University researchers are now developing marketable products to help solve medical, energy and other global challenges. These profitable ideas will also benefit CUNY and the local economy.

What if...

For science and technology researchers, these are the words that can start an idea on the road to invention — the connective tissue between something known and something imagined. In recent years, a particular brand of what-if has been percolating in labs around the University: the kind that can lead to something the world can really use.

What if, for instance, a way could be found to overcome the one problem that limits the capacity of a standard nickel-zinc battery, the kind in cameras and phones? Could you make one big enough to power a whole building?

What if electrical brain stimulation, a technique that has shown promise as a treatment for diseases like Parkinson’s, could be accomplished by simply placing electrodes on the scalp — rather than requiring a surgeon to drill a hole through the skull, as the technology now requires?

And what if there were a way to make plastics, wood and fabrics with surfaces embedded with a natural substance known to have immense antibacterial powers? Would fewer people die of infections in hospitals?

CUNY faculty researchers have been asking themselves these and a lot of other “what if” questions with real-world applications the past few years. And the answers are beginning to emerge from their labs — the first fruit of a decade-long initiative to recruit and support inventive researchers and partner with them in commercializing discoveries. They are part of an effort to reimagine CUNY as a place where science, technology and the arts can thrive and contribute to solving the world’s most pressing problems.

Prototype device above, developed in a City College lab, shows promise for treating neurological diseases via painless, noninvasive electrotherapy.

Continued on page 10
New Pathways to Continued Progress

At the many joyful commencement ceremonies across CUNY campuses this spring, we celebrated the great strides made throughout the University—including record enrollments, the academic successes of our students and the award-winning scholarship and teaching of our faculty.

This has been our focus since I became chancellor in 1999, when we enacted a series of changes to reinvigorate the University. We raised academic standards, removed remediation from our senior colleges and structured the system to give students clear expectations about their college experience and their academic progress. We developed a Performance Management Process, created new schools, hired strong leadership and built cutting-edge facilities.

All of these changes have been driven by our deep commitment to creating an environment in which students understand that hard work and academic quality are valued and expected.

But challenges remain. Across the CUNY system, students are still not able to move nimblly from one campus to another. They are often stymied in their academic progress because of the complexity and inconsistency among the colleges’ general education and transfer policies, resulting in an accumulation of excess credits with little gain in academic engagement.

In order to take the next step in advancing the University’s academic transformation, we must add a new dimension to our general education framework.

This is not unfamiliar ground at CUNY. As far back as 1967, a Middle States report embarked on the Pathways to Degree Completion initiative. The rationale behind their collaboration that will make this next step in the University’s transformation a success.

The Pathways initiative is critical to meeting the essential goal of advancing academic quality at the University. Our students deserve an integrated, 21st century academic progress.

In order to take the next step in advancing the University’s academic transformation, we must add a new dimension to our general education framework.

This is not unfamiliar ground at CUNY. As far back as 1967, a Middle States report embarked on the Pathways to Degree Completion initiative. The rationale behind their collaboration that will make this next step in the University’s transformation a success.

The Pathways initiative is critical to meeting the essential goal of advancing academic quality at the University. Our students deserve an integrated, 21st century institution that truly supports their academic progress.

In order to take the next step in advancing the University’s academic transformation, we must add a new dimension to our general education framework.

This is not unfamiliar ground at CUNY. As far back as 1967, a Middle States report embarked on the Pathways to Degree Completion initiative. The rationale behind their collaboration that will make this next step in the University’s transformation a success.

The Pathways initiative is critical to meeting the essential goal of advancing academic quality at the University. Our students deserve an integrated, 21st century institution that truly supports their academic progress.

In order to take the next step in advancing the University’s academic transformation, we must add a new dimension to our general education framework.

This is not unfamiliar ground at CUNY. As far back as 1967, a Middle States report embarked on the Pathways to Degree Completion initiative. The rationale behind their collaboration that will make this next step in the University’s transformation a success.

The Pathways initiative is critical to meeting the essential goal of advancing academic quality at the University. Our students deserve an integrated, 21st century institution that truly supports their academic progress.
The Funding Plan and a Compact for the Future

event, that it would happen.

• Modest but regular tuition increases, instead of erratic, jumps of up to 40 percent, usually in bad economic times when students could least afford it. Now tuition can rise up to $300 a year in each of five years.

• More philanthropic contributions, which could least afford it. Now tuition can rise up to $300 a year in each of five years.

The first two pillars of the compact solidified as they fell into place with the governor’s signature on the bill passed by the Legislature on July 1.

As the chancellor and his team broadened support for this plan through the years, the State University of New York got on the bandwagon. The new legislation makes similar provisions for that system, as well.

State funding for CUNY community colleges fell by $10.6 million. However, community colleges will hold steady due to higher tuition and the city’s restoration of more than $20 million in the final municipal budget approved by Mayor Michael Bloomberg and the New York City Council. The city agreement also restored funding for most University centers and institutes at the current year’s levels.

The state legislation allows CUNY to raise tuition up to $300 a year in each of the next five years for undergraduates from New York State, but it builds in an offset for students who receive full aid under the Tuition Assistance Program (TAP). Those who receive less than the full TAP allocation will receive partial offsets, according to a formula that has yet to be devised.

“The state government just approved up to a $300 tuition increase, but that represents a little under 6.2 percent,” Goldstein said. “We want to look at that number and also look at out-of-state tuition and graduate student tuition.”

He added that with more favorable finances, the University will quickly re-evaluate prior spending decisions, which have affected faculty hiring for the fall, when registration is likely to once more hit new highs. The university has accepted 5.7 percent more freshmen and 7 percent more transfer students than last year.

He added that “an historic change like this could not happen without the collective effort of so many well-meaning people. I’ve praised the vice chancellors for working long nights; the Albany lobbying staff; the college presidents who worked the phones and took trips.” And, he said, “The students were unbelievable. The students really spent a lot of time leaving their classrooms. I wasn’t always happy about that, but they don’t ask me for permission; they do what they think is best.”

For analysis of state and city budgets, search.cuny.edu “CUNY budget” or snap the square with your smartphone.

Continued on page 8

CUNY MATTERS — Summer 2011
Starting this year, Macaulay students will receive a joint diploma bearing the names of both Macaulay Honors College and their home college. The state greenlighted degree-granting authority, which the Board of Trustees had sought to spotlight Macaulay's unique contribution to students' education; to foster a stronger sense of community among students; and to further showcase Macaulay's ongoing success in attracting, supporting and retaining outstanding students.

At the commencement at Alice Tully Hall in June, former New York City Schools Chancellor Joel Klein, who received Macaulay's first honorary doctorate, recalled the reasons behind the institution's founding while lauding the man who conceived it, CUNY Chancellor Matthew Goldstein.

"There was a time, before Matt came here [as chancellor in September 1999], when City University had lost the luster that it had when I grew up and went to public school here in New York City," Klein told the graduates and their families and friends. "For far too long, City University depreciated the value of education and substituted a false equality for an excellence-driven institution. This man, a little more than a decade later, has transformed this university. It's not only a measure of his leadership, it's a measure of his values. And at the center of that transformational effort was the notion that excellence and equality could reside together, but that it had to be based on excellence.

"Macaulay Honors College, both literally and symbolically, became the flag- ship in this array of educational institutions. It sent a powerful signal. Now, a little over a decade later, everyone will talk about what CUNY has accomplished. But it accomplished that because of the leadership of a great man," Klein said.

For his part, Goldstein honored philanthropist William E. Macaulay's first honorary doctorate, rhetorical philan- thropist and entrepreneur William E. Macaulay (City College, 1966) and his wife, ornithologist Linda Macaulay. "None of this would be happening at CUNY today were it not for their largesse, their vision, their commitment to this extraordinary institution," he said.

Chancellor Goldstein conceived of an honors college as a way of attracting gifted students who were choos- ing elite private schools over CUNY and to add luster to a university that, as Klein described, fairly or not had fallen in public esteem.

This program for select students attend- ing Baruch, Brooklyn, City, Hunter, Lehman and Queens Colleges and the College of Staten Island began in 2001; John Jay College of Criminal Justice has plans to join the group next year. It offers free tuition; special academic programs, including four core seminars related to New York City, and entrée to the city's cul- tural institutions; $7,500 academic spend- ing accounts usable for international learning; and laptop computers, among other perks.

In 2006, William Macaulay donated $30 million to buy and transform a 1904 Manhattan townhouse into a home for the Honors College, as well as to defray tuition and other costs. He and his wife have been deeply involved in its programs and often drop in to see what students are doing. Other donors, such as the New York Life Insurance Foundation, also have supported the honors college.

Consistent with Chancellor Goldstein's vision, Macaulay Honors College quickly created a halo effect that illuminates the general resurgence of the University. Consider this: For the class of 2015, 4,087 topflight applicants competed for 500 slots at Macaulay. And this: About 30 percent of applicants who are not accepted into the program enroll in other CUNY colleges. Students provided an unexpected trib- ute to Goldstein, as well.

Graduating senior Daniel Cowen (Macaulay Honors College at Hunter College) imagined with droll humor how the chancellor's ideas for the Honors College developed similarly to inspirations of three slightly more famous historical
talents: composer Richard Wagner, author Herman Melville and physicist Albert Einstein.

Phoebe d’Heurle, also of Macaulay Honors College at Hunter College, presented Goldstein with her sculpture of an infinity knot, a knot without beginning or end. From Celts to Tibetans to the proverbial marriage knot to the mathematical symbol, an infinity knot has symbolized the eternity of life, nature and love.

Speaking for the graduates, Anita Sonawane, an economics major at Macaulay Honors College at Queens College, put their Macaulay education in perspective. “We graduate not only as students of our respective colleges, but also as the ambassadors of the City University of New York. A great burden rests on our shoulders — to leave our city not less but, rather, greater than we found it. “We were born of this city, and we must see to its future regardless of where our own path leads us. If we look around us — the issues are there. Homelessness has risen to levels of the Great Depression. The quality of our infrastructure, our subway system, for example, dwindles. Only 63 percent of students graduate from public secondary schools. And New York leads the 25 largest cities in the United States in [wealth] inequality. Yet, I believe that no other students of this city have considered or contemplated these issues as we have, and that no other students are more qualified to solve these problems. Of that I am certain,” Sonawane said.

For upcoming committee meetings and more, search.cuny.edu “paths” or snap the square with your smartphone.
The CUNY Class of 2011 has compiled an extraordinary record of achievement. Whether they’re New Yorkers contributing to their city and state as citizens and salaried professionals, graduate scholars deepening their — and our — knowledge of our world, or new arrivals gaining the credentials to transform their lives, they all will make a difference.

— Chancellor Matthew Goldstein

The CUNY Class of 2011 includes a citizenry of well-rounded, public-service minded scholars, strivers and seekers ready for their next challenge. An estimated 31,300 CUNY degrees were conferred this spring (including summer 2010 and fall 2010 graduates), including 11,700 associate degrees and more than 19,000 baccalaureate degrees. Their recipients include U.S.-born and immigrant New Yorkers seeking a high-quality education in a challenging economy and students overcoming poverty, illness and cultural barriers on a journey to become nurses, scientists, presidents. They also include some of the highest-achieving students in the nation, headed to graduate programs at CUNY Graduate School, Harvard Medical School, Stanford Law, Yale and Oxford universities. Among them are a Rhodes Scholar — CUNY’s seventh — as well as winners of prestigious National Science Foundation Fellowships, Fulbright grants and Jonas Salk Scholarships, and other students striving to understand the world and make it better.

“The CUNY Class of 2011 has compiled an extraordinary record of achievement,” said Chancellor Matthew Goldstein. “Whether they’re New Yorkers contributing to their city and state as citizens and salaried professionals, graduate scholars deepening their — and our — knowledge of our world, or new arrivals gaining the credentials to transform their lives, they all will make a difference.”

The work, aspirations and drive of five graduates give a glimpse of the potential and breadth of the CUNY experience, and of the many impressive students seeking a CUNY education today as the University’s academic profile has risen and the economy has declined.

Dominican Republic native KATHERINE MATEO, Macaulay Honors College at Lehman College 2011, is aiming high — as in the highest court. A self-described high achiever, Mateo, 21, a consultant with HBO’s corporate offices, has been admitted to Stanford Law School on a full scholarship covering tuition, fees and books. Mateo majored in three fields: political science, physics and philosophy. All three, she believes, reinforce her interest in law. “Political science and philosophy are obvious for their importance and physics is important because it has shown me about quantifying life,” she said.

She has a long list of internships under her belt, including ones at NBC, where she put together a video guide for voters about candidates; the State Attorney General’s Office; Consumer Fraud Bureau, where she mediated cases for consumers and worked on landlord-tenant issues; and the chambers of New York State Supreme Court Judge Nelson Román, where she was a filing clerk.

Mateo was five when she and her family moved from the Dominican Republic to Puerto Rico and six when they emigrated to New York. What motivates her, more than wanting to succeed, she says, is a strong desire to help others. She aspires to a seat on the U.S. Supreme Court, seeing the highest level of the judiciary as the best position from which to effect change.

JOSHUA USANI, City College 2011, was inspired to pursue science when he watched his mother, a nurse, give vaccines to poor children in his native Nigeria. He decided on a medical career when, as part of an ambulance corps, he helped save a man’s life.

“I resolved that if I could touch people’s lives in this very basic, yet powerful way, the satisfaction I would receive would justify all the challenges associated with the pursuit of a medical career,” said Usani, one of eight CUNY students awarded Jonas E. Salk Scholarships to study in the medical field in 2011. The prestigious University awards, which provide an $8,000 stipend over three or four years to help defray medical school costs, recognize students who are judged likely to make significant contributions to medicine and research.

Usani, a biology major, seeks to understand how the immune system attacks the body in autoimmune diseases, and to develop treatments. In his project, he used a confocal microscope to identify the distribution of lysosomes in specialized epithelial cells in the thymus. These thymic nurse cells are crucial in T-cell development. He will attend Yale University School of Medicine in the fall.

NADIA AUGUSTYNIAK, Hunter’s master’s in anthropology, is intrigued by how “the epic events of violence and war” — such as the schisms of the Bosnian War and the divisions of Sri Lanka’s civil war — “play out in people’s everyday lives, even years later.”

“Seniors are judged likely to make significant contributions to medicine and research.

What kinds of stories do they tell? Do they try to forget it? How do these events continue to affect their lives?” asked Augustynia, who has been awarded a Fulbright to teach English in Sri Lanka, giving her “a wonderful opportunity to live in a place I don’t know much about, learn the language and build relations with communities which I could later work with.”

Augustynia emigrated from Poland to New Jersey when she was 11 and later majored in anthropology at William Paterson University. At Hunter, she worked closely with anthropology assistant professor Ruchi Chaturvedi, whose research explores political violence and South Asia. For her master’s thesis, Augustynia worked with the Bosnian refugee community in Utica, N.Y., teasing out the ramifications of their wartime experience on their daily lives and spending time with a family.

“Anthropology is a demanding field, because it’s very difficult to do it without language skills and having some link to the community,” Augustynia said. In Sri Lanka, where a 26-year civil war between militant rebel groups and the government ended in 2009, she will teach English and continue to study Tamil, one of Sri Lanka’s three main languages, along with Sinhalese and English.

Augustynia plans to continue graduate study after completing the Fulbright, focusing on the political situation in Sri Lanka. “I would like to continue looking at the effects of protracted conflict on people and the way they heal after such violence.”

For ANTHONY PANG, who won a substantial National Science Foundation Graduate Research Fellowship, space travel is possible. His research project could make interplanetary travel possible.
conflict and how people and communities
tremendous suffering,” she said.

HONY PANG, City College 2011, the sky is
interests could lead him all the way to Mars.
one of five CUNY graduates awarded
ceeds $121,500 over three years was awarded
will study spacecraft propulsion at
mas dynamic simulations for space
ready offered a fully paid research
the project, Pang will develop simulations
for the project, he said. The research could help make interplane-
level possible, he said.

KATHLEEN CAPOGROSSO-BROWN, who
collected two associate degrees from Queensborough
Community College, had already decided to leave her
career as a public high school teacher when she was diag-
nosed with multiple sclerosis. That set her on a new path
helping others with the disease.

Following graduation in 1999 from Baldwin High School
on Long Island, Capogrosso-Brown earned a B.S. in music
education at New York University, secured state teaching
certification in 2006 and began teaching at North Shore
Middle School on Long Island.

“Fortunately, I was able to get a job but quickly became
aware that there is more to teaching than just being an
instructor,” she said. By 2008 she was disillusioned by the
intense bureaucracy and politics in the public school sys-
tem and yearned for a change.

That year she was diagnosed with multiple sclerosis and
hospitalized for several weeks. From then on, her health
was a priority. Her developing interest in alternative and
holistic treatments led her to enroll in Queensborough’s
massage program. A faculty member recognized her intel-
lect and encouraged her to take on a tough second major,
nursing.

“It was amazing to know that the faculty had such con-
fidence in me,” Capogrosso-Brown says. “They went above
and beyond their day-to-day responsibilities and continu-
eously opened doors. … A double major demanded every
ounce of my determination to succeed. I was on campus
most days from early morning to late at night.”

However, she adds, “It is both the disappointments and
the achievements throughout my life that have propelled
me toward my goals.”

Capogrosso-Brown graduated with a 3.87 grade point
average and two A.A.S. degrees, one in nursing and the
other in massage. She also received an award from the
All-New York Academic Team for the Phi Theta Kappa
International Honor Society. She hopes to receive a John
Dystel Nursing Fellowship from the Multiple Sclerosis
Society to work at the New York University
Comprehensive Multiple Sclerosis Care Center.
Continued from page 3

locator development in infancy affects other types of development. Distinguished Professor of Political Science Susan Buck-Morss of the Graduate Center has won the Franz Fanon Book Award for Hegel, Haiti, and Universal History.

José Del Valle, professor of Hispanic and Luso-Brazilian Literatures and Languages, Linguistics at the Graduate Center, received a Friedrich Wilhelm Bessel Research Award from the Alexander von Humboldt Foundation in recognition of his lifetime achievements.

Dean for Special Programs Carlos Molina of Hostos Community College has received a grant totaling $1,150,351 from the New York State Education Department for a “Vocational Educational Program.” City Tech has received $136,040 from the New York State Department of Education in support of the “Collegiate Science and Technology Entry Program – CSTEP,” directed by Kathleen Richardson.

The National Institutes of Health has awarded City College $314,992 in grant funding for a research project titled “Consolidation of Motor Skills and Sleep Homeostasis in Parkinson’s Disease,” under the direction of Maria Felice Ghiardi of CCNY’s Sophie Davis School of Biomedical Education. Brooklyn College has received a $775,000 grant from the New York City Education Department for “Graduate Courses in Administration and Supervision to Enable Nonpublic School Principals and Prospective Principals to Become Building Leaders,” directed by Dean of the School of Education Deborah Am Stanley and program head Lynda Sarnoff. “A Study to Explore the Extreme Social Exception and Legal Marginalization that Renders Undocumented Migrant Workers Particularly Vulnerable to Crime Victimization, Systemic Violence, Police Mistreatment, and Criminal Involvement,” under the direction of Hung-En Sung of John Jay, has received $100,000 in grant funding from the National Institute of Justice.

The New York State Department of Education has awarded $280,144 to Ivonne Barreras of New York City College of Technology for a “Professional Development Leader Project.” Hostos Community College has received two grants in support of a “Global Scholars Program” directed by Esther Rodriguez-Chavdaune, Senior Vice President of Administration and Finance. $291,663 from Columbia University’s U.S. Department of Defense Office of Naval Research and $258,336 from Columbia University’s Department of State. The Toyota USA Foundation has awarded $134,500 to professor Hermimo Martinez of Lehman College for “The ENACE Latino Collegiate Social Science Program in Math and Science.”

The National Science Foundation has awarded $162,000 research grant to Richard Maginuza of Brooklyn College’s Department of Chemistry. A project directed by Chuxiang Yi of Queens College’s School of Earth and Environmental Sciences has been awarded $108,554 from the National Science Foundation.

It’s 7 p.m. on a recent Monday. Purple mats on the floor are reflected in the mirrored walls of the Movement Studio at LaGuardia Community College.

Five men are in the room. Two are yellow cab drivers, one is a certified yoga instructor, and one is a reporter for a Japanese TV station. And there is Andrew Vollo.

“Sit cross-legged,” Vollo calls out. “You’ve heard already about the breathing. I can’t overemphasize the breathing, and of course we know we don’t sit on our wallets.”

The weekly Taxi Yoga class is under way.

Seven years ago, with his body “in bad shape” from driving a cab, Vollo studied hatha yoga, a system of postures and exercises used to strengthen and tone the body. “By doing the exercises, I felt so much better I thought I could pass this on to other drivers,” he said.

Vollo, 56, drove a yellow cab part-time for 16 years to pay for fine arts studies at Queens College. He also worked as a dispatcher. Since 2003 he has been director of the New York City Taxi and FHV (For Hire Vehicle) Driver Institute at LaGuardia, which trains and certifies cab drivers to operate on city streets.

In 2004, Vollo introduced Taxi Yoga, an eight-week program to teach a “gentle” form of yoga specifically for professional taxi drivers. “Driving a cab is very stressful,” he says. “I wanted to help them improve their stress levels.”

Vollo’s objective is to help cab drivers ease muscle tension, reduce stress and improve strength and flexibility through simple breathing exercises, relaxation techniques and basic yoga postures, each with specific physical benefits, “so they’ll be able to function better.”

There are about 49,000 cab drivers in New York City, he said. “Many have ulcers, high blood pressure, diabetes, bad circulation in their legs. They are always on the run. Many have been on the job for 30 to 40 years, working 12-hour days.”

Vollo said he noticed “how stiff they are, how they can’t sit down, they can’t bend.” He posted flyers in garages where taxi drivers congregate, seeking students. The response wasn’t encouraging. Undaunted, Vollo held his first class. Two cabbies, a copy machine serviceman doing work at LaGuardia and his friend attended.

“These four loved the class so much they were my mainstay,” Vollo said. “They came for about five months, and they came all the time. I would run the classes with the few guys that would come. Sometimes one person came. Sometimes nobody came and I had my secretaries take the class.”

“I invited officials of the Taxi and Limousine Commission to come. I figured, let me plant a seed, maybe they’ll make it mandatory. They never came.”

Allan Fromberg, a spokesman, said it’s not the TLC’s role “to endorse what he’s doing,” but that the program “is getting some very positive feedback from drivers. The fact that Andrew is so dedicated to bringing his knowledge and expertise to help people in this unique way is a very positive thing.”

A certified yoga instructor and cab driver, Klee Walsh, volunteered to assist him and the intrepid Vollo persisted.

“The image that stood in my mind was the condition of so many drivers,” Vollo said. “I noticed how difficult it was for drivers to stretch, bend over forward and touch the floor. I knew it doesn’t have to be that way.

“It doesn’t take much to help folks feel better and be healthier. I was a prime example. I had headaches, backaches, sciatia.”

But after three years of uncertain attendance Vollo was “just about to give up when a story in The Daily News in April 2008, gave it more life.” Participation rose to a high of 16, but the fluctuation continued. “An article in The New York Times last January boosted attendance again. That kept us going.”

Vollo did research and found that “a lot of taxi drivers think yoga is a woman’s thing.” Time was also a factor. “If a guy rents a car for 12 hours he doesn’t want to waste an hour when he could be making money,” Vollo said.

Longtime yellow cab drivers Alex Rabello and Gregory Duffy are among his regulars. Their yoga session that recent Monday night included poses known as pelvic tilt and downward facing dog.

“It’s very commonplace for people to have back issues, kidney issues,” said Duffy, who has problems looking over his shoulder. “I’ve attempted to make most every session. You come away feeling better, more physically loose ... and the cost is reasonable. It’s a great idea.”

Said Rabello, “When you breathe the way they teach you, you can’t help but relax. It’s so light you don’t think you’re doing anything, but you feel the difference. It makes the day a little easier. I intend to come as long as he’s around because it’s helping me.”

Vollo is committed, so he’s stepping up his outreach to the industry to bring in students.

“These days,” he said, “we have five, six people coming steadily. A lot more people know us ... I’m not giving up.”

Frazzled Cabbies Hail Taxi Yoga
Gentle Endeavor in the Gilded Age

By Gary Schmidgall

Reading the Century Illustrated Monthly Magazine: American Literature and Culture, 1870-1893

MARK NOONAN’S NEW STUDY came to life serendipitously several decades ago while he was rummaging in one of his favorite haunts, a Manhattan used-book store (now vanished). There the CUNY doctoral student happened upon a handsome black leather-and-gilt volume of The Century magazine, a “gold mine of American literary history,” he thought. It cost him $20.

Noonan’s fascination turned into full immersion in this prominent periodical of the Gilded Age, and he has just published Reading the Century Illustrated Monthly Magazine: American Literature and Culture, 1870-1893 (Kent State University Press). The Century was America’s first literary magazine to achieve a truly national audience, which was largely genteel or middle-class (many of its readers were women), and it was among the first to indulge a sense of the aesthetic, becoming especially noted for its fine woodcut illustrations. The inaugural cover, designed by the artist Augustus Saint-Gaudens and the architect Stanford White, was in vintage beaux arts style.

Noonan, who is now a professor of English at City Tech, focuses on the magazine’s real heyday, 1870-1893, under two editors: Josiah Holland, who ran it for a decade (1870-1881) in its first incarnation as Scribner’s Monthly, and Richard Watson Gilder. So influential was the latter on the literary scene that a biographer said the Gilded Age (a term coined by Mark Twain) should be called the Gilded Age. The magazine, overtaken by more forward-thinking competition like McClure’s and Cosmopolitan, finally folded in 1900. Among Holland’s brilliant proposals to the magazine’s early success and prestige.” But Noonan justly delights in the few moments when an unsmiling view of the war gets in: for instance, Mark Twain’s vicious anti-war tract, “The Private History of a Campaign that Failed,” one of his snarkiest satirical performances.

The epigraph for the Civil War chapter is Whitman’s “The real war will never get into the books … in the mushy influences of current times,” and Noonan acutely demonstrates it never got into The Century either by briefly quoting from Thomas Nelson Page’s mushy 1866 story, “Meh Lady: A Story of the War,” which features a moody loyal old black slave, a gallant Confederate hero, and his noble sister (“de light o’ dis plantation”).

But perhaps Noonan best underscores Whitman’s point visually by reproducing a picture of the notorious Andrew Jackson prison in Georgia (where 13,000 soldiers died); it shows several men sitting on a latrine in the foreground. Noonan publishes the full image and notes that Gilder, the publisher of his “familiar” magazine, stomped out the latrine for an 1889 issue of The Century.

CUNY Matters welcomes information about new books that have been written or edited by faculty and members of the University community.
Spinal Cord Injury Treatment

The inventor: Zaghaib Ahmed, Ph.D., Department of Physical Therapy at College of Staten Island and Department of Neuroscience at the Graduate Center.

The invention: Pathmaker Neuromuscular Treatment System, a CUNY-trademarked method of treating spinal cord injuries by using electrical stimulation to strengthen neuromotor connections.

The ambition: Ahmed's device and method have shown early promise as an effective technique for strengthening the neuromotor pathways that remain after a spinal injury, promoting significant and perhaps permanent improvement. The technology recently won a $250,000 BinAccelerate NYC Prize from the New York City Investment Fund, an annual competition to encourage academic institutions in the city to translate biomedical research into practical applications. If the Pathmaker system continues to prove effective—a trial involving 96 patients is now under way—CUNY could license the technology through the offshoot company.

In his words: "In neuroscience, there is a principle that when two neurons fire in synchrony the connection between them strengthens. It's thought to be the basis for memory, learning and recovery from injury. The opposite is true when there's a spinal cord injury. The connections from the brain to the spinal cord and the spinal cord to the muscle are weakened. The basis for the technology I have developed is that applying stimulation to activate brain cells, spinal cord cells and muscle—at the same time—should strengthen the connections and improve function. It is premised on the existence of at least some minimal neuronal function. The electrical stimulation is applied along the entire affected spinal neuromotor pathway, from the brain to the affected extremity. It turned out to be very effective. We've published two papers reporting remarkable recovery, first with mice and then with five patients with cerebral palsy and spinal injuries. We have a 16-year-old with severe cerebral palsy affecting both her arms and legs. She has been walking in a wheelchair for three weeks, two minutes after treatment. We're now working with the Manton Foundation in Cambridge to do a phase II clinical trial with five other patients with cerebral palsy and spinal injuries."

Bikson's team's electrotherapy device

‘Brain Pacemaker’

The inventor: Marom Bikson, Ph.D., is a member of the biomedical engineering faculty at City College, where he heads a lab that develops prototypes for medical devices.

The invention: Transcranial electrotherapy technology—a noninvasive method of delivering current to targeted areas of the brain, a technique that shows promise as a treatment for an array of neurological and psychiatric illnesses.

In his words: “This idea came out of my doctoral research on a procedure called deep brain stimulation, or DBS. DBS involves drilling through the skull of someone with a severe brain illness and surgically implanting electrodes to deliver constant electrical stimulation—a brain pacemaker. Despite tremendous clinical success, the risk, complications and cost of DBS surgery represent a significant barrier to many patients. So I decided to think outside the box—and the box is the skull. In the last 10 years or so, there has been a lot of promising research showing that transcranial electrical stimulation—delivering current noninvasively, from outside the head—can induce what's called neuroplasticity, which is the brain's ability to essentially rewire itself by forming new neural connections. This had the potential to not just treat the symptoms of neuropsychiatric diseases, as DBS does, but induce a lasting cure. The problem was it couldn't be focused to target specific brain regions identified with specific diseases. This is where my biomedical engineering team came in. What we have invented is the first electrotherapy delivery platform that is noninvasive, painless, and allows current delivery to specific brain targets.

The goal is for the treatment benefits to last. That’s a pretty compelling clinical proposition. Of course, there are many questions to be answered. But I think we have something pretty special on our hands. We’re motivated with every new story of a life transformed.”

Versatile Sanitizer Creates Antibacterial Materials

The inventor: Robert Engel, Ph.D., and two of his now-former students in the Department of Chemistry and Biochemistry at Queens College.

The invention: New antibacterial materials derived from substances known as “quats,” shorthand for quaternary ammonium salts, that can be applied to surfaces and even embedded in fabrics.

The ambition: By making surfaces themselves antibacterial, the processes developed by Engel’s lab can be used to make a wide variety of suddenly sanitary products. Arguably the most important would be hospital gowns and bedding, and even equipment surfaces that could fight the spread of infection instead of facilitating it.

In his words: “We knew that in high concentration quats kill bacteria, and we decided to try to bind them to a range of surfaces, to see if we could arrange them in such a way that they would challenge bacteria in a relatively low concentration and could rip a hole in a bacterium when it fell on them. And it worked marvelously. E. coli would be hit by 100,000 of them simultaneously and the quats would just tear the cell wall apart. The key is in the processes we’ve developed for applying the quats to surfaces. In solution, you can’t get them organized—it’s like herding cats. But if you use the surface itself, either binding or embedding them, this makes a very nice system. It works with cloth, paper, wood, paints, cork, and a variety of other surfaces. So we can make the first antibacterial hospital gown. It can also be used in hotel bedding. We can embed it in plastics for athletic gear. It can be used in construction. We can treat wood to kill fungi, or to drive termites away. We’re in the process of negotiating with three operations that would license our process. One of our collaborators is a fabric finisher. We have gone to hospitals and we’ve put this on the assembly line and run through 10,000 feet of fabric. It can be scaled up very easily.”

Robert Engel with triquat antibacterial materials

CUNY Matters — Summer 2011
Flexible Lasers Speed Wound Healing

The inventor: Vinod Menon, Ph.D., joined the physics department of Queens College in 2004, one of the first recruited to the CUNY research faculty through its strategic “cluster hiring” initiative. He and his colleagues develop lasers with practical applications.

The invention: The technique Menon has developed for creating flexible lasers and emitters that cover both visible and infrared light has the potential to be developed into a light emitting bandage that accelerates wound healing.

The ambition: Menon is a strong advocate of CUNY’s commitment to helping academic researchers get cutting-edge technologies developed and out to the world. He founded Hybrid Photonics, a company that has received funding from the Air Force Office of Scientific Research to develop chip-scale optical signal processors. He is working with CUNY’s Technology Commercialization Office to bring the laser bandage idea to the marketplace.

In his words: “It has been established that infrared laser light can help heal wounds by increasing blood flow and cell production. What we have done is use a low-cost technique, namely spin-coating process, to create flexible, micro-cavity structures that work as lasers. This means we now have a way of making lasers cheaper than traditional techniques and also getting lasers on a flexible piece of plastic. What we are trying to do is marry this to the known ability of infrared laser light to accelerate wound healing. It would be a self-powered, light-emitting bandage. The low cost of fabricating these devices will allow for easy and cost-effective scale-up of manufacturing.

What we are trying to do now is identify potential industrial collaborators for further development of the light-emitting bandage. And then, to test it, we want to collaborate with a medical institution that does research on wound-healing. Taking things from the lab to the marketplace is a long, complicated process. When I came here in 2004, there was no system in place to help professors. Now there is. It is still a difficult process, but we are learning the ropes.”

Innovative Battery With Longer Life

The inventors: CUNY Energy Institute, a center based at City College comprising faculty from across the University. Led by Sanjoy Banerjee, Distinguished Professor of Chemical Engineering and the institute’s founding director, research teams are working on advanced sustainable energy and other technologies to meet U.S. energy challenges.

The invention: A nickel-zinc “flow” battery that uses an innovative system of circulating electrolytes to scale up the capacity and life of the traditional nickel-zinc battery, making it a cost-effective method of storing large amounts of energy generated from renewable sources such as solar and wind. The project is led by Banerjee and Daniel Steingart, Ph.D.

The ambition: The institute’s hope of developing a “flow” battery large enough to sustain a building is one of several areas that have drawn combined funding of nearly $20 million in the past two years from federal and state grants, along with private foundations and industrial donors. To advance the institute’s vision of forging entrepreneurial partnerships to bring its technologies to the energy marketplace, Banerjee recruited an executive director, Valerio DeAngelis, a chemical engineering Ph.D. with long experience in managing and developing new technology ventures.

In his words: “As an academic research center, we’re kind of an experiment,” says DeAngelis. “We are a university with the mindset of a company. We have two products. One is the students — we support 30 Ph.D. students — and the other is the discoveries. We expect the technology developed here to lead to several start-up companies and hundreds of future employment opportunities in the New York City area. And training the next generation of engineers is as important as starting a company. They are both vital to our vision of contributing to the energy independence of the United States by pursuing pragmatic research in energy storage, oil and gas, and making nuclear plants safer and more efficient.”