and Queens Colleges). The teacher-writers discuss instructional issues like mentoring and plan projects that bring students together from different campuses.

“Although a writer necessarily works alone, it’s important to have a writing community or a network of writer-friends and contacts,” she says. “There is a difference between isolation and a writer’s necessary solitude.”
Patrick Saladrigas never had it easy.
Growing up in rural Polk County, Fla., he was only a few years old when his father became crippled from a car accident and his mother had to become the main source of income for the family.
She worked the night shift as a nurse until “she was bone weary,” Saladrigas says.
The family shopped for food at a dollar store, and a big treat for him and his two brothers was dinner at McDonald’s.
To help boost himself out of poverty, Saladrigas joined the Army after high school. As a member of the Military Police Corps, he was deployed twice to Korea and in 2004 to Iraq.
But the hard times finally seem behind him. Last spring, Saladrigas graduated at the top of his class from CUNY’s Accelerated Study in Associate Program (ASAP) at LaGuardia Community College. Now he’s working on a B.A. in political science at Queens College.
“My parents instilled in me that you have to have strength in life and that … struggle will bring you prosperity,” says Saladrigas, 26, who joined ASAP in July 2007 after six years in the service. “I feel like I need to be a success because I owe it to them.”
While in the Army, he heard that The City University of New York has good veterans’ programs. “I wanted to see what life is like in the big city, and CUNY definitely gives a lot of opportunity for students so it led me here,” he says.
Developed as part of Mayor Michael Bloomberg’s Commission For Economic Opportunity Agenda in early 2007, ASAP offers free tuition, small class size, convenient schedules and cohorts organized by majors and work experience. It is designed to help highly motivated community college students earn their associate degree in fewer than three years. Then they may continue their studies or move on to challenging careers.
“ASAP is of those programs where they really want to take care of you,” says Saladrigas, who, back in civilian clothes and living away from his close-knit family, needed a helping hand. “They want you to not just be your student but a member of their family, the ASAP family. What I needed [from this program] is camaraderie, community and support — and that’s perk enough.”
Arlene Peterson, Saladrigas’ ASAP adviser, says he was a disciplined student who excelled in his classes but needed the program to help him navigate the web of educational and GI Bill requirements.
“We do a lot more than just telling them about academics,” says Peterson, who met with Saladrigas at least twice a month. “We’re teaching them life skills and how to ask the right questions. It’s a joy doing it, and Patrick has made me so proud.”
ASAP operates in CUNY’s community colleges, giving academic, financial (including free books and Metro Cards) and social support to students who will be unable to complete an associate degree in the standard two years.
Some 400 new ASAP recruits joined 400 returning ASAP students this fall. ASAP’s two-year graduation rate stands at 35 percent versus 11.4 percent for a comparison group of community college students. According to ASAP University Director Donna Linderman, by summer 2010, ASAP will reach a three-year graduation rate of at least 60 percent (nationally, community college students have a three-year graduation rate of about 20 percent).
“If you have a problem you can go to them, you can talk to them, and if you strive for excellence, they will put your name out there,” says Saladrigas, who developed close and supportive relationships with his fellow ASAP students and instructors. “I thank them so much for all the opportunities they’ve given me.”
Saladrigas hopes to attend graduate school to pursue a joint law and divinity studies degree. For as long as he can remember, he has wanted to be a lawyer and a minister. And he knows he can “make it happen,” he says, adding that: “my family is really the primary driving force and why I chose to leave the military and come back to school and not just be adequate in my studies but be the best.”
Founding Father
By Miriam Smith

ACROSS
1. Start of the Quote, written by 120 Across in 1847
14. Cooling system; Abbr.
16. Andy Warhol box
17. Comes before, “You are so!”
18. Birthplace of Pepsi-Cola; Abbr.
19. Quote, part II
24. First light
26. Br-i-c-a-
28. Good __-
29. Want ad abbr.
30. 3rd pers. sing. pres. indic. of be
32. Good __-
33. Quote, part 3
37. Chanting word
38. Roman numeral 2
39. __, woe is me!
41. Quote, part 4
48. Personal magnetism
51. A Chinese Muslim
52. Opposite of NW
53. State between SD and KS
54. “The Barbarian and the ___,” film about 120 Across
56. Quote, part 5
58. Speck
61. Quote, part 6
62. 16th letter of the Greek alphabet
77. Written by 120 Across in 1847
79. That is: Abbr.
81. __ Dear What Can the Matter Be?
84. __ Dear What Can the Matter Be?
86. President who sent 120 Across
87. Nigeria; Abbr.
88. Somalia; Abbr.
90. Nigeria; Abbr.
91. Previous name of Russian TV channel
93. ___ manor born
94. __ Dear What Can the Matter Be?
97. That is: Abbr.
99. Fashionable
100. Israel Kamakawiwo'ole nickname
101. End of the Quote
102. __ Bridge
103. Impersonate
104. Almost failing grade
105. Weakling or weaken
81. Quote, part 8
82. ___ Dear What Can the Matter Be?
83. ___ Dear What Can the Matter Be?
85. President who sent 120 Across to 50 Down
89. ___ Dear What Can the Matter Be?
92. ___ Dear What Can the Matter Be?
95. ___ Dear What Can the Matter Be?
96. ___ Dear What Can the Matter Be?
98. ___ Dear What Can the Matter Be?
106. Lodge
107. California-Nevada border lake
108. Airport forecast; Abbr.
109. Sinister star of “M"
111. ___ Chavez
112. ___ Academy, orig. 15 Down
117. Caviar
118. Test for abnormal muscle activity
121. Sugar suffix
122. Umberto ___
123. Nonsense
126. State between OK and TN
128. ___ Gobb

DOWN
1. Either
2. Persian rice recipe
3. Choose
4. American Pop/R&B boyband
5. ___ ___ manor born
6. Fragrant resin
7. __ Dear What Can the Matter Be?
8.(___Dear What Can the Matter Be?)
9. ___ Dear What Can the Matter Be?
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ROY DECARAVA was an internationally renowned photographer best known for his black-and-white images of daily life in Harlem and candid shots of jazz giants. His work is in the collections of many of the country’s major art institutions, including the National Gallery of Art, the National Portrait Gallery, the Smithsonian American Art Museum, The Museum of Modern Art and The Metropolitan Museum of Art. In 2006, he received the National Medal of Arts, the highest award the U.S. government gives to an artist.

For 34 years, DeCarava was a professor at Hunter College and taught until his death in October at 89.

“Roy DeCarava was devoted to a traditional form of photography — the silver print,” says Sanford Wurmfeld, retired chair of the Department of Art at Hunter who still teaches at the college. “Within the limitations which this medium offered, he was able to create a whole world in his work — as he was justly famous for finding incredible subtleties in the dark areas of his prints.”

DeCarava studied painting and architecture at the Cooper Union School of Art and the George Washington Carver Art School before turning to photography in the 1940s. In 1952, he became the first black photographer to win a Guggenheim Fellowship.

According to colleagues, DeCarava was kind and sensitive to his students, gently questioning them to “urge them on to self-discovery,” says Wurmfeld. “He well understood that posing the right questions could open up worlds of opportunities for his students.”
Chronicler of Harlem Life

“Roy photographed for himself, and ultimately produced a body of work that enshrined the social contradictions of the ’50s, the explosion of improvisational jazz music in the ’60s, the struggle for social equity, the bold-faced stridency of the ’70s and ’80s, only to turn to even more contemplative and serene realities during the later years of his life.”

— Sherry Turner DeCarava, DeCarava’s wife and collaborator for more than 39 years
Movie-Set Location, Premier Education

On New York City’s highest natural peak, overlooking the Harlem River with dramatic views to the Palisades and dotted with historic landmarks, Bronx Community College is one of the more beautifully sited urban campuses in the nation.

BCC, with its tree-lined walkways and spacious lawns, has been a location for more than 15 feature films, music videos, commercials and photo shoots. Students have gotten to rub shoulders with the likes of Russell Crowe, Pierce Brosnan and Julia Roberts.

BCC students engage in serious studying. Nursing and allied health, business, information technology, digital design, education and automotive technology programs (the last is the only one of its kind at CUNY) are some of its more popular academic majors. Most students are first-generation college attendees and two-thirds are women.

Established in 1957, BCC moved to its present 55.5-acre site (the former New York University Heights Campus) in 1973. The college is home to the Hall of Fame for Great Americans (the original “Hall of Fame” in the country) and the Gould Memorial Library. Designed by renowned architect Stanford White, both neoclassical structures are New York City landmarks and are on the National Register of Historic Places.

In October 2008, the college broke ground for the North Instructional Building, which will include state-of-the-art classrooms, a vaulted double-height library, a small cafe, lounges and group-study rooms. The building is expected to open in 2011.

In the heart of the Bronx, the college is easily accessible by 4 and D trains and Nos. 3, 12, 36 and 40/42 buses. In the evenings, shuttle buses are available from the campus to the subway.

Quick Facts About BCC
- 55.5 acres
- Over 10,000 students; 2/3 women
- Students represent more than 100 countries
- Predominantly first-generation college attendees
- Half of the student body of Hispanic origin
- Majority of the students hail from the Bronx, followed by Manhattan, Queens and Yonkers

"BCC, with its tree-lined walkways and spacious lawns, has been a location for more than 15 feature films, music videos, commercials and photo shoots. Students have gotten to rub shoulders with the likes of Russell Crowe, Pierce Brosnan and Julia Roberts."

THE HOTSPOTS AT BCC

1. Roscoe C. Brown Jr. Student Center: cafeteria (under construction, will be expanded to the second floor); game room; Office of Student Activities; tables in front of the building; Hall of Fame Playhouse; bookstore; student government.

2. Meister Hall science building: benches and tables in front of the building; library; TV studio; computer lab; a small hangout area on the first floor; rotunda in the back for student use.

3. Benches along the quad, which is in the center of campus.

4. North Instructional Building (under construction; due to open in 2011): student lounges; library; cafe.

5. Alumni Gymnasium: swimming pool; basketball court; dance classes; two weight-training areas; outdoor handball courts.


Scenes from Robert DeNiro’s “The Good Shepard” were filmed in the Gould Memorial Library, right.

MOVIES SHOT AT BCC

“The Thomas Crown Affair” with Pierce Brosnan
“The Siege” with Denzel Washington
“A Beautiful Mind” with Russell Crowe
“The Good Shepherd” with Matt Damon, Angelina Jolie and Alec Baldwin
“Stay” with Ewan McGregor
“Mona Lisa Smile” with Julia Roberts
“Maid in Manhattan” with Jennifer Lopez
“Brother to Brother” with Anthony Mackie
“Riding in Cars With Boys” with Drew Barrymore
“Kinsey” with Liam Neeson
The City University of New York
congratulates
The National Puerto Rican Day Parade Leadership and

The Pride of New York

U.S. Supreme Court Justice
Sonia Sotomayor

Celina Sotomayor  
mother
Hostos Community College/CUNY, 1973

Dr. Juan Sotomayor  
brother
Sophie Davis School of Biomedical Education at City College/CUNY, 1979

Benno Schmidt  
Chairperson

Matthew Goldstein  
Chancellor

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