

THE BROOK



What the Future Holds

Contents

State of the University Address 2

President Stanley on the challenges faced this past year and opportunities to do more with less going forward.

What's New On Campus 9

A new Dean for the School of Medicine; SBUMC launches Children's Hospital; former SB President John Marburger named VP for Research.

Research Roundup 10

Undergraduate research takes center stage.

Energy! What the Future Holds

How Bright Is Our Energy Future? 12

Increased energy demands coupled with the need to reduce our dependence on oil are fueling research and discovery of new energy technologies. *By Carol R. Richards*

Get Smart 16

A Smart Grid aims at bringing Long Island's 70-year-old power distribution system into the 21st century. *By Phinneas Fiske*

A Sampling of Bright Ideas 18

From sideways sapphires to paper-thin solar panels, energy innovation abounds, and much of it is happening right here at Stony Brook.

IMAX Chief Looks to the Future Through 3-D Glasses 22

SB alum Richard Gelfond explains how advances in technology are transforming the entertainment industry.

Seawolves Football—Gridiron Greatness Comes to Stony Brook 24

\$4.3 Million Gift for Strength and Conditioning Facility 25

Letter from Alumni President and Class Notes 26

Alumni Spotlight 28

In Memoriam 29

Brookmarks 30

Events Calendar 31

Flashback 32

State of the University Address

Delivered September 15, 2010 by President Samuel L. Stanley Jr., M.D.

Good afternoon. I'm delighted to welcome each of you to our annual University Convocation. This is, indeed, a special occasion for me in that it provides not only an opportunity to share with our University community where we are as an institution, but also a chance to welcome our new faculty and to wish each of you the very best as we begin a new academic year.

Having completed my first full year as president on July 1, I am prouder than ever to be affiliated with Stony Brook University and its amazing faculty, staff, and students. The fact that we have continued to raise the bar of academic quality, and the reputation of this great institution on a worldwide scale during some of the most challenging times in this University's history, is nothing short of extraordinary.

But, keep in mind, the greatness that you will hear me talk about today would not be possible without your dedicated efforts and the value that you place on professional and academic excellence and superior service to our students and our community.



Welcoming Our New Faculty

Before I share with you the highs and lows of this past year and give you a glimpse of where we are going in the coming year, I would like to take a moment to recognize the 61 new faculty members who have joined us this year.

We want you to know we are excited about what you will contribute to our University and our community and wish you a long and successful career here at Stony Brook. You have joined our University family of some 14,500 faculty and staff members. And while you know about our academic excellence and commitment to education and scholarship throughout our academic operations, Stony Brook University Medical Center, the Long Island State Veterans Home, and our arts and athletics programs are a key component in the quality of life for this region. And Stony Brook is a driving force in Long Island's economy, responsible for \$4.6 billion in economic impact annually. To all of you, welcome aboard!

Recognizing Our New Administrators

Let me also briefly recognize a few other individuals who have recently been added to our ranks and have already started making a positive impact in their new roles here at the University:

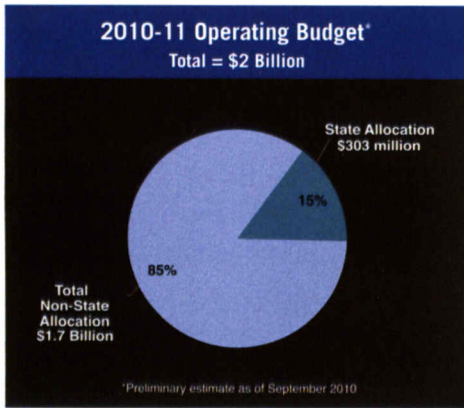
- Tonjanita L. Johnson was appointed chief deputy to the president.
- After a national search, Kenneth Kaushansky was appointed senior vice president of the health sciences and dean of the School of Medicine.
- Jack Marburger relinquished his interim status and has accepted an appointment as vice president for research.
- Margaret M. McGovern, professor and chair of the Department of Pediatrics, will be leading Stony Brook Children's Hospital as physician-in-chief. She will continue as chair of pediatrics in the School of Medicine.
- Nancy Squires was appointed dean of the College of Arts and Sciences.

Facing Challenges Together

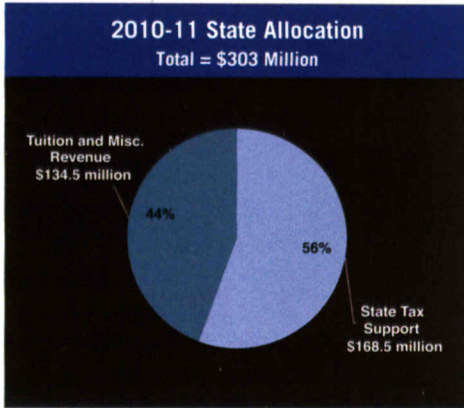
If I were a betting man, I would say the odds are pretty good that the vast majority of my presidential colleagues across the country have resorted to taking a "good news, bad news approach" to presenting their state of the university messages these days. And, while most of us would prefer to focus on the good news and the many positive things that make us unique as institutions, we all know that it is important for you, our faculty and staff, to be apprised of the challenges that are before us so that we might face our obstacles together, with far less negative impact on our students and our academic programs.

Without question, the significant reductions in our budget over the past few years have been a hindrance to our plans for continued growth and productivity.

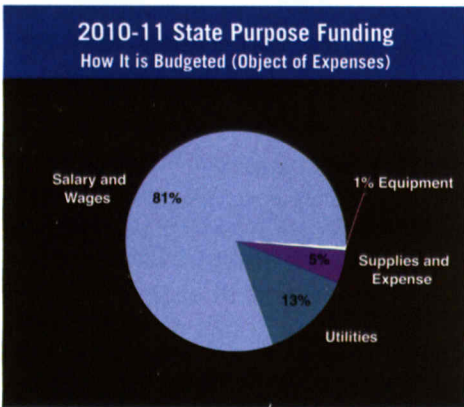
From 2008-09 through 2010-11, real cuts to Stony Brook University tally up to nearly \$59 million. Stated another way, since April 1, 2008, our State budget



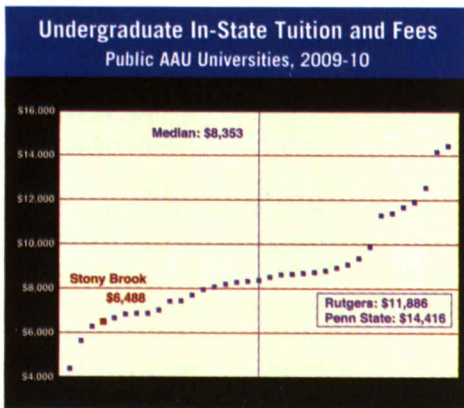
1.



2.



3.



4.

allocation has been reduced by nearly 20 percent.

To help put our budget situation into perspective, especially for the sake of those who are newcomers to our institution, I would like to share with you a few vital budgetary statistics, which has become customary at this gathering.

Of our total all-funds budget of \$2 billion (Graph 1), \$303 million comes in the form of State allocation, of which \$134.5 million (44 percent) comes from tuition and miscellaneous revenue and \$168.5 million (56 percent) is in the form of State tax support (this is what has been cut) (Graph 2). Of the 2010-11 State purpose funding, 81 percent is used for personnel (salary and wages) and 13 percent for utilities, leaving only 6 percent for everything else (Graph 3). This points out the challenge we face in dealing with our budget cuts—we have very few areas other than personnel where we can make significant reductions.

The recent cuts that we have endured are part of a longer, more disturbing trend in State funding of higher education. As a State institution, one of the most discouraging statistics we see as we look at dwindling fiscal resources is the continued downward spiral of State support per student full-time equivalent (FTE). In 2005-06, State support per student FTE registered at more than \$8,000. In 2010-11, if we remove all inflationary factors such as contractual salary increases and utilities, that support is down to less than \$4,000 per student FTE, a decrease of around 55 percent.

Tuition and Quality Education

So if the State support per student FTE is falling, where do you derive additional revenue to help maintain a quality education for each of your students? Well, obviously, many other states have looked to tuition increases to make up this difference. However, as we look at the most recent statistics for tuition and fees among other public Association of American Universities (AAU) institutions (2009-10), Stony Brook ranks fourth for the lowest tuition and fees for in-state undergraduate students (Graph 4). We are first on the list when it comes to the lowest out-of-state tuition for undergrads (Graph 5). Given the cost of living in New York and Long Island in particular, it becomes clear we are not receiving tuition revenue that is commensurate with that of our peers, or our neighboring institutions.

Fighting for PHEEIA

I think the State support per FTE number and where we stand nationally in tuition costs compared with those of our AAU peers make it very clear why we fought so hard for a rational tuition policy and the possibility of differential tuition. Being able to address the issue of tuition through the State University of New York (SUNY) board of trustees effectively would be an important part of dealing with continued decreases in State funding and the rising costs of general operations. It is terribly unfortunate that the State missed the chance to enact the Public Higher Education Empowerment and Innovation Act (PHEEIA) during this most recent budget cycle.

.....

“We believe that every high school student in New York should have the opportunity to be educated at a great public university... . So, we are not done fighting; [PHEEIA] is simply too important for New York’s future.”

.....

I want to make one personal point about PHEEIA. I was stunned and extraordinarily disappointed when some of our elected officials stated they were opposed to PHEEIA and the concept of differential tuition because, as they put it, SUNY was created to educate the poor and middle class, and therefore did not need to be excellent. I don’t believe that, you don’t believe that, and I know the students at Stony Brook and their families don’t believe that. No, we believe that every high school student in New York should have the opportunity to be educated at a great, let me say that again, a great, public university, just like the students in Michigan, North Carolina, California, and Pennsylvania. So, we are not done fighting; this is simply too important for New York’s future. And I am very encouraged by the progress we made in the previous legislative session. Our argument was bolstered by strong support from our faculty, staff, and our student leaders, as well as from major business groups like the Long Island Association and the State trade unions. And thanks to strong champions for Stony Brook and Long Island, like Sen. Brian X. Foley and

Assemblyman Steve Englebright, SUNY's message was brought front and center throughout the State. So we may have lost round 1, but I remain hopeful and continue to urge the legislators to stay true to the promise for an agreement on a rational tuition policy and increased flexibility for SUNY and Stony Brook in the near future.

So, back to the budget. Needless to say, when you take a nearly 20 percent cut in the State allocation, and couple it with the lack of any significant increase in tuition revenue or the regulatory relief and enhanced entrepreneurial flexibility that PHEEIA would have provided, you begin to understand why we have been forced to make some very difficult programmatic decisions.

Included among the difficult decisions we have had to make was the relocation of the sustainability programs from Stony Brook Southampton to our main campus. You will hear more about the developing plans for the Southampton campus in the coming weeks as the provost and a committee of campus, SUNY system, and community stakeholders return to their discussions regarding the future use of the campus. But in the meantime, I can say to you that Southampton will remain dedicated to educational purposes, including marine science research, graduate programs in the arts, programs and partnerships with SUNY schools and other key stakeholders, and as a resource for teaching and conference use.

Other decisions that have resulted from budgetary cuts included the closing of one of our leased spaces in Manhattan and a continued push toward reducing our workforce through early retirement incentives, voluntary separation programs, and attrition.

Seeking the Best Solutions

So what about those voluntary separation programs and the early retirement incentives? Some 1,700 Stony Brook employees are eligible for the early retirement and voluntary separation plans. At present, 224 individuals have submitted paperwork expressing interest in taking advantage of these programs, with 61 of those having already made official commitments. Without a doubt, we are going to lose many highly valued and highly qualified employees who will take with them a considerable amount of knowledge and experience when they leave the University. Those of you who remain will be relied upon in an even greater way to help us continue the tradition of excellence

in programs and services that is customary for Stony Brook University.

To make the most out of the vacancies that will result, at least from a fiscal perspective, we will not be quick in refilling many of these positions. I do commit to you, however, that we will seek the best possible solutions for continuing the effective operation of every aspect of the University so that our students and faculty do not experience significant decreases in the quality of our programs and services.

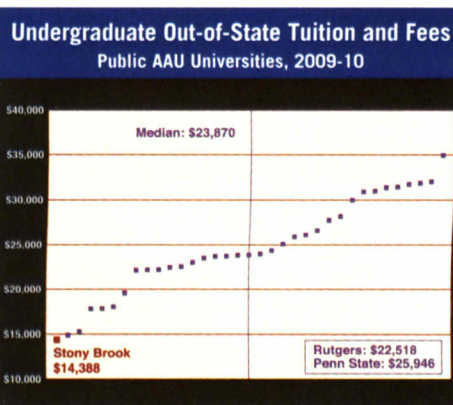
The Brightest Students

Now let's talk about some good news. I am pleased to say that we continue to attract some of the best and brightest students in the country and around the world.

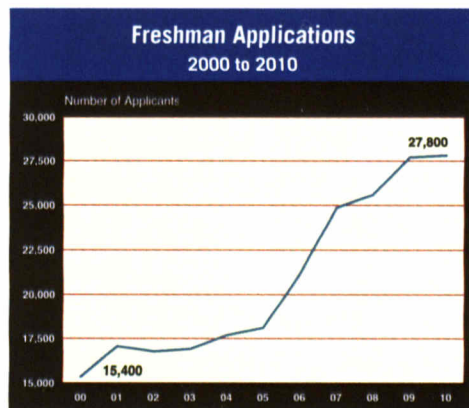
In terms of our freshman class, it is the best in the University's history (Graph 6). Nearly 28,000 first-year students applied for a class of approximately 2,700 freshmen, and an additional 4,723 transfers applied for one of our 1,200 transfer seats. Academically, the 2010 freshman class has a higher mean high school grade point average and average combined SAT scores than last year's outstanding freshman class (Graph 7). To give you some perspective on the increasing quality of our incoming students, the SAT scores of Stony Brook freshmen have improved by nearly 80 points since 2000.

Equally important, new students are attending Stony Brook from across the country and around the world. According to admissions records, the number of out-of-state freshmen increased from 15.5 percent last year to 18 percent this year (Graph 8). And we continue to be proud of the fact that we are the most racially, ethnically, and economically diverse of the SUNY centers (Graph 9); we remain accessible and provide extraordinary opportunity for outstanding students. Stony Brook ties for second in the percentage of freshmen who receive Pell Grants, at 30 percent, which is nearly twice the median percentage at other public AAU institutions (Graph 10).

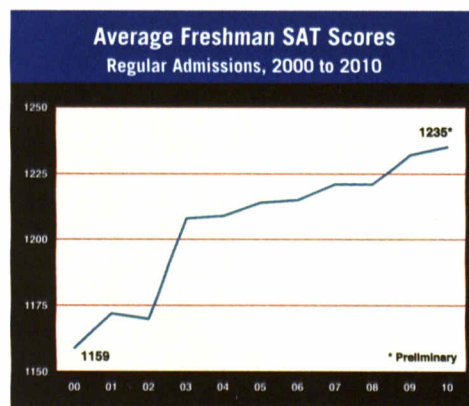
We began the 2010 fall semester with 23,916 students, 202 more than we had last fall (Graph 11). Our final enrollment number is 24,594, which came close to meeting our expectations for the fall. Just to give you a sense of our growth in recent years, we have some 4,800 more students than we had just ten years ago. We are proud that we have provided a Stony Brook education to more students, and we would like to continue



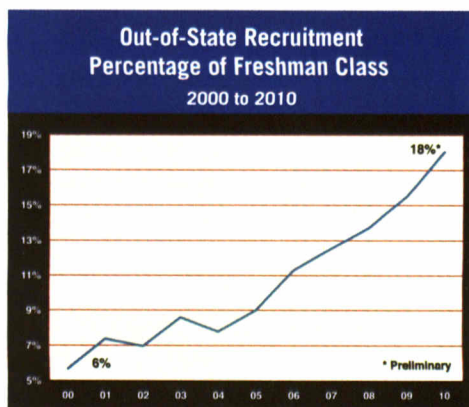
5.



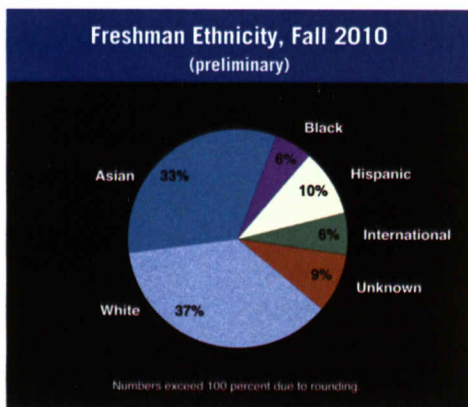
6.



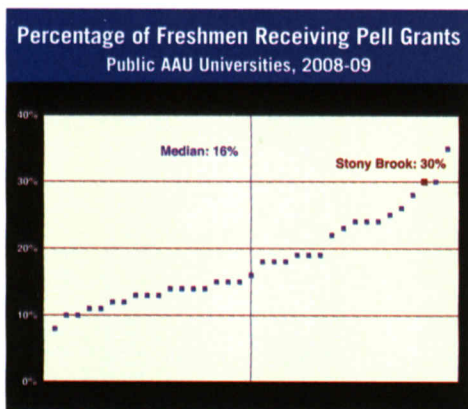
7.



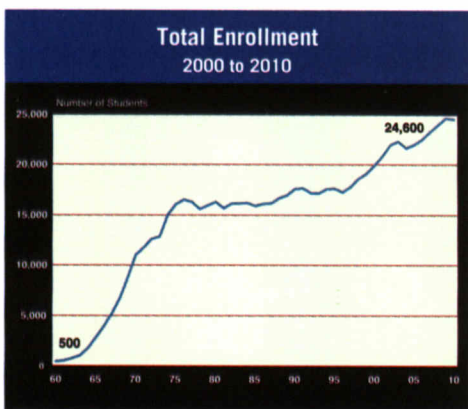
8.



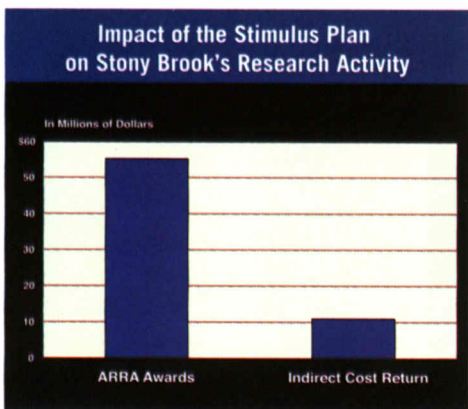
9.



10.



11.



12.

to do so. That being said, we are at a crossroads. To maintain the level of quality that is expected from a top tier institution, and to do what is right for our current students and faculty, we have decided to cap our undergraduate enrollment—for now. This is not a step we take lightly. The intent is to keep the student-faculty ratio from increasing so we don't overburden our professors and undermine access to the courses students need to graduate.

Our Outstanding Faculty

The quality of our students represents a continued source of pride for Stony Brook. And one of the reasons they come here is because of our outstanding faculty and the national and international recognition they bring to this institution. While there is not enough time at this event for me to outline appropriately even a small part of the many accomplishments of our faculty during the past year, I would like to share a select few of our most recent faculty achievements so that you will know the brilliance that sits among you today.

President Barack Obama selected Elizabeth M. Boon, assistant professor of chemistry, as a recipient of the Presidential Early Career Award for Scientists and Engineers. In addition to getting an invitation to the White House to receive her award from President Obama, Dr. Boon will be awarded \$200,000 per year for five years to continue her research.

Jennifer L. Anderson, assistant professor in the Department of History, received a coveted Emmy nomination in the category of Outstanding Individual Achievement in a Craft: Research, as part of the research team for "Traces of the Trade: A Story from the Deep North" that aired on the PBS series *Point of View*.

Professor John Parise from the Department of Geosciences was awarded a Fulbright U.S. Distinguished Scholar Award for 2009-10, which will enable him to pursue his studies on the synthesis of novel materials at high pressure while visiting the Department of Chemistry at the University of Edinburgh.

Joanna Fowler, senior chemist, director of the radiotracer chemistry, instrumentation, and biological imaging program at Brookhaven National Laboratory, and adjunct faculty member in Stony Brook's Department of Chemistry, was awarded the National Medal of Science at a White House

ceremony. She was one of nine researchers named by President Obama to receive the nation's highest award for lifetime achievement in science.

Daria Semegen, a professor from the Department of Music, won the 2009 Susan B. Anthony Lifetime Achievement Award from the Anthony Center for Women's Leadership in Rochester, New York, site of the Susan B. Anthony House National Historic Landmark.

Three Stony Brook University professors—Philip B. Allen, Barbara V. Jacak, and Alan Tucker—were named 2009 American Association for the Advancement of Science (AAAS) fellows.

Stony Brook University Mathematics Professor Dennis Sullivan was awarded the prestigious Wolf Prize in Mathematics for his innovative contributions to algebraic topology and conformal dynamics.

The National Academy of Engineering elected Eric W. Kaler, provost, senior vice president for academic affairs, and vice president of Brookhaven affairs, as one of 68 new members and nine foreign associates.

The Emerson String Quartet, Stony Brook University's resident ensemble, won its ninth Grammy Award for Best Chamber Music Performance for its May 2009 recording "Intimate Letters," released by Deutsche Grammophon.

Lorna W. Role, chair of the Department of Neurobiology and Behavior, and member of the Central Nervous System Disorders Center in the Centers for Molecular Medicine at Stony Brook, was named a winner of the prestigious Director's Pioneer Award from the National Institutes of Health for her proposal for light-induced deep brain stimulation of cholinergic neurons involved in degenerative brain diseases such as Alzheimer's.

Please join me in congratulating these and other faculty members for their outstanding efforts in teaching, research, and service.

Growth in Sponsored Research

Another measure of the extraordinary efforts of our faculty, staff, and students is evident in our growth in sponsored research. Stony Brook faculty rose to the occasion and performed with true distinction in achieving funds from the American Recovery and Reinvestment Act (ARRA) (Graph 12). We received 102 ARRA awards, resulting in some \$55 million in ARRA funds and generating some \$11 million in indirect funding. This

effort is significant, in that our awards in this area constitute 45 percent of the total amount awarded to all SUNY campuses and is greater than the combined total of the amounts awarded to the other three university centers.

More important, for the first time, Stony Brook surpassed \$200 million in sponsored research expenditures (Graph 13). Now, because a significant amount of this came from ARRA money, I am not certain we can do this again next year, but what a wonderful goal for us to shoot for as we work to build sponsored research at Stony Brook University. My thanks to all of you for your hard work in getting this done.

.....

“Project 50 Forward is a comprehensive initiative designed to...develop a solid platform to support the future growth of the University and strengthen Stony Brook’s role in the economic renewal of New York State.”

.....

Success in Athletics

Athletics is yet another area in which Stony Brook has been building on its success and enhancing its reputation. The increased attendance we have seen over the past decade in such sports as football, men’s and women’s basketball, and lacrosse continues to be indicative of the growing excitement and interest our sports teams are generating across the campus and within the community. From the 2000-01 fiscal year to fiscal year 2009-10, attendance for athletics events in the four sports I just mentioned has doubled, increasing from a little more than 30,000 attendees to more than 60,000 (Graph 14). This past year, in particular, has also been a banner year for Stony Brook Athletics.

The women’s cross country team won its third straight America East Championship title, while the men’s soccer team stormed through the America East Conference tournament, winning the championship without allowing its opponents a single goal. Men’s basketball won the America East regular season title while posting its best season ever, setting program records for overall vic-

tories (22) and conference wins (13), and hosting its first-ever Division I post-season game. In football, Stony Brook grabbed a share of the Big South Conference title in dramatic fashion in the final game of the season, and Head Coach Chuck Priore was selected as Big South Coach of the Year. In men’s lacrosse, the Seawolves captured the America East regular-season title, won the America East post-season tournament, and won the first NCAA Division I post-season tournament game in school history. Stony Brook men’s lacrosse is now ranked in the top ten in the nation for the first time in school history. The Stony Brook University baseball team won its second America East championship in three seasons, and won a game in the NCAA Tournament.

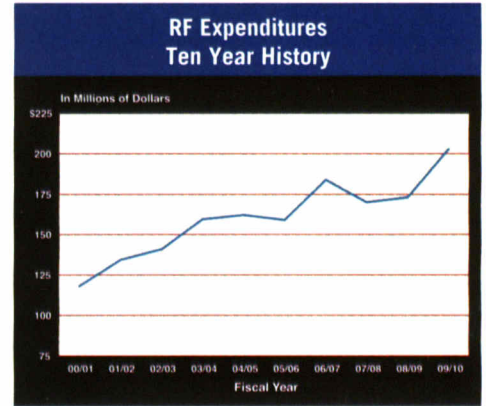
While our focus as an institution of higher learning will always be academics, I am extremely proud of the performance of our student-athletes and the positive and professional manner in which our athletics administration and coaches represent Stony Brook. Their efforts have brought significant public attention to our University, and their accomplishments have enhanced our reputation as an institution committed to excellence in its every endeavor.

A New Vision for the Next Half Century

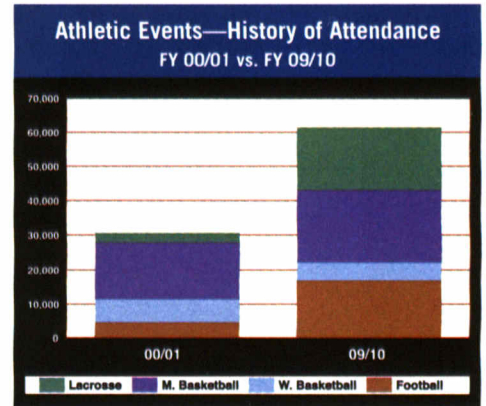
Before I conclude, I would like to mention Project 50 Forward, an exciting new vision of how we will approach the next half century and beyond.

Project 50 Forward is a comprehensive initiative designed to enhance the fundamental teaching, research, and service missions of Stony Brook University. Through greater accountability and the commitment to do more with less, this initiative will develop a solid platform to support the future growth of the University and strengthen Stony Brook’s role in the economic renewal of New York State.

I believe that Project 50 Forward will add value to the Stony Brook degree, propel us into the ranks of the top 20 public research universities, and make a positive impact on everyone associated with this great institution, but it is going to require the involvement of our entire University community. With your suggestions, engagement, and support, we will look for every opportunity to provide our faculty and students with the resources they need to excel.



13.

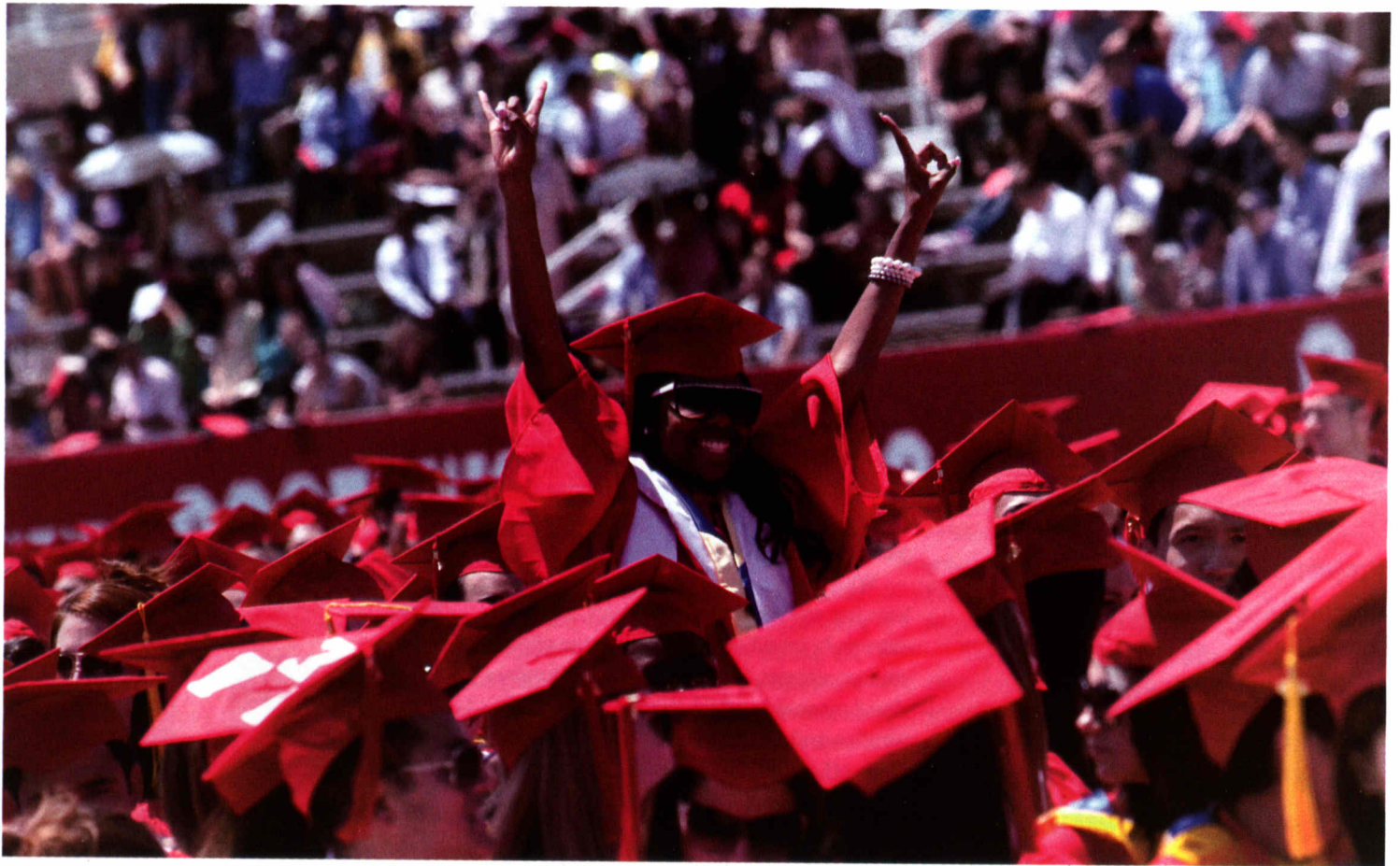


14.

There are three essential elements at the core of Project 50 Forward: Operational Excellence, Academic Greatness, and Building for the Future. Operational Excellence will focus on every facet of University operations, with an eye toward reducing costs and streamlining operations. Using a generous gift from the Stony Brook Foundation, we have engaged Bain & Company to help with this process, which is designed to help us improve our effectiveness and efficiency, while also helping us to deal with our budget situation.

Academic Greatness will be achieved through the implementation of a comprehensive Strategic Plan, which is being developed with input from faculty and University leadership. Following a significant review of our academic programs, the Strategic Plan will identify and address areas in which we can build upon excellence, developing programs that will truly differentiate Stony Brook from other institutions, and continue our trajectory toward greatness.

Building for the Future, which falls under the auspices of a new Facilities Master Plan, is the third essential element of Project 50



Forward. The Facilities Master Plan will enable us to review, analyze, and develop a best-use model for new and existing buildings and infrastructure for all our campuses, including Main Campus, the Medical Center, the Research and Development Park, Manhattan, and Southampton.

Working together, with Project 50 Forward as our blueprint, we can accomplish all of our goals. I encourage you to explore the Project 50 Forward Web site, www.stonybrook.edu/50forward for more detailed information about this initiative.

An Extraordinary University

Although some of our focus in the coming months will involve looking at how we will address many of our challenges, I hope that we all will take the time to enjoy and take note of the many exciting and positive things that are happening around us.

For example, we have just recently launched a new Children's Hospital, which is designed to address the growing need for specialty children's health care in the region; Nobel Halls, the University's

.....
"Stony Brook is an exciting place to learn, live, and work. What has been achieved here in a little more than 50 years is truly remarkable, but we can, and we will, accomplish even more. ...I am absolutely convinced we have the creativity and resourcefulness... to rise above the hard times."
.....

first LEED-certified residence halls, named for Stony Brook Nobel laureates Paul Lauterbur and C.N. Yang, have opened to a very positive reception; the Advanced Energy Research and Technology Center, which is located in the Stony Brook Research and Development Park and will house material science labs, engineering labs, and specialized facilities for a consortium of University researchers, institutions, public and private utilities, and federal

laboratories, is scheduled to open this fall; and the Simons Center for Geometry and Physics is substantially complete, with a scheduled opening for later this semester.

These and so many other recent additions to our campus serve as a wonderful reminder that Stony Brook is an extraordinary university; it is an exciting place to learn, live, and work. What has been achieved here in a little more than 50 years is truly remarkable, but we can, and we will, accomplish even more. There is no question that we face challenges, but I am absolutely convinced we have the creativity and resourcefulness on this campus to rise above the hard times.

The poet Horace is credited as saying, "Adversity has the effect of eliciting talents, which in prosperous circumstances would have lain dormant." Now, more than ever, we need to draw upon your strengths and your talents. Adversity abounds, but the capacity to overcome the adversity that we face abounds in even greater measure. Please get involved, and share your thoughts and ideas with us as we strive to make this our most productive year ever. ■

What's New on Campus

Appointments, Announcements, Awards

New Dean for School of Medicine

After a national search, Kenneth Kaushansky, M.D., M.A.C.P., the Helen M. Ranney Distinguished Professor and Chair, Department of Medicine at University of California, San Diego, has been appointed senior vice president of the Health Sciences for Stony Brook University and dean of the School of Medicine.



Kenneth Kaushansky, M.D., M.A.C.P.

Kaushansky, 56, has oversight of the education, clinical, and research components of the School of Medicine and the Health Sciences, which also include the School of Dental Medicine, School of Health Technology and Management, School of Nursing, and the School of Social Welfare. He has some oversight responsibility for Stony Brook University Medical Center, and oversight for the Long Island State Veterans Home.

Kaushansky earned his B.S. and M.D. degrees from the University of California, Los Angeles, and completed his Internal Medicine Internship, Residency and Chief Medical Residency, and Fellowship in Hematology at the University of Washington. He joined the faculty at the University of Washington in 1987. Following his service as hematology section chief at the University of Washington Medical Center, Kaushansky was named Helen M. Ranney Professor and chair of the Department of Medicine at University of California, San Diego, in 2002.

A leading hematologist, Kaushansky had conducted seminal research on the molecular biology of blood cell production. He is an accomplished clinician, and he has been a champion of the need to train more physician-scientists who can bridge the gap between the laboratory and the clinical arena, translating research discoveries into improved treatments and technologies for the prevention, diagnosis, and management of disease.

SBUMC Launches Children's Hospital

"Nothing is more important than the health and welfare of our children," said Samuel L. Stanley Jr., M.D., president of Stony Brook University, at Stony Brook University Medical Center's June launch of Stony Brook Long Island Children's Hospital.

Stony Brook Children's, the only dedicated children's hospital east of the Nassau/Queens border, will provide patients with state-of-the-art technology and specialty physicians, nurses, and researchers, all contained in the only university-based children's hospital on Long Island.

Simultaneous with the launch, the organization received associate membership status in the prestigious National Association of Children's Hospitals and Related Institutions (NACHRI). NACHRI promotes the health and well-being of all children and their families through support of children's hospitals and health systems that are committed to excellence in providing health care to children.

"We are uniquely positioned to provide this comprehensive care dedicated to the community's youngest patients and their families while leading the way to new knowledge in children's health," said Steven L. Strongwater, M.D., Stony Brook University Hospital CEO.

Initially, Stony Brook Children's will be located within Stony Brook University Medical Center as plans are developed for a free-standing facility in the future.

Leading Stony Brook Children's as physician-in-chief is Margaret M. McGovern, M.D., Ph.D., professor and chair, Department of Pediatrics.

"With Suffolk's high incidence of chronic childhood illnesses such as asthma, and with young accident victims and low birth weight infants, there is a driving need for a children's hospital here," said McGovern. "[Stony Brook Children's] is a destination for doctors, nurses, and researchers who are continually seeking new ways of treating persistent—and emerging—threats to children's health."

To learn more about Stony Brook Children's, visit www.stonybrookchildrens.org



From left: Dr. Kaushansky; Dr. McGovern; Wolfie; Dr. Strongwater; President Stanley; Richard Fine, M.D.; John Tsontis, Gold Coast Bank; and Richard Daines, M.D., Commissioner, NYS Department of Health.

Marburger Leads SB Research

Former Stony Brook President John H. Marburger III has been named the University's vice president for research. Marburger was Stony Brook's third president (1980-1994), director of Brookhaven National Laboratory (1998-2001), science advisor to President George W. Bush, and director of the Office of Science and Technology Policy (2001-2009).

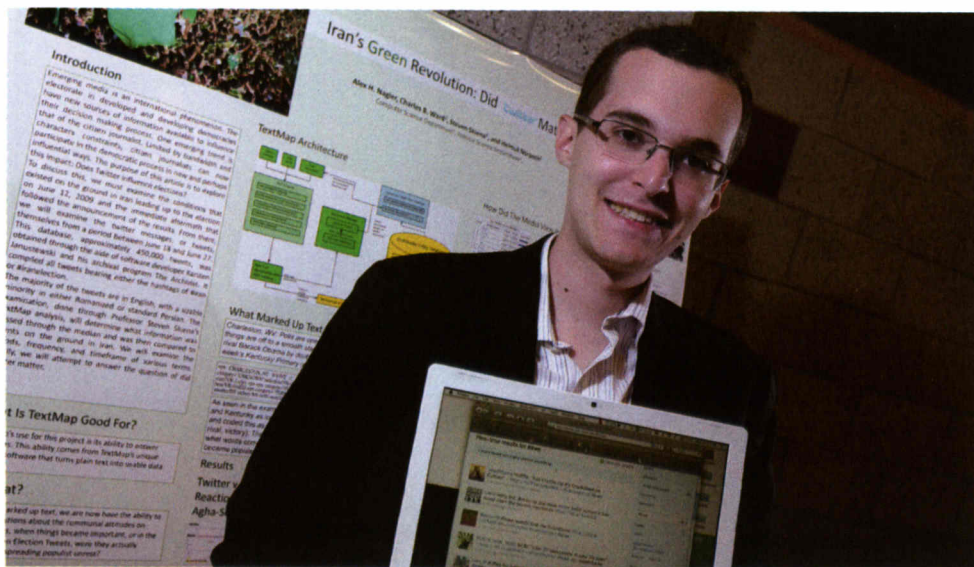
Stony Brook University reached a record \$200 million in total sponsored program research expenditures at the end of the fiscal year in June. In addition, SB received 110 awards totaling more than \$56 million under the American Recovery and Reinvestment Act (ARRA) of 2009. Stony Brook accounts for over 40 percent of all ARRA funding SUNY-wide.

Marburger's presidency at Stony Brook coincided with the opening and growth of the Hospital and the development of the biological sciences as a major strength of the University. During the 1980s, federally sponsored scientific research at SB grew to exceed that of any other public university in the northeastern U.S.

Marburger was the first president of Brookhaven Science Associates, which was established for the purpose of managing and operating Brookhaven National Laboratory. It was formed as a 50-50 partnership between Battelle Memorial Institute and The Research Foundation of the State University of New York on behalf of Stony Brook University. ■

Research Roundup

Each year, students are honored at the URECA (Undergraduate Research and Creative Activities) Celebration. Here, examples of what young minds can accomplish when encouraged to pursue their passions.



How did Twitter impact the Green Revolution in Iran? Political Science major Alex Nagler, with guidance from mentor Helmut Northop and assistance from Computer Science's Steven Skiena, analyzed 450,000 "tweets" to find out.

All a-Twitter

The protests following the 2009 elections in Iran caught the attention of the world and, in particular, Alex Nagler, a political science major, who was preparing to start his senior honors college thesis.

"When June 13 [the start of the protests] happened, Iran basically blew up into a sea of green after the election. People were sending messages on their phones, and this information managed to get out of the country—to spread where people were protesting. I was paying close attention to what was happening and it was just fascinating to me, the use of the social media networking throughout these events. So I chose the use of Twitter as the topic of my senior thesis. It's ironic, I guess, doing a 50-page paper on messages transcribed in 140 characters or less," he notes.

The thesis—"Iran's Green Revolution: Did Twitter Matter?"—began to take shape when Nagler found a database of some 450,000 tweets (Twitter messages) that were sent regarding the Iran elections from June 18 to June 27. With guidance from his mentor, Helmut Northop, Department of Political Science, Nagler reached out to Steven Skiena, Department of Computer Science, for help analyzing the database. Using Skiena's software program, Textmap, a usable database

was created in which Nagler "could search who was saying what, what was being said, etc. And from that, I was able to compare to the actual events on the ground and see how they linked up."

So did Twitter matter? Yes and no, according to Nagler. "No, Twitter didn't actively engage in regime change," he reveals, but "yes, Twitter was incredibly important. Not only did Twitter allow the rest of the world to know what was going on in real time, it gave Iranians the courage to speak up. Twitter also allowed images to escape a country that has governmental control of media sources."

For Nagler, the most interesting conclusion of his research wasn't something he did, but something that recently happened: The entire Twitter corpus has been gifted to the Library of Congress. "Twitter showed that it was a valid conduit of information in Iran. It showed that useful material could be transmitted in 140 characters or less and that there was more to the service than just the cultural pulse of the users," he reports. "To say that there is room for further examination is a gross understatement."

After graduating summa cum laude in May, Nagler is taking time off before applying to graduate programs while he works on publishing his Twitter results.

The Rat Race

When senior Andrew Tucci, a psychology major, decided to seek out opportunities to do research, he discovered a unique opportunity to join Peter Thanos' Behavioral Pharmacology and Neuroimaging Laboratory at Brookhaven National Laboratory. This "turned me on to a whole different side of psychology," says Tucci.

Working under the mentorship of Thanos, Tucci immersed himself in research, spending about 25 to 30 hours per week in the lab. That dedication led to his most recent research project, "Chronic forced exercise decreased cocaine conditioned place preference in adolescent male but not female Lewis rats."

In the study, the rats ran on a treadmill for six weeks for up to one hour of exercise per day. Tucci explains: "We introduced [the rats] to a paradigm, Conditioned Place Preference (CPP)... We showed that the rats that received exercise preferred the non-cocaine-associated box. It's a very simple experiment...but there hadn't been a lot of research done when it comes to forced exercise.

"These findings suggest that strategies to promote physical activity during adolescence may be protective against cocaine abuse and merit further investigation," Tucci concludes. The results of the study are available online through the journal *Behavioral Brain Research*.

Tucci hopes to continue this line of research as he prepares to graduate in 2011. After graduating he plans to apply to Ph.D. programs and is considering Stony Brook so he can continue working in the Thanos lab.



Can exercise curb a preference for cocaine? Andrew Tucci (right) does research with Peter Thanos at BNL.



Elizabeth Millings' love of research blossomed during two summers spent in laboratories. The summa cum laude graduate is pursuing a Ph.D. in nutritional biochemistry.

Senior Erica Palma's interest in nanoparticles was piqued when she participated in BNL's Office of Educational Programs' high school research program.

A Summer Start

Elizabeth Joy Millings discovered her passion for research during two summers spent on two different projects at Brookhaven National Lab (BNL). In 2007 she was an intern in BNL's Gas-Phase Molecular Dynamics group with Trevor Sears, and in 2008 she was a Science Undergraduate Laboratory Internship participant in the Radiotracer Chemistry group, where she worked under the mentorship of Jacob Hooker and with the team of Joanna Fowler. "BNL is unique. I really love it," Millings says. "You have all these researchers, from all over the world, and what drives them is the love of discovery."

Thanks to her BNL experience, Millings was well equipped to dive straight into new research projects when she transferred to Stony Brook in Fall 2009 and joined the lab of Peter Tonge, Department of Chemistry. "The Tonge lab focuses on looking for ways to combat tuberculosis, novel therapeutics for tuberculosis. One of the problems is that the tuberculosis bacteria become resistant to the tuberculosis drugs. So our lab is working on designing a new target that could be a possible therapeutic that could then be turned into a drug," she explains. Millings detailed this research in her 2010 URECA poster, "Investigating the mechanism and kinetics of 1,4-dihydroxy-2-naphthoyl-CoA synthase (MenB) in *Mycobacterium tuberculosis*."

Millings, who graduated summa cum laude with a degree in chemistry last May, will be taking her love of research to new levels as she prepares to attend graduate school to earn her Ph.D. in nutritional biochemistry.

In Her DNA

Senior Erica Palma's childhood interests and family history ignited her early interest in the medical sciences. Her mother is a nurse and her father, Alfred Palma Sr., graduated from

Stony Brook with a B.S. in medical technology and an M.S. in health care management (her brother graduated from SB in 2008 with a B.E. in electrical engineering). Her interests solidified as she became a biomedical engineering major at SB and started working with Oleg Gang at Brookhaven National Laboratory's Center for Functional Nanomaterials in 2008. "Before working in Dr. Gang's lab, I had more of a curiosity about nanotechnology. It wasn't until after working in the lab that the curiosity turned into a driving interest because I realized that this field was on the forefront of biomedical innovation," she reports.

The past two years, Palma has presented DNA research at URECA and is continuing to work in this area. Her current research is on "Heterogeneous nanoparticle biosensors assembled with a DNA toolbox." She explains: "We are optimizing methods for linking gold nanoparticles with other nanoparticles, such as silver or quantum dots, in an attempt to maximize their optical properties for future use in a range of applications, including biomolecule detection. These assemblies could potentially be used as highly sensitive, rapid response biosensors. Nanoparticle aggregates can form through a method known as self-assembly, where complementary strands of single stranded DNA, attached to the surface of the nanoparticles, bind in solution. A primary focus of my research is on studying the difference between the optical characteristics of different configurations in their assembled and nonassembled states."

This year, Palma plans to focus on applying to graduate schools and finishing her research. "After I graduate, I hope to attend graduate school with the goal of acquiring my doctorate. I plan on continuing research specifically in biomedical nanotechnology. I feel the best way to have a broad impact in this field is to improve the technology behind it." ■

On the Horizon

Stony Brook is going where no university has gone before, thanks to a \$1.4 million National Science Foundation grant to build "the closest thing in the world" to *Star Trek's* "holodeck."



Arie Kaufman

Known as the "Reality Deck," the Immersive Giga-pixel Display will be a 40' x 30' x 11' high room in SB's Center of Excellence in Wireless and Information Technology (CEWIT), containing 308 LCD display screens driven by an 85-node graphics computing cluster. And while it will not be quite the simulated reality environment found on the starship *Enterprise*, it will fully immerse visitors in 1.25 billion pixels of information, approaching the visual acuity of the human eye, according to the project director, Arie E. Kaufman, Ph.D., distinguished professor and chair of the Department of Computer Science and chief scientist at CEWIT. The deck will be constructed in the next year.

Stony Brook University School of Medicine, through the SUNY Research Foundation, received a \$5.5 million grant from the New York



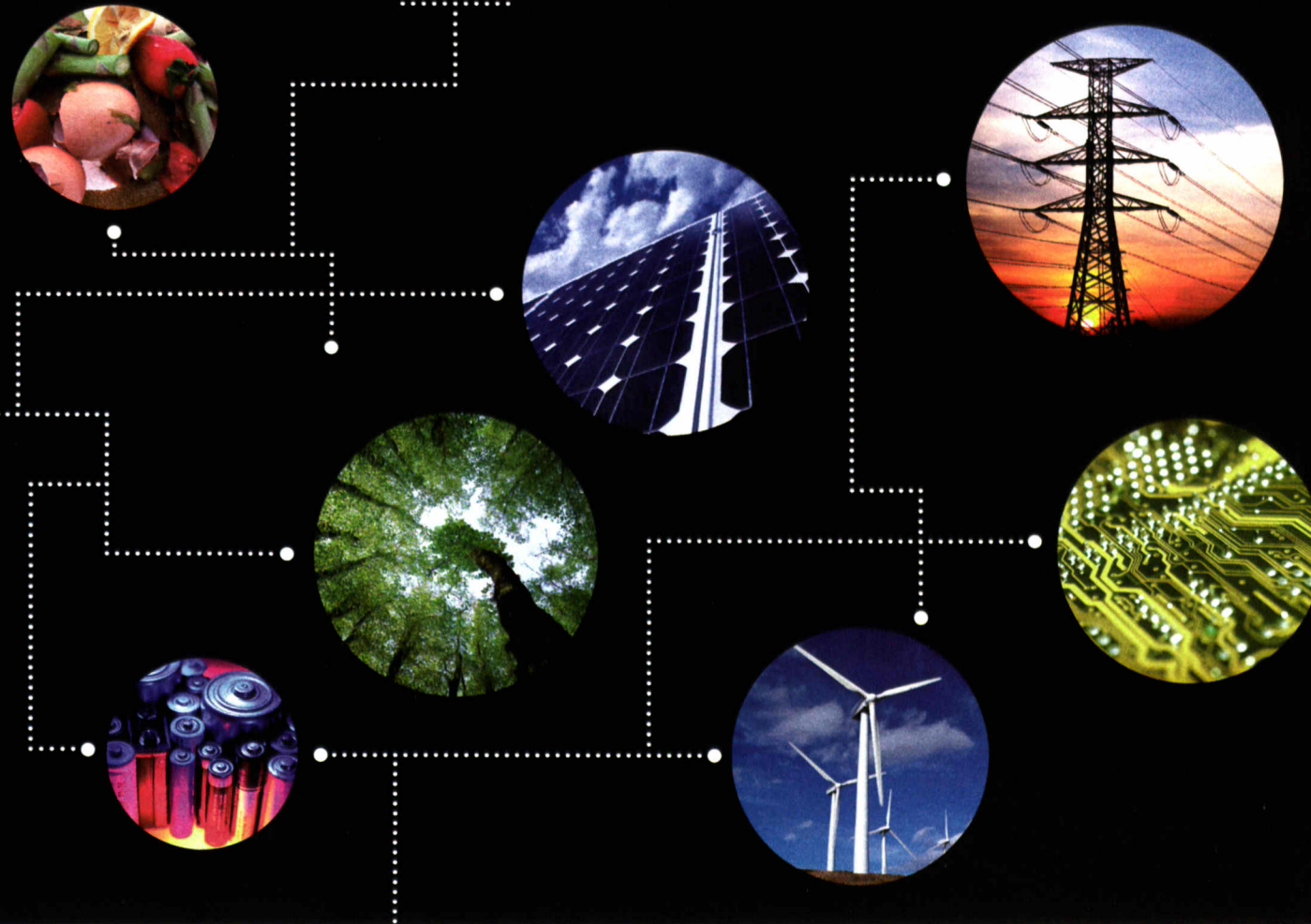
Wadie F. Bahou

State Department of Health (DOH) to support stem cell research, training, and biomedical research infrastructure. The grant was awarded as part of \$30.5 million in funding approved by the Empire State Stem Cell Board this year to support the work of 10 research institutions across the state. Stony Brook will receive the third highest total funding among the state institutions.

Wadie F. Bahou, M.D., vice dean of scientific affairs and principal investigator of the award, reports that the funding will be used to create a multi-user core stem cell education and research facility, the Stony Brook Stem Cell Center, which will help support 25 funded investigators and eight other investigators seeking funding.

How bright is our energy future?

By Carol R. Richards



By 2020, China and India will be using all the oil the Saudis can pump and we Americans are going to have to be ready to rely on new sources of energy—fast.

Stony Brook University is at the forefront of state and national efforts to find new clean, green ways to keep the juice flowing. The University has taken a leadership role in energy policy-setting; it has become a seedbed of ideas with its exciting advanced energy conferences, and its labs and classrooms are home to students, scientists, and engineers dreaming up and applying for patents in gee-whiz new energy technology.

Just as our lives have been affected in almost every way by information technology, or IT for short, another transforming upheaval is in the works: energy technology. “ET is the next great Industrial Revolution,” says visionary, Pulitzer Prize-winning author Thomas Friedman.

Goaded by interlocking desires to curb global warming and stop buying oil from the Middle East, at a time when the computers, cars, and factories of China and India are guzzling oil, and when the prospect of offshore drilling may be less attractive due to the recent leak in the Gulf of Mexico, a convergence is occurring among public policymakers. “We have a Sputnik moment again,” is the way federal energy advocate Arun Majumdar puts it. A featured speaker at Stony Brook’s Advanced Energy Conference last fall, he is head of ARPA-E (Advanced Research Projects Agency—Energy), the federal agency

pouring big bucks into energy research. It’s agreed: We need clean, renewable sources of energy that cost less, allow for ready storage and quick deployment, and we need these new technologies ASAP.

One disturbing fact: Global energy demand is expected to rise 35 percent between 2005 and 2030. The prediction that China and India will be using all the Saudi output within a decade comes from Jeff Imelt, chief executive officer of General Electric Company, who ought to know. A similar view comes from Don Paul, executive director of the University of Southern California Energy Institute, who says, “Developing countries are growing so fast that we’re going to need all the energy we can get our hands on. If we don’t have electric vehicles, we are not going to have enough fuel.”

And the fossil fuels that are powering this growth are pumping tons of carbon dioxide into the atmosphere, accelerating climate change.

Yacov Shamash, Stony Brook’s vice president of economic development and dean of the College of Engineering and Applied Sciences, says New York State is “actually ahead of the game” in the area of clean technology and clean jobs.

New York’s new Smart Grid Consortium is an example of national leadership. Shamash says it got started when he and former Keyspan President Robert B. Catell and Con Edison President and Chief Operating Officer Louis L. Rana brought together utilities and utility regulators—forces often at odds—to figure out how to introduce smart grid technology to New York. Involved are software companies, solar advocates, wind power promoters, communication execs, and others. But the big deal is having the utilities and the regulatory

body—the Public Service Commission (PSC)—working hand in hand. As a rule, government regulators like to see utilities spend their money on holding down customers’ bills rather than doing costly R&D. In some states, they just say no.

“State utility commissions don’t allow utilities to make investments in smart grids,” says Marc Cummings of Battelle & Pacific Northwest National Laboratory. He was speaking at a federal energy conference in March, where former CIA Director James Woolsey used humor to make the same point: “Take the electricity grid—please.”

Naysaying is less of a problem in New York.

Shamash reels off a utility R&D proposal made this spring that was approved by the PSC in about a week instead of the usual months. The Smart Grid Consortium put all the players in one room. “Other states are calling us to see how we did it,” he says.

There are other major energy organizations in which Stony Brook plays a key part. There’s the New York Energy Policy Institute, which also involves Brookhaven National Laboratory (BNL) and 18 universities. Membership puts Stony Brook in a place to play a big part in determining New York State’s energy policy from here on out. And there’s the Long Island High Technology Incubator Inc., which also involves BNL and the private sector, and which will be financing a clean-energy business incubator on campus.

Just consider the playbill for the game-changing energy drama

unfolding in New York: retired utility big shot Catell stars as chairman of Stony Brook’s new Advanced Energy Research and Technology Center; SB alum Kevin Law, former president of the Long Island Power Authority, the No. 1 utility on the East Coast for using solar panels, and current Long Island Association president, is cast as

chairman of the Stony Brook Council. Don’t forget big New York-based companies that are involved in clean, green technology, such as GE, IBM, and CA. Put them on stage with Shamash and the researchers of Stony Brook University and BNL, and you have a stellar cast working with a highly ambitious script. The basic plot: Act I. Make more power; use less. Act II. Create U.S. jobs; rely less on imported fuel. Act III. Pump less carbon dioxide into the atmosphere; save the planet.

Specifically, create more and cheaper electricity from nonpolluting sources, such as the sun and the wind, and make that power more reliable.

Manufacture more fuel for cars and trucks from things that grow, rather than use fossil fuels. Build batteries that can store excess wind and solar power for use when it’s dark and still. Boost batteries so electric cars don’t have to recharge so often. Curb wasted power by making computers, cars, you name it, more efficient. Trim carbon pollution from coal-fired power plants.

Some of the ideas are wild, but who knows what will work until it is tried? In New Hampshire, Stony Brook alum Kedar Gupta is growing “sideways sapphires,” whose use sharply cuts the cost of making

.....
We need clean, renewable sources of energy that cost less, allow for ready storage and quick deployment, and we need these new technologies ASAP.
.....

LED light bulbs (see story, p. 18). On campus, Charles Fortmann is using chlorophyll to make solar cells work more efficiently (page 20). And Distinguished Professor of Materials Science Miriam Rafailovich put together a team that includes a graduate student, a high school senior, and a science teacher that has turned a dangerous chemical manufacturing process into “tabletop chemistry” and is the subject of a patent application (page 19). The project helped make the high school student a finalist in the 2010 Intel Science and Talent Search.

The federal government is helping to pay for research as part of its plan to end the Great Recession. The \$787 billion American Recovery and Reinvestment Act provides \$4 billion to upgrade the national grid. It also gives \$400 million to the Energy Department’s ARPA-E to fund high-risk, high-reward technical research. Much of the research at Stony Brook is underwritten by the Department of Energy and/or the National Science Foundation.

Some of the ideas being tested in the laboratory include:

Biofuels. Forget gasoline. Forget ethanol. Run your car on fuel made not from corn or other foods, but from nontraditional sources such as trash, wood trimmings, grass clippings, or algae. Check out Devinder Mahajan’s project to create gas from Long Island landfills and wastewater treatment plants (page 20).

Batteries. Boost batteries so they’ll keep your car running for 600 miles and can store the power from wind and solar sources for use when the wind dies and the sun goes down. Or make minuscule batteries that can be wirelessly recharged and will outlast current ones that now power heart pacemakers. That’s one of the uses envisioned by Rafailovich for the graphene made by her prize-winning crew of collaborators (page 19).

Smart grids. Replace the current skein of wires and cables that carry America’s power with an electric grid that wastes less juice and transmits power both ways—from the utility to the home or business, and from personal generators, such as solar panels, back to the utility (page 16).

Reliable renewables. How about stringing together so many wind turbines along the East Coast that there is almost always wind blowing somewhere to keep the juice flowing? The science behind the idea has been affirmed by a team that includes Associate Professor Brian Colle of Stony Brook’s School of Marine and Atmospheric Sciences (page 19).

Smart buildings. A lot of money is spent air conditioning computer rooms, so find ways to make them give off less heat. That’s a



These new technologies may be just as disruptive to the status quo as the discovery of oil was to life in lamp-lit, wood-fire-heated America in 1859.

project of Associate Professor Erez Zadok of Stony Brook’s Department of Computer Science (page 18). And why not make buildings clean themselves and the air around them? It’s doable. Alexander Orlov, assistant professor, Department of Materials Science and Engineering, collaborates with a firm that coats entire buildings with self-cleaning paint that also removes nitrogen dioxide from the air. One of the ingredients? Titanium dioxide, which is also found in toothpaste.

These new technologies may be just as disruptive to the status quo as the discovery of oil in Titusville, Pennsylvania, was to life in lamp-lit, wood-fire-heated America in 1859. Imagine: selling to the electric company the excess power created by your electric car or your rooftop solar panel. Imagine: recharging your car in the parking lot while at work and never pumping another drop of gas. Imagine: getting off the grid entirely. These scenarios are why scientists are calling the search for clean, green energy mechanisms “disruptive technologies.”

At Stony Brook’s energy conference last winter, Majumdar, former associate laboratory director at Lawrence Berkeley National Laboratory, offered the long, long view. He says:

“What were the innovations of the 20th century that changed the course of humankind’s history? Perhaps the most important one was

the Haber-Bosch process of creating artificial fertilizers by fixing atmospheric nitrogen to form ammonia. It...led to massive increase in food production and an almost fourfold increase in global population in 100 years. But there were plenty of other game-changers: creating semi-dwarf high-yield strains of wheat that introduced the green revolution; antibiotics; polio vaccination; the transistor and integrated circuits; electrification; the airplane; nuclear energy; optical and wireless communication; the Internet; and so on. Now imagine all these innovations happening in a span of just ten to 20 years. That is the scale and pace of game-changing innovations that we now need to address in the energy and climate change challenge of our and future generations.”

ARPA-E was created by Congress to duplicate the success of DARPA (Defense Advanced Research Projects Agency), the Defense Department agency that created the Internet. It is pouring money into research that will conceive and deliver these new technologies. The idea is to move America into the forefront of energy invention and to put Americans back to work in the process, a side benefit of the Great Recession. His boss, U.S. Energy Secretary Steven Chu, says, “Rather than sending billions overseas to pay for clean technologies, we must start investing these dollars in America’s workers, industries, and innovations.”

A Primer on Power: the Good, the Bad, and the Ugly

Our world runs on energy, but there is not a single commercial source without some drawback. Consider:

Oil is the bad guy in all this. It is the fuel that powers our cars and makes much of our electricity. America uses 20 million barrels a day. But acquiring what we need makes us vulnerable, since more than half of our oil is imported. (Our No. 1 supplier is friendly Canada, but a good deal of our oil comes from nations that are unfriendly, unstable, or both.) And using what we need imperils us, since burning it produces carbon dioxide, a greenhouse gas that is affecting our climate. And finally, the price of oil is sure to soar as India and China buy more and more of the stuff. That will get the public's attention.

Coal, which America has in abundance, is worse than oil as an emitter of carbon dioxide, to say nothing of the damage the extraction process does to the environment and the danger the work poses to miners. More than 48 percent of the nation's electric power comes from coal.

Natural gas emits only half as much carbon dioxide as oil. Although it's still a greenhouse gas, it is considered a desirable option, and one that could bring wealth to the Eastern states that overlie the massive Marcellus Shale field, which covers New York's Southern Tier and extends down to Tennessee. Now that science has figured out how to extract gas from the shale by a process called hydraulic fracturing, "we are the Saudi Arabia of shale gas production," according to Daniel Poneman, U.S. deputy secretary of energy.

Hydropower is clean, but it requires too much land to be practical as a new source. (Has anyone built a Hoover Dam lately?)

Nuclear power is clean but public opposition has prevented utilities from starting any new plants for decades. (Remember Shoreham?)

Renewables are intermittent. Solar works only in the daylight. Wind produces power only when the wind blows. Right now, they feed 4 percent of U.S. energy consumption.

Bottom line: With demand rising, the suppliers uncertain, and the globe warming up, we'd better not rely on any single energy source. We need to find ways to improve them all and let a thousand clean energy technologies bloom. Take a walk around Stony Brook's campus and you will find an array of experiments aimed at leading the way to that disruptive day when ET—energy technology—changes the world. ●

Carol R. Richards, former deputy editor of Newsday's editorial pages, is a Maryland-based freelance writer and editor-at-large for The Brook.

Advanced Energy Conference 2010

Stony Brook's Advanced Energy Research and Technology Center (Advanced Energy Center) hosts the third annual Advanced Energy Conference, November 8 and 9, at the New York Hilton in midtown Manhattan. The event attracts several thousand attendees from industry, academia, government, and public and private research laboratories.

Can we generate reliable, economical, and renewable sources of energy to support economic development without harming our fragile environment? Last year's event sparked on-the-spot technology transfer, as users and developers found common ground and shared solutions. This year that same collaborative spirit will create new partnerships.

"Even before this summer's oil spill in the Gulf of Mexico, we knew that advanced technology was necessary to meet our energy requirements going forward," says Robert B. Catell, Advanced Energy Center chairman. "If you're in the energy field and want to know what the future of energy technology will look like, this conference will provide that—all in one place, in two days. It's also a chance to focus on business opportunities."

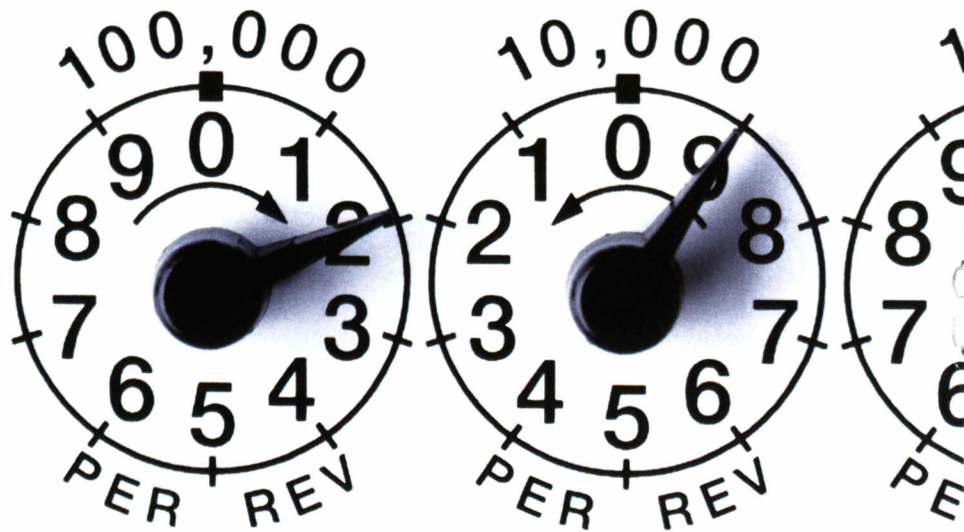
Topics presented at the 2010 Advanced Energy Conference include energy policy; energy sector finance; creating a "smart" electric power grid for energy generation, transmission, and distribution; cybersecurity to protect the grid's two-way communications and information systems; technologies to generate solar, wind, hydrogen, and tidal power; genetically engineered biofuels; geothermal energy; green buildings; how to bring transportation and mass transit into the 21st century; energy-efficient lighting and advanced lighting research; and energy-efficient data centers.

This year's conference relocated to a more spacious site in New York City from its Long Island location last year and will feature twice the number of exhibits, all offering hardware, product demonstrations, and simulations for hands-on, active learning. The urban location was selected for its ability to attract international experts addressing how their countries tackle urgent energy dilemmas.

The Advanced Energy Center is New York State's center for energy research, education, and technology development, with a focus on efficiency, conservation, renewable energy, and nanotechnology applications for new sources of energy. The Advanced Energy Center is developing cutting-edge technologies to provide clean energy, enhance production from renewable sources, and find efficient ways to distribute and store energy. It houses the New York State Smart Grid Consortium, a collaboration of the state's power producers and distributors, universities, industry, and research.

For more information, visit www.aertc.org

Susan Risoli



GET

By Phineas Fiske

SMART

Are you paying more for electricity these days? Chances are the answer is "yes."

According to the U.S. Energy Information Administration, as demand for electricity in this country (and in New York State) has risen by about 15 percent over the past decade, the average cost has risen more than 40 percent.

And were you one of the 55 million North Americans affected by the massive power failure that swept the eastern United States and Canada in August 2003?

And are you aware that the United States is pumping tons of carbon dioxide annually into the atmosphere from the fossil-fueled power plants that produce much of your electricity, adding relentlessly to the greenhouse gases that threaten the Earth's climate? Surely you've heard about global warming.

So what's a power-hungry nation to do?

If we build new power plants to meet ever-increasing demand, it adds to the cost of generating electricity. If we construct new transmission lines to avoid future blackouts, it adds to the cost of delivering the electricity. And if we build power plants that burn coal or gas, we increase unwanted emissions. The clean, renewable alternatives that rely on wind and sunlight aren't as dependable as coal and gas at turning out power: When it's windless or dark out, they stop.

It's a dilemma—or several dilemmas. And a solution to all of them may lie in something called the Smart Grid, an improved network of wires that better meshes the supply and demand for power in a way

that could hugely enhance the efficiency of the system. With the Smart Grid, we may be able to reduce the need for new power plants and new power lines, while making greater use of wind and solar power.

The opportunity is there, explains Stony Brook University's Robert B. Catell, because the present electric system is so antiquated. "If Alexander Graham Bell came back to Earth today, he would be

mystified by what has happened to the telephone," Catell says. "But if Thomas Edison came back today, he'd find the electric distribution system pretty much as he left it" nearly a century ago.

The federal government has recognized that problem and began an effort in 2007 to spur development of Smart Grid technology with passage of the Energy Independence and Security Act. It came up with added funding last year. As chairman of Stony Brook's new, \$325 million Advanced Energy Research and Technology Center, Catell is aiming to apply the University's resources to help develop the equipment the Smart Grid will require. By partnering with Brookhaven National Laboratory and SUNY Farmingdale, the center has wide-ranging resources on which to draw.

Catell knows the utility business. As chairman of the former Brooklyn Union Gas Company,

he ran a firm with a strong commitment to strengthening the community it served. Then he oversaw the utility's evolution in 1998 into the Keyspan Corporation through a merger with the Long Island Lighting Company, and then its transformation in 2006 into National Grid USA, a subsidiary of Great Britain's National Grid plc.

.....
"If Alexander Graham Bell came back to Earth today, he would be mystified by what has happened to the telephone," Catell says.

"But if Thomas Edison came back today, he'd find the electric distribution system pretty much as he left it."
.....

But take a step back. In this country, electricity has traditionally been provided by stockholder-owned utility companies, which produce power at large, centrally located power plants and distribute it to homes and businesses over wires they own, at rates set by state agencies. That worked tolerably well for decades, providing reliable service at a cost: In exchange for guaranteeing the lights would go on, utilities were encouraged to build (or overbuild) substantial central power stations, and were allowed to charge the public for them.

That model has broken down some in recent years, with the advent of electricity competition, offering some consumers the choice of power suppliers. Meanwhile, many early power plants have become outdated, or emit excessive pollution, and growing demand for electricity has stressed the capacity of Thomas Edison's old grid of cables and wires to carry it. The Smart Grid would address that situation in several ways. But the fundamental change would come from pairing the grid with an Internet-like means of communication that would enable power to move both to and from customers. This would allow a variety of new efficiencies. One example:

On very hot days, when air conditioners everywhere are blasting away, the demand for electricity soars. So utilities have to maintain enough power plants to meet that peak demand, even though those plants are seldom needed and must burn extra fuel to keep everyone cool. But with a Smart Grid, that demand could be offset in other ways:

By using "smart" electric meters to alert consumers to times of high energy cost, the grid could encourage them to cut back on nonessential uses of power (pool pumps, for example), back off a bit on the AC, or shift use of other equipment (dishwashers, perhaps) to night time, when demand for power—and its cost—is lower.

Or consumers who sought to meet their own power needs by installing solar panels on their roofs could put any excess electricity they created back into the grid, in effect, selling power back to the utility company.

The Long Island Power Authority (LIPA) is undertaking a \$25 million pilot project, half federally funded, to explore those options: The electric grid along a four-mile stretch of Long Island's Route 110—a densely built-up area of office complexes, homes, and SUNY Farmingdale—will be wired for smart meters that would enable such transactions. LIPA is the public agency that works with National Grid to provide electricity to Long Islanders.

As former LIPA president and current president of the Long Island Association, Kevin Law explains that Smart Grid Corridor is a start at bringing Long Island's 70-year-old electric grid into the 21st century. It's also a potential test bed for technology to be developed at Stony Brook, which is helping to fund the project. Law is also the chairman of the Stony Brook University Council.

The Smart Grid would have other advantages, as well:

Blackouts generally occur when part of the tightly linked electric system collapses, and other parts that can't adjust quickly fail in turn, one after another, until everything shuts down. It has happened five times in various parts of the country since the first major blackout in 1965. Smarten the grid and information can flow more quickly throughout the system, so a failure of one unit can be isolated and other units can be adjusted before the whole thing collapses. The goal is a system that's self-healing.

Traditional power plants produce carbon dioxide and pollution. Wind generators and solar panels produce none. But they depend on the wind blowing and the sun shining, since electricity generally can't be stored economically. But a smart enough electrical grid could both better predict when such renewable unconventional power would be available and deftly adjust the system to make use of it when it was. That way the operation of fossil-fuel plants might be avoided and the need for new ones reduced.

That's not to say that making the grid smart will be easy. Catell estimates it could take ten to 20 years to achieve on a large scale. The industry's Electric Power Research Institute puts the 20-year price tag of updating the grid nationally at \$165 billion, and there are institutional and technical hurdles to be confronted. Utility companies and state utility regulators all must be brought on board. (Catell has taken a key step with creation of the New York Smart Grid

Consortium, bringing together key players from all sectors of the power industry to help prepare the way.) The technology must be developed and tested and widely accepted for so interrelated a system to work. That's where Stony Brook's Advanced Energy Research and Technology Center and Brookhaven National Laboratory could play major roles.

And ways to cover the costs must be found: A more efficient system could eventually save money, but electricity users reasonably expect to be billed for the power they use today, not for potential savings tomorrow. "At the end of the day, it's consumers who will pay" for the Smart Grid, Catell says. "But we must show them that they will benefit from the investment—and not burden consumers who already pay a high price."

Can it all be done? Catell is optimistic, as well he might be: New York has a long history of utility leadership—after all, Edison built America's very first power plant on Pearl Street in Manhattan—and of enlightened utility regulation. And Stony Brook has a well-earned reputation for technological innovation. What better place to find the smarts needed to create the Smart Grid? ●

.....
The Smart Grid Corridor is a start at bringing Long Island's 70-year-old electric grid into the 21st century. It's also a potential test bed for technology to be developed at Stony Brook, which is helping to fund the project.
.....

Phineas Fiske wrote editorials for Newsday on energy policy and other issues for 25 years. Now a freelance journalist, he lives on Cape Cod.

A Sampling of Bright Ideas

Let There Be Light for Less

Kedar Gupta came to the United States from India in 1968 with only a few dollars in his pocket and headed to Stony Brook for his Ph.D. There, he studied with the late Franklin Wang, a scholar of solar power technology. Their work together paved the way for GT Solar, the start-up that Gupta and his wife, Renu, founded in New Hampshire to make solar panels 15 years ago. By the time that company went public in 2008, it was a global market leader in photovoltaic equipment and technology with annual revenue of more than \$60 million.

"The concept of GT Solar came from Professor Wang," says Gupta. "In fact, the whole solar revolution came from his technology. Stony Brook should be very proud."

Now Gupta has another start-up, ARC Energy, in Nashua, N.H., which aims to replace standard household light bulbs, which emit too much heat while inefficiently converting energy to light, with long-lasting low-cost bulbs using light-emitting diodes (LEDs).

It costs \$89.95 to replace a 60-watt bulb in a table lamp with a 9-watt LED bulb. Even if that bulb is ten times as efficient as an incandescent bulb, even if it's twice as efficient as those spiral compact fluorescent bulbs and lasts for ten years, that price is a turn-off.

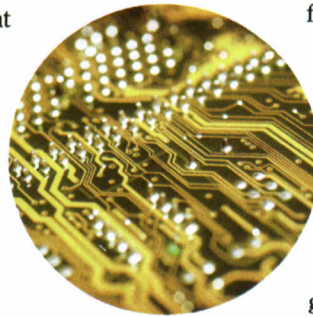
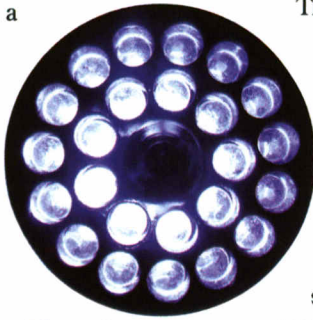
Gupta is working on a way to manufacture LED light bulbs more economically. The new bulbs will use only 10 percent of the power of standard 100-watt incandescent bulbs and will last a lifetime. His company is not even 3 years old and Gupta has almost \$30 million in orders for his bulbs. The technology in brief: Most of the world's LEDs are built using wafers sliced out of columns (boules) of sapphire man-made in exceedingly hot ovens. The columns form with the crystals pointing sideways, but LEDs need to have a vertically oriented crystal axis, so there's a lot of waste when slicing up the sapphires. Using a \$500,000 furnace, ARC is finding a way to reorient the boules with the crystals pointing up.

Gupta earned his Ph.D. in 1973 but still has a connection with the University. Several Stony Brook students are involved in his project, as well as Yacov Shamash, Stony Brook's vice president of economic development and dean of the College of Engineering and Applied Sciences, and the college's associate dean, Imin Kao.

President Barack Obama is an admirer of ARC Energy. The President visited Gupta's place of business this past February and later touted it at a public rally. "The technology they've created is the only of its kind in the world," Obama said.

Gupta agrees with the message Obama delivered during his visit. "He was here to show people the importance of taking risk, working hard, and pushing clean energy technology."

That's exactly how Gupta went from being a student with a few dollars in his pocket to a person whose first start-up, GT Solar, became a worldwide company that sold for \$2.3 billion. —C.R.



Simple Tweaks?

If you owned an early home computer or worked on an early terminal at the office, you know how much they've changed:

They've gotten smaller, and they've gotten richer—loaded with software capable of doing many more things, laden with what we used to call "bells and whistles." The problem with all these cool capabilities is that they're piled in layers on top of software that was laid down long ago, and the result is very inefficient use of energy.

Erez Zadok, associate professor in the Department of Computer Science at Stony Brook, says that 1 percent to 2 percent of U.S. energy consumption is devoted to data centers, those air-conditioned rooms where big companies store their computers, blinking and humming and drinking up electricity day and night. If you add the power consumption of desktop and laptop computers, that accounts for another 1 percent to 2 percent of U.S. power. "That's a lot, and mostly while computers are just idling," he says.

Because all of the software developed over the years has been built by succeeding generations of engineers, often on top of glitches and flaws, "no one has looked at the big picture, how it all works together," Zadok says. That's what he's doing now—looking at software to see where the inefficiencies are, and he has found that with "simple tweaks" to servers, he can almost always get improvements, "up to three times, four times, even nine times better."

Obviously, that would be good for big companies spending big bucks on their data centers. With a ninefold increase in efficiency, they would save on power to run the computers and on air-conditioning as well, because the machines would run cooler. But sharply boosting software efficiency would also be good for students, businesspeople, and other ordinary folks. Imagine having your laptop battery last twice as long because your software is draining less energy from it.

Zadok's three-year research project in his File System and Storage Laboratory is funded by the National Science Foundation to the tune of \$720,463. Year One was devoted to measuring the power drain of various usages. This past summer [summer 2010] he began Year Two, devoted to writing more optimal software. What he hopes to end up with in Year Three is a sort of toolkit that will allow people to upgrade the efficiency of their data centers.

Some companies have moved their machine rooms to cool climates, so they don't have to spend so much money to air condition them, Zadok said. He noted that Google, which runs 24/7, has moved one of its data centers to Northern Ireland. Another firm puts its computer room in the high plains of Colorado; to cool the computers, the windows can be opened. Relocation may be one option, but wouldn't it be smart to eliminate the inefficiencies in the first place? That's Zadok's goal. —C.R.

Is the Answer Blowing in the Wind?

Today's wind turbines don't look like the picturesque windmills of the Netherlands or Colonial America, but the tall white pinwheels have a certain beauty as they turn serenely against a blue sky, pumping out pollution-free electricity. If only the wind blew all the time, instead of intermittently, Americans could ease off their reliance on dirty coal, oil, and gas.

Brian Colle, associate professor in the School of Marine and Atmospheric Sciences at Stony Brook, is working on it.

He is part of a team of researchers—the others are from the University of Delaware—who have figured out a way, on paper, to make wind turbines provide more consistent power, not on the usual hill-tops but over water. Their study, published April 5 by the National Academy of Sciences, shows that careful design of offshore wind power projects can minimize the impact of local weather changes. In other words, if you put the turbines in the just-right place and link them properly, there will almost always be power because the wind will almost always be blowing somewhere.

Essentially, the team envisions locating a long line of wind turbines in the ocean off the shore from Maine to Florida and connecting them with an underwater transmission system. To figure how the turbines would work together, the scientists analyzed five years of wind observations from 11 monitoring stations along the East Coast.

"A north-south transmission geometry fits nicely with the storm track that shifts northward or southward along the U.S. East Coast on a weekly or seasonal time scale," Colle says. "Because then at any one time, a high- or low-pressure system is likely to be producing wind (and thus power) somewhere along the coast."

The trick is not to find the windiest locations to site the turbines but to find the spots that would best serve the entire network. Colle was pleased to find a "hot spot" in the New York Bight, just 15 miles from JFK airport, where there are 15- to 20-mph winds several times a week. The more wind, the faster the turbines spin, and the more power they make.

Offshore wind farms still don't exist in the United States, although the federal government gave its OK in April for an energy company to install a nest of turbines off Cape Cod. Public objections usually arise over turbines' proposed placement in the midst of a nice ocean view, but Colle says the locations he has in mind are federal underwater lands a long way off shore and invisible to most eyes on most days.

"I think the future [of wind power] is great," says Colle. "We just have to take some baby steps." —C.R.



Build Better Batteries

Remember the scene in "The Graduate" where a well-meaning guest reveals in one word the secret of making it in the (then-) modern world? The word was "plastics." If that film were made today, the one-word advice would probably be "batteries." Not the kind you put in your flashlight, necessarily—but big ones that can store the electric output of a windfarm or the juice from a field of solar panels, powerful ones that can keep an electric car going for 600 miles, and miniature ones that can keep a heart pacemaker going and going.

Stony Brook and Brookhaven National Laboratory (BNL) are deeply immersed in efforts to make batteries better, lighter, cheaper, safer, and easier to recharge. Here are two projects in pursuit of better materials from which to make batteries:

Graphene is the substance being studied by a collaborative group put together by Miriam Rafailovich, Stony Brook's distinguished professor of materials science. The group includes, among others, Lawrence High School science teacher Rebecca Isseroff and her student, Paul Masih Das, a finalist in the 2010 Intel Science and Talent Search. The group did its imaging work at BNL, using a high-resolution electron microscope and its initial lab work at the College of Staten Island.

Graphene "is a single-molecule layer of carbon atoms," says Rafailovich. It conducts energy very efficiently. So instead of using wires to carry electricity—wires that become very inefficient when made very thin—this substance can do the job. It is so thin, it could be used to make an e-book reader out of a sheet of plastic. It also has potential use in automobiles, cell phones, and heart pacemakers, she said. The problem is that converting graphene oxide to graphene is a very dangerous enterprise. Or it was. Thanks to the contingent from Lawrence High School, the procedure now "can be done as tabletop chemistry." Stony Brook's Intellectual Property Office has begun the process for obtaining a patent on this procedure. The project was funded by the National Science Foundation.

In another battery project, Jason Graetz, a materials scientist at BNL, is searching for new materials that will not deteriorate during the recharging process. "You need a battery that's compact, lightweight, safe, and with a long life, that's also inexpensive. Any one of these conditions we can meet, but to achieve them all at once is really difficult," Graetz says. Lithium, for example, is lightweight and has a high energy density. It's great for cell phones but it is very expensive. His group of researchers is focusing on the development and synthesis of new materials, using an electron microscope with nanometer resolution. They can see at the most fundamental level what would happen if they used manganese, for example, as a replacement for lithium in a battery. —C.R.



Garbage In, Fuel Out

Given all of the hungry people in the world, there's something unsettling about diverting a food source, such as corn, and using it to produce corn-based ethanol in our cars' gas tanks. Can't we make fuel out of something less wholesome? Like, say, garbage?

That's a project for Devinder Mahajan, who holds a joint appointment at Brookhaven National Laboratory and Stony Brook University, and has an international reputation for his work on clean fuels and biomass, a renewable energy source derived from living or recently living organisms.

What can be used in our gas tanks and oil heaters in place of fossil fuels? Mahajan ticks through the biomass substitutes: Ethanol? It is costly and "there will always be a debate over food versus fuel," he says. Soybeans and other oil-bearing vegetables? Same problem. Waste grease from McDonald's and other big restaurant chains? "It's a good thing, but in the overall picture it's not going to make much of a difference." Algae? It's "very moody," meaning that it's actually hard to grow, and then it must be dewatered before you can extract oil from it.

Well, what about garbage?

Mahajan is studying the potential for capturing biogas—the byproduct of decomposing organic matter—using methane from landfills and wastewater treatment plants on Long Island. He's also looking into catalytic conversion of biomass—grass clippings, for example—into first, syngas, synthetic gas that is the direct end-product of the gassification process, and then converting that into fuel. "We are doing real catalytic development, not just modeling, in the lab," he says. "Stony Brook is the site where we are taking the syngas and converting it into fuel."

He points out that the so-called "Billion Ton Study" by the U.S. Departments of Agriculture and Energy has found that the United States has the potential to produce 1.3 billion tons of biomass per year to make fuel, while still providing Americans with all the food, animal feed, and exports they need. "We could retain the same infrastructure we have now," he says, using agricultural waste, tree trimmings, and so forth to make energy.

A drawback to biofuels is that when they burn, they release carbon dioxide, the greenhouse gas that affects climate. Mahajan looks to the day, perhaps five years from now, when we have learned to capture the carbon dioxide and convert it back into diesel fuel right at the site, using hydrogen that was produced by splitting water using solar energy. "We can do all these individual parts," he says. "The thing is to put them together affordably." —C.R.



It's Easy Being Green

In Charles Fortmann's laboratory on the Stony Brook campus, an array of "green, gooey, ugly pieces of glass"—his words—held a place of pride last spring. These pieces of "glass with green stuff sandwiched between them" may hold the secret of converting sunshine to electricity dependably and cheaply by harnessing the power of photosynthesis. The green stuff? Chlorophyll.

Fortmann, associate professor of material sciences, and his cadre of graduate students have been working to copy nature instead of fighting it. The gooey green stuff in his lab is a major absorber of light. Its use makes it possible for electrons to be moved around a very different way.

How does nature shove electrons here and there? Fortmann has a nifty metaphor. "If you give away pizzas and undergraduates are around, the undergraduates will rush in and push you out the door. In a regular solar cell, we'd put the pizzas where we wanted people to be, and they'd come on in. But nature... works more like the first example, where the people in the room are crowded out." In other words, let the electrons go where they want rather than expending energy to force them elsewhere.

Fortmann has been playing with solar power since he was a Peace Corps volunteer in the Fiji Islands from 1976-1977. He and his students figured out a way to make a solar hot water heater out of parts on hand. When he returned to the States, he earned his master's and Ph.D. at Stanford, focusing on solar science, then taught all over the world. He came to Stony Brook in 1995. Much of his work since then has been done with the support of Glen Cove capitalist/inventor John Coleman. Another valued contributor is Eric Laufer, whose family made possible Stony Brook's Laufer Center for Computational Biology and Genome Sciences. Laufer is a New York entrepreneur who heads the Laufer Wind Group and founded a solar start-up to commercialize technology developed in Fortmann's lab.

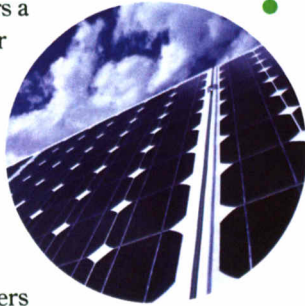
Solar electric power provides less than 1 percent of the world's energy. Its expansion is crimped by its high cost. The challenge of solar power, Fortmann says, is price. "We can do it with expensive semiconductors, but can we do it at one-tenth the cost?" Doing things nature's way may be the answer. He and his team set up their experiment using ordinary equipment found in the lab, along with water, chlorophyll, and other chemicals that are "neither expensive nor toxic," he says.

"I told my graduate students, don't be disappointed if it doesn't work. It's a long shot." But, this spring, it worked. And Phase II is to be a more focused effort, using lab equipment made to the team's specifications. Meanwhile Fortmann is pursuing a patent on his gradient solar cells.

It's a long way from the Fiji Islands, but Fortmann is still finding ways to make solar work. —C.R.

Selling Solar to the U.S. Market ●.....

It distresses Joseph Laia to admit it, but it's true: Utility companies in the U.S. are behind the curve in using solar and other renewable power. Our country consumes 25 percent of the energy on the planet, so "it's just wrong" that we're not embracing renewable energy as quickly as Europe, says Laia. "The reason this is happening," he says, is because "politically, Europe can do it." Countries such as Spain and Germany have tariffs that guarantee renewable energy producers a certain price over a set number of years for their product—and that price is much higher than the price they get in the U.S. So Laia and his team at MiaSolé tapped into the one resource America has an abundance of—ingenuity—to help solve that competitive disadvantage.



MiaSolé is a venture-backed solar photovoltaic California company that offers a combination of CIGS thin films and proprietary manufacturing processes to produce solar products in volumes and at cost points that may finally make the U.S. market sit up and take notice. At the company's Santa Clara factory, a roll of steel miles long and yet only about half the thickness of a strand of hair is fed into a 75 foot long machine and emerges 30 minutes later as a finished multilayer solar panel. This process is much faster and requires much lower capital equipment and labor costs than other methods.

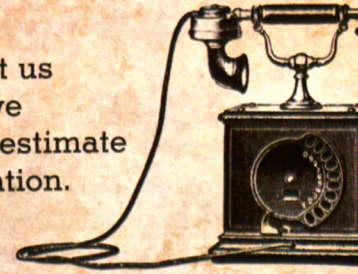
The company was founded in 2002, but it was still in the research and development weeds when Laia arrived in 2007. By October 2009 the company began shipping its products to half a dozen customers around the world. The factory is now ramping up capacity, and Laia is searching for sites for a second factory. "This year we shipped panels to Chevron, our first commercial customer in California, and we will continue to ship products to customers here in the U.S.," says Laia.

Laia joined MiaSolé from KLA-Tencor Corporation, the world's leading supplier of process control and yield management solutions for the semiconductor and related microelectronics industries. He was the company's group vice president of metrology responsible for all of KLA's eight wafer metrology businesses. He also spent 11 years in technical and program leadership roles at Los Alamos National Laboratories. After working in the private and public sectors as well as academia, Laia has enthusiastically thrown his hat into the private sector. "All these fancy degrees shouldn't be a burden; it should be an enabler to do whatever you want to do."

Another interest of Laia's is "being a good alumnus" of Stony Brook. (He earned his B.S. in chemistry in 1980, his M.S. in materials science in 1983, and his Ph.D. in materials science in 1986.) To that end, MiaSolé is donating 20kW of solar panels for Stony Brook's Advanced Energy Center. —*Betsy Cruz*

OH, THAT NEWFANGLED TECHNOLOGY

If history has taught us anything, it's that we should never underestimate the power of innovation.



"The Telephone has too many shortcomings to be seriously considered as a means of communication."

—Western Union internal memo, 1876

"There is no reason for any individuals to have a computer in their home."

—Ken Olsen, president and co-founder of Digital Equipment Corporation, 1977

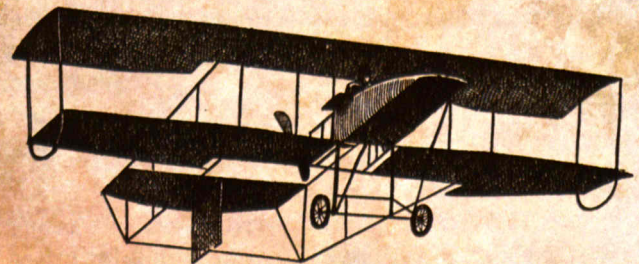


"Heavier-than-air flying machines are impossible."

—Lord Kelvin, president, Royal Society, 1895

"Airplanes are interesting toys but of no military value."

—Marshall Ferdinand Foch, professor of strategy, École Supérieure de Guerre, 1911



"A rocket will never be able to leave the Earth's atmosphere."

—*The New York Times*, 1936

Cited by Vinod Khosia, founding chief executive officer of Sun Microsystems, during his presentation at the ARPA-E Energy Innovation Summit held last March.

IMAX Chief Executive Looks to the Future Through 3-D Glasses



Thanks to the success of James Cameron's epic "Avatar," 3-D is coming at you in a big way in movie theaters these days. DreamWorks has been flying high with the 3-D animated success "How to Train Your Dragon," the in-your-face adventure "Clash of the Titans" flexed its box-office muscle this spring, and summer movies took on a new dimension with "Toy Story 3" and M. Night Shyamalan's "The Last Airbender."

Pioneering the 3-D movement has been IMAX, which took in more than \$200 million with its 3-D release of "Avatar." When Stony Brook 1976 alumnus Richard Gelfond purchased IMAX in 1994 with his business partner Bradley Wechsler, their goal was to turn the company that had been used mostly as a motion picture projection system for museums, institutes, and theme parks into a commercial entertainment leader with a chain of theaters that would show Hollywood blockbusters on a grand scale. Gelfond, now the CEO of IMAX, recently talked about how 3-D is revolutionizing movies, television, and even sporting events.

How has "Avatar" changed the way movies will be shown in theaters in the future?

For the right kind of story, 3-D enhances it tremendously. For the wrong kind of story, 3-D doesn't add anything and on occasion may even detract. "Avatar" was a perfect meshing of story and technology, so what

[director] Jim Cameron was able to do was really enhance the experience and take people where they otherwise couldn't have gone, in this case, the planet Pandora. Very few people are proficient both on the technology side and the creative side, and I think that ["Avatar"] was an example of everything coming together properly because Jim's vision provided a unity of the technical experience and the story.

There already are more 3-D projects in development and in production because people will see 3-D as a way to bring in new audiences. I think part of that is correct, but the unfortunate side of it is some people will fall into a trap and say you can take something bad and turn it into 3-D and automatically it will make a lot of money, and I just don't think that's true.

How has 3-D helped IMAX improve its fortunes?

I'll answer in two ways. First, I'll tell you how we helped 3-D. At IMAX we did a film called "The Polar Express," which was released to the world in 2-D and released in 3-D only in IMAX. And it did phenomenal numbers on a per screen basis. I think it did about \$750,000 per theater which is very, very high. And I think that was a wake-up call to Hollywood.

It was the first time people said, "Wow, if you release a film in 3-D, you may be able to bring in a disproportionately large share of the box office." So then what you got was a lot more 3-D production. Hollywood started making more 3-D movies.

Simultaneously, there was a technology developed that enabled theaters to convert to 3-D—not quite the IMAX 3-D experience, but still better than the red-green glasses of years ago. So there started to be more production by filmmakers. They said if 3-D were to be released in theaters, they wanted to release it on the premium platform. They wanted to just not create a 3-D movie, but a mind-blowing experience, and the way to do that is to release it in IMAX.

So the increased production of 3-D movies provided a lot more 3-D content, and that really boosted our box-office results. It also increased the inquiries for IMAX theaters around the world. Our network for commercial films will roughly triple over a three-year period of time. Our biggest-grossing 3-D film before "Avatar" was the "The Dark Knight," where we did about \$65 million in IMAX. And for "Avatar," we did \$232 million. The advent of successful 3-D really was a tipping point for us in terms of bringing in new audiences.

.....

“I think for the right kinds of experiences, 3-D in the home will definitely emerge as a viable alternative.”



How soon before we'll see 3-D television?

We've started a 3-D channel. Our partners are Discovery and Sony Communications. I think for the right kinds of experiences, 3-D in the home will definitely emerge as a viable alternative. A big reason for that is the technology has been greatly improved for 3-D in the home. 3-D TVs, which are just hitting the market now, provide very compelling images. Certain sports will look fantastic in 3-D.

The biggest example I give will surprise you. Golf is one sport that benefits tremendously from 3-D because when you watch it in 2-D everything looks flat, whereas in 3-D you can really see the slope of the hills, you can see the greens. It's a way different experience. Baseball in 3-D—I don't think it adds that much. On the other hand, basketball in 3-D, because people are coming to a finite point behind the basket, it looks really great.

What sort of programming will you have?

Initially, it's going to be Discovery programming and IMAX programming, and then as it develops we'll start to have more live-action programming.

Will you need to buy a new TV to see the programs?

You'll have to buy a new one. Current TVs are not compatible.

Aren't 3-D sets still really kind of cost-prohibitive?

Not really. I think [manufacturers have] listed the sets at less than \$2,500.

How soon will it be before 3-D TV really gains a foothold in the market?

Remember that the products were only launched in the past four or five months, and they pretty much have been selling out. They can't meet demand at the moment. With that said, I think it's going to take three or four years before there's a decent-size install base.



Gelfond, who also is chair of the Stony Brook Foundation, was No. 88 on Vanity Fair magazine's list of the most influential people of the information age.

3-D has been attempted as far back as the 1950s. Why didn't it really take off until now?

Technical changes. In the old versions of 3-D, you couldn't really create first-class experiences and there was no way to project them. Now there are new tools for filmmakers, whether they are computer-animated tools or live-action cameras that previously didn't exist. On the projection side, digital technology enables you to create a far superior 3-D experience to the one that existed in the place.

The second reason is that the creative talent using the 3-D tools is really the top of the profession, whereas in the old days, it was used more as a gimmick. So you have Tim Burton, you have James Cameron, you have Robert Zemeckis, you have

DreamWorks Animation under Jeffrey Katzenberg, you have Stephen Spielberg, you have Michael Bay. Whenever you have the top creative people, they come up with a very unique solution, and that wasn't the case in the past.

Are people still going to be stuck wearing those glasses, or at least, will there be a better grade of glasses?

They will for the foreseeable future, which I think will be about five years. I do think the glasses will continue to evolve, so they get lighter and more comfortable.

What upcoming 3-D films are in the pipeline?

We released one that we filmed recently called "Hubble 3-D," where we actually flew 3-D cameras on the space shuttle and we filmed the repair of the Hubble, and then we took images from the Hubble throughout the universe and converted them to 3-D. That opened in August. And then we've got "Toy Story 3," which also was released this summer. And we've got "Tron" later in the year, which is a Disney movie. It's a remake of the old "Tron."

Is 3-D going to impact ticket prices?

We don't set ticket prices, but I think as the cost of making the movies goes up, either because of the cost of the glasses or the 3-D production, it will reflect itself to some extent in ticket prices.

It makes me wonder if once the novelty of 3-D wears off, movie-goers might not want to pay \$15 or \$20 to see a movie just because it's in 3-D.

I think the market will bifurcate. So for certain types of 3-D movies that really capture people's imaginations, they'll be able to get a higher price point. ■

Daniel Bubbeo is the author of The Women of Warner Brothers: The Lives and Careers of 15 Leading Ladies.

Seawolves Football—Gridiron Greatness Comes to Stony Brook

It looked like the spectacular 2009 season for Seawolves football was going to come up just a little short. In only its second year in the Big South Conference, Stony Brook had amassed a 4-1 conference record and were about to face perennial football powerhouse Liberty University in the final game of the season at LaValle Stadium. The game would decide who would end the season in first place.

The Liberty Flames, ranked 16th in the nation, had ridden roughshod over the Big South for three years, winning 16 conference games in a row. In fact, the last game they lost to a Big South opponent was in October 2006—and they were prohibitive favorites to three-peat as Conference champions.

The scrappy Seawolves, under third-year coach Chuck Priore, took a 21-13 halftime lead behind a fierce ground attack spearheaded by running backs Edwin Gowins and Conte Cuttino. The Flames lived up to their name and caught fire in the second half. In what was arguably the most electrifying half of football ever seen at LaValle Stadium, the Flames fought back to take a 33-29 lead with less than a minute left in the game.

With only 48 ticks of the clock remaining in the Seawolves' season and the ball on their own 23-yard line, quarterback Michael Coulter dropped back and saw receiver Jordan Gush alone at midfield. His pass hit the freshman in stride, allowing Gush to advance it all the way to the 10-yard line. Then, after a quick time-out to stop the clock, Coulter found Gush again, this time in the end zone, giving the Seawolves the game...and the Conference title, our first Big South championship in school history.



The "Hansen" brothers (left to right): Miguel Maysonet, JeVahn Cruz, Edwin Gowins, Brock Jackolski

"This is a team that has never quit," said Priore. "Knowing what they have gone through on a weekly basis this season, you can understand how proud this team was to walk off the field today with a win, especially the way we won it. We are very excited."

Next Stop—The Pros

Of course, you don't win championships without exceptional players, and Stony Brook is no exception. In fact, four Seawolves were good enough to make it to the next level. Chris Richards, a standout cornerback, signed a free agent contract with the NFL Seattle Seahawks. Lineman Lawrence Lovell and receiver-returner Dwayne Eley signed with teams in the Canadian Football League, Lovell with the Hamilton Tiger-Cats and Eley with the Saskatchewan RoughRiders. And finally, defensive end Christopher Perri was drafted by the Florida Tuskers of the new United Football League.

In all, 26 seniors left the team...and would be missed. It's no simple task to replace players of this caliber, but Priore and his staff were up to the challenge. "We got hit pretty hard by graduation, but we were able to get some kids who had some college experience, that played in the CAA [Colonial Athletic Association] or played at a higher level, and could help us immediately," Priore said.

In addition to a stellar recruiting class, the Seawolves added five midyear transfers to the team, including Brock Jackolski, who, as a freshman, led his team with 1,200 all-purpose yards, ranking among the top 10 players in the CAA. Jackolski accomplished those feats at Hofstra University, which ended its football

program last year. He joins Miguel Maysonet, another former Hofstra standout who opted to finish his collegiate football career at SB.

Home of the Hansens

Jackolski and Maysonet have more than Hofstra in common—they are also Hansen Award winners. Suffolk County's version of the Heisman, the Hansen is given every year to the best high school football player in the county. With Gowins, who is on course to shatter most Seawolf rushing records, and the highly touted recruit JeVahn Cruz, Stony Brook now boasts four Hansen winners. "Our goal is to try and keep the best players here on Long Island," Priore said.

Taking on the Big Boys

After a historic 2009 championship season, the Seawolves started the 2010 campaign with the program's first-ever game against a Division I Football Bowl Subdivision (FBS) opponent. On September 4, the Big South champions squared off against the University of South Florida Bulls in front of more than 40,000 fans at Raymond James Stadium in Tampa, Florida. The Seawolves took a 14-7 first quarter on the strength of touchdowns by "Hansen Brothers" Gowins and Jackolski. Though they finally succumbed to the Big East powerhouse, they played hard and represented Stony Brook well. "We showed a lot of poise," Priore said.

"Overall, I'm really proud of how we competed." Though this was the first game versus an FBS team, it won't be the last. Stony Brook is already scheduled to meet Buffalo in 2011, Army in 2012, and Boston College in 2013. ■

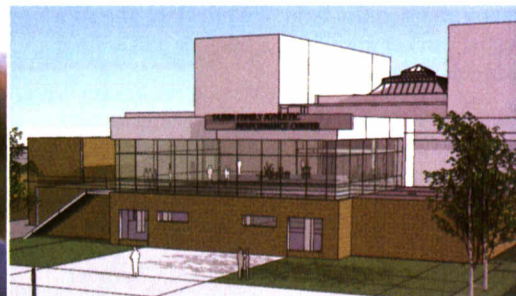
\$4.3 Million Gift for New Strength and Conditioning Facility

Stony Brook student-athletes can look forward to a state-of-the-art strength and conditioning facility, thanks to alum and philanthropist Glenn Dubin.

Dubin's gift of \$4.3 million is the largest private donation ever to an athletics department within the State University of New York system. Pending formal approval, the 8,000-square-foot facility will be named the Dubin Family Athletic Performance Center.

In announcing the gift, Director of Athletics Jim Fiore said, "This transformational gift will affect Seawolves for generations to come. Not only will it help us with ever important competition in recruitment, but it will assist student-athletes with injury prevention and rehabilitation, as well as the ability to maximize their overall athletic talent. Equally important, the expanded size of the new facility will dramatically affect and improve the overall quality of life for our student-athletes in terms of schedules for class, practice and study time."

The facility is being designed by the architectural firm Populous, which recently designed the new Yankee Stadium and Citi Field. Scheduled to open in fall 2011, the new facility will be located in the Indoor Sports Complex overlooking Kenneth P. LaValle Stadium. It will be equipped with



From left: Glenn, '78, and Eva Dubin; rendering of the new athletic performance center.

weightlifting racks, dumbbell sets, Olympic platforms, a cardio fitness area, space for plyometric exercises, and office space.

Dubin, who stays involved with his alma mater, has attended football games in the past and came to Homecoming to watch the 2010 Seawolves win in the home stadium.

"Athletics has had an important influence on me, teaching me values I've used throughout my life—discipline and teamwork," Dubin said. "My family and I are delighted to support the student-athletes at Stony Brook, and hope that this facility will add to their athletic experience and future success."

"The Dubin Family Athletic Performance Center will provide a world-class venue to support and train Stony Brook student-athletes for success in both athletic competition and in life," said Stony Brook University President Samuel L. Stanley Jr., M.D.

Dubin, who grew up in the Washington Heights section of Manhattan, graduated from

Stony Brook with a Bachelor of Arts degree in Economics in 1978. While at SB, he played the position of linebacker on the football team and was also a member of the lacrosse team.

Dubin is the co-founder and chief executive officer of Highbridge Capital Management, a global alternative asset management company headquartered in Manhattan with offices in London, Tokyo, and Hong Kong. He is a founding board member and former board chair of the Robin Hood Foundation, which fights poverty in New York City by applying investment principles to charitable giving, and a trustee of Mount Sinai Medical Center, where he and his wife Eva have funded the Dubin Breast Center.

Dubin donated \$1 million to Stony Brook in 2005 to create the Glenn Dubin Endowed Scholarship Fund, which offers scholarships to students from Washington Heights, particularly to students from P.S. 132, where he attended elementary school. ■

Seawolves Games

Home football games are held in LaValle Stadium.



Home basketball games are held in Pritchard Gym, Sports Complex.

Basketball season tickets now on sale.

To purchase tickets or for more information, call (631) 632-WOLF or visit goseawolves.org

Football

Saturday, November 13
vs. Gardner-Webb, 1:00 pm

Saturday, November 20
at Liberty, 3:30 pm

Men's Basketball

Friday, November 12
at UConn, 7:00 pm
WATCH IT ON SNY

Sunday, November 14
vs. Mount Ida, 2:00 pm

Tuesday, November 16
at Monmouth, 6:00 am
WATCH IT ON ESPN

Sunday, November 21
vs. Wagner, 2:00 pm
WATCH IT ON MSG+

Wednesday, December 1
vs. Lehigh, 7:00 pm

Saturday, December 4
at Columbia, 4:00 pm

Tuesday, December 7
at Holy Cross, 7:00 pm

Saturday, December 11
vs. Sacred Heart, 2:00 pm
WATCH IT ON MSG+

Sunday, December 19
at Notre Dame, 4:30 pm
WATCH IT ON ESPNU

Wednesday, December 29
vs. Colgate, 7:00 pm

Women's Basketball

Friday, November 12
vs. Troy, 12:30 pm (at Elon, NC)

Saturday, November 13
vs. Fordham, 8:30 pm (at Elon, NC)

Thursday, November 18
vs. Hofstra, 7:00 pm

Wednesday, November 24
vs. Nicholls State, 4:00 pm

Tuesday, November 30
vs. Monmouth, 7:00 pm

Thursday, December 2
vs. Fairleigh Dickinson, 7:00 pm

Sunday, December 5
vs. Iona, 2:00 pm

Thursday, December 9
at George Mason, 7:00 pm

Saturday, December 11
at George Washington, 2:00 pm

Sunday, December 19
at LIU/Brooklyn, 1:00 pm

Tuesday, December 21
at Old Dominion, 7:00 pm

Friday, December 31
at St. Francis (NY), 2:00 pm

Class Notes

1960s

James Betts '67 (B.A.) and **Grace Kessler Betts '67 (B.A.)** have retired after working many years in the field of education, she as a social worker and he as a teacher and school administrator.

Fredda Pravitz '68 (B.A.) is a part-time faculty member at Brooklyn College/CUNY and a docent at the Brooklyn Art Museum.

1970s

Leslie Cohen '70 (B.A.) was named Chamber Executive of the Year by the Oregon State Chamber of Commerce.

Nora Braverman '71 (B.A.) opened Back To Basics Physical Therapy in Manhattan in 2009. Her practice focuses on holistic treatment and combines her clinical background in PT with more than 30 years of teaching yoga. She is also an adjunct faculty member of Berkeley College in New York City.

Alan Wax '71 (B.A.) is the president of the Melville-based public relations firm WaxWords Inc., and recently was honored by *Long Island Business News* with its inaugural Fifty Around 50 Awards. The award recognizes leadership in business, mentoring, support for the Island's not-for-profit organizations, and a commitment to the community.

James Maher '72 (B.A.) retired from the Suffolk County Police Department after 35 years as commander of the Hostage Negotiation Team and 1st Squad Detectives. He is director of public safety for Suffolk Community College and adjunct associate professor of criminal justice.

Jared Goldman '73 (B.A.) recently accepted a position at Duval County Public Schools in Jacksonville, Florida, as a school psychologist. He has remarried and for the past seven years has enjoyed living at the beaches of Jacksonville.

Charles Siegel '73 (B.A.) has been elected chair of the Torts, Insurance, and Compensation Law Section of the New York State Bar Association.

Neal Kingston '74 (B.A.) was named director of the Center for Educational Testing and Evaluation at the University of Kansas.

Gary Morgenstein '74 (B.A.) published his two latest novels on Amazon.com. The first, *Loving Rabbi Thalia Kleinman*, features a romantic triangle about a divorced middle-aged man who falls for a beautiful rabbi, while *Jesse's Girl* is about a father's desperate search for his missing teenage son.

Allen Wells '74 (M.S.), '79 (Ph.D.) has written a book titled *Tropical Zion: General Trujillo, FDR, and the Jews of Sosua*, which was published in March 2009 by Duke University Press. In *Tropical Zion*, Wells tells the story of the pioneers who founded a successful employee-owned dairy cooperative in the settlement of Sosua in the Dominican Republic when Jewish refugees fled Nazi Germany.

Richard Williams '74 (M.S.) has been named president and COO of Advanced Plan for Health. Advanced Plan for Health helps hospitals, corporations, and other organizations manage the health care of more than 270,000 employees and dependents.

Donnalynn (Natoli) Darling '75 (B.A.) was named one of Long Island's Top 50 Women by *Long Island Business News*. She is the chair of Meyer, Suozzi, English & Klein's Personal Injury and Medical Malpractice groups, and chair of the firm's Education Law practice.

Myrna Hilton '75 (B.A.) produces comedy shows and has written a soon-to-be-published comedic photo essay, *Confessions of a Golden Corgi Girl*.

Robert Waxler '76 (Ph.D.) released his newly published memoir in June 2010. The book, *Courage to Walk*, is the story of his son, Jeremy, a promising young attorney, who was suddenly afflicted by a mysterious and devastating illness.

Meredith Cagen '77 (B.A.) published her first novel, *Size Eight in a Size Zero World*. It tells the story of New York working wife and mother Lindsay Chandler as she navigates the size zero world of socialites and models on her path for self reinvention.

Joseph Napoli '77 (B.A.) is division chief of plastic and maxillofacial surgery at Alfred I. duPont Hospital for Children in Wilmington, Delaware. He specializes in the care of children and young adults with cleft lip and palate, craniofacial anomalies, and head and neck tumors.

John Simonetti '78 (B.S.), associate professor of physics in the College of Science at Virginia Tech, received the University's 2009 William E. Wine Award. The award is presented annually

A Message From Our Alumni Association President



Dear Fellow Alumni and Friends,

It is my honor to serve as your newly elected president of the Stony Brook Alumni Association, to represent your interests and concerns to the University, and to find meaningful ways for you to stay connected to Stony Brook and one another.

Remember, all alumni of Stony Brook are automatically members of the Association—no annual dues or membership fees!

My goal for the next year is to encourage more of you to engage with Stony Brook, whether it's through alumni clubs and affinity groups, by becoming a career mentor to students or fellow alums, as an alumni ambassador for admissions, or through donations to the annual fund.

I also encourage you to visit the new Stony Brook Alumni Association Web site, which was launched recently. It serves as a "virtual" reunion with the campus community. We've made it easier than ever, on the Web site, for you to reconnect with former classmates, dorm mates, teammates, and other special people from your years at Stony Brook.

This has been a very exciting time for your Alumni Association. Mark your calendar for the Saturday, February 12 Basketball Alumni Day and game, when the Seawolves take on the Maine Black Bears in the SBU Arena, and the Stars of Stony Brook Gala, on Monday, April 4, 2011, which will be at Pier Sixty in Manhattan.

Don't hesitate to contact us with any comments or ideas that can help your Alumni Association serve you better. We also welcome your interest in volunteering your time, talents, or resources. Please call (631) 632-6330 or e-mail alumni@stonybrook.edu.

Gloria Snyder

Gloria B. Snyder '72

to three Virginia Tech faculty members with a history of teaching excellence.

Laura Brener '79 (B.A.), '80 (M.A.) accepted a position at Lower Columbia College located in Longview, Washington, as vice president of instruction. Brener was previously employed at Centralia College as dean of instruction.

Stephen Cipot '79 (B.A.) is a geologist and project manager with the U.S. Environmental Protection Agency's Region 2 office in New York City. He has developed a student internship program between his office and Stony Brook University. Cipot believes internships can offer an exceptional opportunity for students to apply college learning while gaining practical work experience, and he encourages others to create similar opportunities.

Daniel Moran '79 (B.S.) was appointed clinical assistant professor of general dentistry at Boston University's School of Dental Medicine.

Gerard O'Connor '79 (B.A.) was elected as treasurer of the Long Island Chapter of the Appraisal Institute for 2010.

1980s

Eileen Stier '80 (B.A.) is "very proud and excited that my oldest daughter, Ariana DeAlbo, started attending Stony Brook this past spring as a transfer student. It's bringing back so many wonderful memories. I wish I could go back in time and do it again (almost)."

Russell Brown '81 (B.S.) is a vice president overseeing the management of the taxable fixed income accounts at Silvercrest. Brown joined Silvercrest in May 2005 from Hughes Capital Management in Virginia, where he managed institutional fixed income portfolios.

Noah Lipman '81 (B.A.) and **Judith Coppola Lipman '81 (B.A.)** reside in New Jersey with their two children, Elizabeth, 20, and Kathleen, 16. Noah Lipman retired from the practice of law and now teaches at the college and high school level. He and Judith have been married 27 years.

Miriam (Rogers) Villani '81 (B.A.) has been named a partner with the law firm of Sahn Ward & Baker. Villani, an attorney in the field of environmental law, has served as chair of the Environmental Law Section of the New York State Bar Association and is editor-in-chief of *The New York Environmental Lawyer*.

Stephen Dinardo '83 (Ph.D.) is a professor of cell and developmental biology at the University of Pennsylvania. He recently received the School of Medicine's Dean's Award for Excellence in Biomedical Graduate Student Training.

Association Appoints Four New Board Members

SB Alumni Association welcomed four new members to its board of directors this past June: Kevin Abrams, M.D. '86, Ernest G. Canadeo '77, Errol A. Cockfield '94, and Gail S. Hackett '85.

Kevin Abrams (B.S. in Biological Sciences) is the director of neuroradiology and MRI at the Baptist Hospital and Health Systems in Miami, Florida, where he is overseeing and creating all departmental policies, procedures, and protocols relating to imaging the neurological system.

Ernest G. Canadeo (B.A. in Psychology) is the founder, president, and CEO of The EGC Group Inc., an advertising, marketing, and digital media company with offices located in Melville, New York, and New York City.

Errol A. Cockfield (B.A. in English) is communication director for the New York State Senate Majority. Cockfield was vice president for communications and community affairs at the Lower Manhattan Development Corporation and previously served as the press secretary to New York State Governor David Paterson and his predecessor Eliot Spitzer.

Gail S. Hackett (B.A. in Economics) recently retired from MasterCard Worldwide, where she managed its four largest U.S.-based customer accounts. Prior to MasterCard, she was executive vice president and group head for Citibank.

For more information on the Association's board members, visit www.stonybrook.edu/alumni

Jonathan Scott '82 (B.A.), '84 (M.A.) is a senior partner of Scott & Scott LLP. He was a speaker at the Complex Litigation Committee's Presentation at the Commercial Law League of America's 80th Annual Chicago/Spring Meeting 2010.

Lisa (Boselli) Loscalzo '85 (B.S.) president of The Little Clinic, was among ten female small business entrepreneurs selected to join the annual *Fortune's* Most Powerful Women Summit, as a winner of *Fortune's* 10 Most Powerful Women in Small Business Initiative.

Raymond Wolf '86 (B.E.) was promoted to CEO and president of netSpray, located in Austin, Texas.

David Bernard '87 (B.A.), '88 (M.M.) conducted a performance of Beethoven's *Fifth Symphony* with the Park Avenue Chamber Symphony at the Schimmel Center for the Arts in New York City.

Renee Moadel '87 (B.E.) received the Albert Einstein College of Medicine NIH K12 Mentored Clinical Research Scholar Program Award for her research titled: "Pilot Trial of Radioiodine Therapy for Metastatic Breast Cancer." Moadel was first author on a paper published in *Breast Cancer Research* and presented at the Society of Nuclear Medicine's National Conference this year.

Kimberly (Grazioli) Tinebra '87 (B.A.) and **Vincent Tinebra '87 (B.A.)** are living in Kentucky where he recently became the campus director for National College and she has re-entered the working world as an insurance agent in Crestwood, Kentucky.

They have three children who are ages 12, 10, and 8.

Kym Mirabella '88 (B.A.) is a Splashes of Hope Executive Board Member. Splashes of Hope is a charity that transforms the bare walls of medical institutions into a comfortable, friendly atmosphere for patients, hospital staff, and visiting family members. Their most recent project was the Pediatric Oncology Unit at the Stony Brook University Medical Center.

Richard Frank '89 (M.D.) recently published a book, *Fighting Cancer with Knowledge and Hope*. He is the director of cancer research at Norwalk Hospital and the medical director of the Mid-Fairfield Hospice in Connecticut.

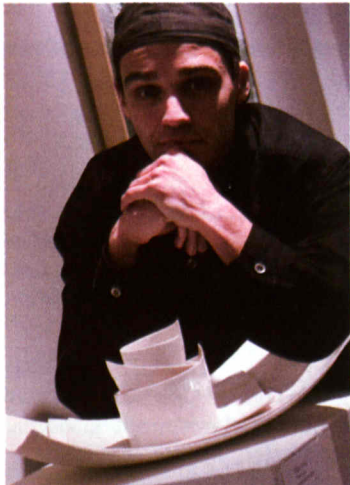
Jorge Quintana '89 (B.A.) has accepted a position as the chief legal counsel for the Montana Secretary of State's Office.

1990s

Thomas Amadio '90 (B.A.) accepted a position at Oppenheimer & Co. Inc. in New York City as director of investments after 14 years at Citi Smith Barney. Amadio also serves as an arbitrator for the Financial Industry Regulatory Authority (FINRA).

Dwain Welcome '90 (B.A.) published a new book with his wife titled *Excuse Me! Let Me Speak! A Young Person's Guide to Public Speaking*. The book is designed to help teens and preteens gain the confidence to be great public speakers.

Alumni Spotlight: Chris Vivas



Fragility and Strength: Profile of a Ceramic Artist

Chris Vivas, B.A. Studio Arts, English, '03

In Japan, the term *wabi-sabi* refers to the concept of finding beauty in that which has no beauty. "The crack in the wall" is how ceramic artist Chris Vivas describes it while talking about his latest pieces, part of an exhibit last winter called "Three Perspectives" at Gallery North, in Setauket, New York. In describing the translucent tiles, delicate dishware, and treelike structures on display, he speaks of texture, translucency, fragility, and randomness—all recurring themes in his work.

"I allow the clay to warp in the kiln," Vivas says. "Finding the beauty in that is very Japanese."

As an undergraduate, Vivas experimented in Stony Brook's ceramics studio, inspired by his mentor, Toby

Buonagurio. When last profiled (summer 2005), Vivas was an artist in residence at the Shigaraki Ceramic Cultural Park in the Shiga Prefecture in Japan. After six months, in March 2005, he returned to the United States and enrolled in the master's program in ceramics at SUNY New Paltz, where he had access to a wood fire kiln.

Such kilns can take days—even up to a week—to reach a temperature high enough to fire clay. "You crawl in and load it, and crawl out through small hole," says Vivas, who has been to Japan three times. "You do this every day, adding pieces of wood every ten minutes to allow the temperature to climb gradually. The ash deposits and flame create the effect. I'm always playing with this idea of fragility and strength. I liken it to the human condition. When I was in Japan I went to Hiroshima, and the effect of the atomic bomb is the epitome of that concept."

The tiles are part of a porcelain wall Vivas constructed for his master's thesis. After baking the porcelain clay and applying a wax pigment, he blew on the paint to create various effects. "I was looking for an interplay of color, using just three colors," he says. For the sleek dinnerware, Vivas played with the recipe for the porcelain. "When I fired it high, it became more translucent. I always try to push the material, to see how far I can take it. Ceramic is an excellent material to explore fragility." A series of pieces that resemble petrified wood, with its varied textures, elicit the artist's comment that "texture is emotive. It conveys a lot of feeling by being very harsh, abrasive. It speaks a lot."

Since earning his master's degree Vivas has worked with well-known wood fire artists Susan Beecher and Tim Rowan. He currently teaches at Nassau Community College and Suffolk County Community College as an adjunct instructor in art. In March he was a featured artist in a faculty/alumni exhibit at Stony Brook, paired with Buonagurio, his former mentor.

Vivas was recently featured in *Long Island Pulse* magazine, and he was also selected to be an artist in residence at the Museum of Art and Design in New York for Fall 2010.

What's next? "I'm thinking more of installations—utilizing space within a room. But I never say, 'this is done.' I might go back to it. Right now I have other ideas I want to tackle."

Thomas Giusto '91 (B.A.), '95 (D.D.S.), '98 (Cert.) and Jennifer Sperling-Giusto '92 (B.A.) are pleased to announce the birth of their third child, a boy, Luke Thomas Giusto, on March 27, 2009. He joins older sisters, Sydney, 11, and Stephanie, 8. Giusto has practiced periodontics and implant dentistry in New Jersey since 1998.

Glenn Greenberg '91 (B.A.) received the prestigious Distinguished Achievement Award for "Best News Story" from the American

Association of Educational Publishers in 2009. The story, "Bye Bye, Bus!" was about the rise in gasoline prices last fall and the impact it had on schools. This is the second time Greenberg has won this award.

Brian Greenwald '91 (B.S.), '95 (M.D.) is a psychiatrist at Mount Sinai Medical Center and the director of brain injury rehabilitation as well as an assistant physician at Mount Sinai Medical School. He received the 2009 Mount Sinai Medical Center Physician of the Year

Award, an honor given by the nursing staff. He is married with three children and lives in Springfield, New Jersey.

Sharon Meagher '91 (Ph.D.) was elected chair of the Department of Latin American Studies and Women's Studies at the University of Scranton, where she also holds an appointment as professor of philosophy. Her most recent book is *Philosophy and the City*.

Glenn Magpantay '92 (B.A.) is a voting rights attorney at the Asian American Legal Defense and Education Fund. On March 17, 2009, he testified before Congress on anti-Asian voting problems and other findings from the 2008 election.

David Joachim '93 (B.A.) was promoted to banking editor from weekend editor at *New York Times, Business Day*.

Gracia (Siswanto) Sun '93 (B.S.) now lives in Beijing, China.

Thomas Dono '94 (B.S.) accepted a position at Key Safety Systems located in Sterling Heights, Michigan, as senior vice president, legal affairs and general counsel.

Dominick Miserandino '94 (B.A.), executive editor of the online entertainment magazine, *The CelebrityCafe.com*, was honored by the Press Club of Long Island (PCLI), the local chapter of the Society of Professional Journalists. Miserandino was chosen based upon his outstanding contribution to journalism, PCLI, and the community.

Aimee Brunelle '95 (B.A.) was presented with the Distinguished Adjunct Faculty Award at Jamestown Community College (JCC) in Jamestown, New York. She is the head athletic trainer and an adjunct faculty member at JCC.

Peg Boyle Single '94 (M.A.), '96 (Ph.D.) published a book on dissertation writing titled *Demystifying Dissertation Writing: A Streamlined Process from Choice of Topic to Final Text*. The book was written with dissertation writing seminars and informal writing groups in mind.

Richard Lorenzotti '96 (B.E.) was hired by Heide & Cook Ltd., one of Hawaii's largest full-service mechanical contractor and air-conditioning service companies, as a technical services engineer.

Adam Mandelbaum '96 (B.A.) accepted a position at Nu Horizons Electronics Corp. located in Melville, New York, as general counsel. Mandelbaum was previously employed at Steve & Barry's as general counsel.

David Shashoua '96 (B.A.) is now a tax associate at Kaya Tax and Bookkeeping Services Inc., located in Irvine, California.

Laura Barrett '97 (Ph.D.) was named dean of the College of Liberal Arts at Armstrong Atlantic State University (AASU). Prior to her appointment at AASU, Barrett was the chair of fine arts, humanities, and selected social sciences in the Harriet L. Wilkes Honors College at Florida Atlantic University.

Dorothy Miller Borden '97 (B.A.) has joined Mercy Hospital located in Valley City, North Dakota, as the mission-spiritual care leader.

Paula Ryo '97 (B.S.) announces the birth of her daughter, Isabella Maria Ryo, on August 25, 2009.

Joanne Fiermonte '98 (B.A.) and her husband, Ted, married in August 2004 and had their first child last July. She works full time as the youth and family services coordinator at Helen B. Duffield Elementary School in the Connetquot School District, and this spring she received her Mental Health Counselor license.

2000s

David Feldstein '00 (B.S.) is the founder/CEO of AVID Property Holdings LLC, based in Forest Hills, New York. AVID Property Holdings is a commercial/residential real estate investment company. Feldstein was formerly a dean of students for the NYC public schools as well as a personal coach.

James Jeter '00 (D.M.A.) was featured bassoonist in a recital at The Calhoun School in New York City on March 1, 2009, performing the *Devienne Bassoon/String Quartet #1* and works by Fiala and Milhaud. He continues to perform principally for the Westfield Symphony, St. Cecilia Orchestra, and various ensembles in the New York Metro area.

Nancy Schulman '02 (B.A.) has completed her M.B.A. at Hofstra after more than three years of study. She writes, "I enjoyed my years at Stony Brook, and am proud to call both schools my alma maters."

Caitlin Franco '04 (B.A.) received her M.Ed. in education policy from Harvard University and is now the assistant principal at Equality Charter School, a school she co-founded with two other colleagues.

Rubina Madni '05 (B.A.) earned a J.D. from Yale Law School on May 25, 2009. She works as an attorney at Arnold & Porter LLP, an international law firm in Washington, D.C.

Got News?

Let us and your fellow classmates know what's new in your life. Send your Class Notes to alumni@stonybrook.edu or visit www.stonybrook.edu/alumni to submit your notes online.

Shannon Duffy '06 (Cert.) has a new addition to the family, Amelia Anne Ribich, born on June 18, 2009.

Roselyn Scavuzzo '07 (B.A.) is the marketing coordinator for the annual Columbus Day Parade and oversees the scholarship program for the Columbus Citizens Foundation. She also serves as the intake coordinator/research assistant at the American Institute for Cognitive Therapy in New York City. She looks forward to staying involved with SB since it has given her so much.

Pam Faber '08 (B.A.) has established a non-profit, registered in New York, for primate conservation. The Web site is www.preislerprimateinc.com

Brian Kachejian '08 (B.A.) performed original songs from his CDs *American Experience*,

Alive, and *Mood Piano* at Stony Brook's Homecoming 2009.

Aaron Kaufman '08 (D.P.T.) and his family relocated to Tampa, Florida, where he will be working as a home care physical therapist for Girling Health Care Inc.

Drew Slack '08 (B.A.) graduated from AmeriCorps National Civilian Community Corps (AmeriCorps NCCC) Pacific Region, wrapping up ten months of community service nationwide. AmeriCorps NCCC graduates complete more than 1,700 hours of community service. Slack was one of 296 AmeriCorps NCCC members honored.

Christina Valdes-Rivera '08 (B.A.) recently married and has a baby girl. She is in the M.P.S. Program as a graduate student with a focus in human resource management.

In Memoriam



Cliff Swartz

Stony Brook mourns the passing of Cliff Swartz, one of the first faculty to join the University's Department of Physics in 1957. Swartz started his career in experimen-

tal high energy physics, first at the University of Rochester (where he earned his Ph.D.) and then at Brookhaven National Laboratory (BNL). At BNL, he helped to build the Cosmotron and used it for research during the 1950s. One fall when the Cosmotron was down for repairs, he agreed to teach for one semester at a college that was just starting in temporary quarters in Oyster Bay, which later moved and became Stony Brook University.

Swartz divided time between teaching and doing research at BNL until teaching became a greater passion. He had been editor of the magazine *The Physics Teacher* for most of its existence. In 1987, he won the Oersted Medal of the American Association of Physics Teachers. Although he retired from SB in 1995, he maintained his involvement with the Department of Physics until recently.

An author of more than 30 books, Swartz was also a poet and a writer of several plays that were performed in the community. A memorial service is planned for later this fall.

Lawrence Noonan

Lawrence Noonan passed away this past June after a valiant struggle with failing health. His legacy will be felt by many as his tenure at Stony Brook spanned more than 32 years. Noonan's service began in 1978 as budget director, and he continued to influence the future of the University and provide support and foresight in his subsequent positions in the Provost's Office and finally as associate dean for the College of Engineering and Applied Sciences.

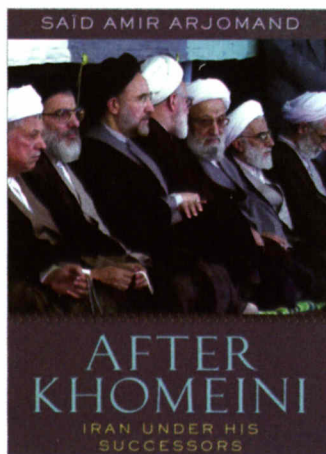
In lieu of flowers, the family has requested that donations be made to the Lawrence E. Noonan Scholarship Fund. Checks should be mailed to College of Engineering and Applied Sciences, 127 Engineering, Stony Brook University, Stony Brook, NY 11794-2200, Attn: M. Mastauskas.

Louis Spero

The Stony Brook Community is saddened by the tragic death of Louis Spero as the result of a car accident. Spero, 60, worked at both the Southampton and Stony Brook University campuses as a project manager in the Office of Facilities and Services.

Spero oversaw the rehabilitation of the Stony Brook Southampton campus, including the restoration of the historic century-old windmill, and the renovations of the Avram Theater and Atlantic Hall.

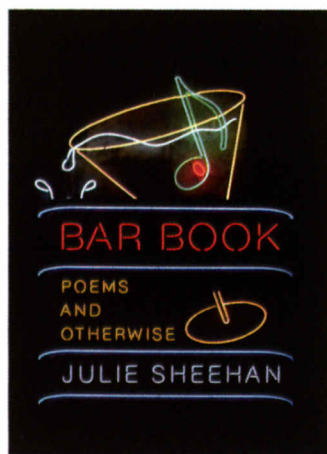
Brookmarks



After Khomeini: Iran Under His Successors

by Said Amir Arjomand, Ph.D.,
Distinguished Service Professor,
Department of Sociology
2009, Oxford University Press

Arjomand's latest work, a sequel to his analysis of the Iranian revolution, *The Turban for the Crown*, examines Iran under the successors of Ayatollah Khomeini up to the present. Taking a chronological and thematic approach, he traces the emergence and consolidation of the present system of collective rule by clerical councils and the peaceful transition to dual leadership by the ayatollah as the supreme guide and the subordinate president of the Islamic Republic of Iran. Bringing the work up to current political events, he analyzes Iran's foreign policy as well, including the impact of the fall of Communism on Iran and Ahmadinejad's nuclear policy.



Bar Book: Poems and Otherwise

by Julie Sheehan, Assistant Professor,
MFA in Writing and Literature Program
2010, W.W. Norton & Company

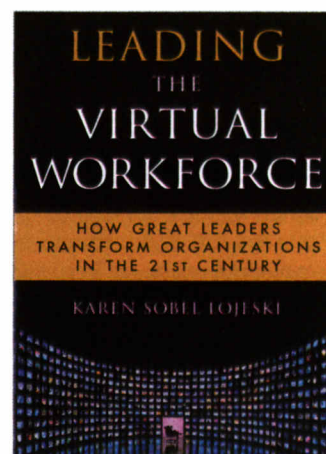
An unusual collection of poetry about divorce and parenthood, *Bar Book* reveals basic human emotions—loneliness, hope, resilience—through the voices of a barmaid, bar patrons, and even the cocktails. Sheehan innovatively combines different genres of poetry, dialogue, footnotes, recipes, and even monthly budget sheets to tell her story. After reading *Bar Book*, you'll never think of poetry—or a drink—the same way again.



Andean Cocaine

by Paul Gootenberg, Ph.D., Professor,
Department of History
2009, University of North
Carolina Press

Andean Cocaine chronicles the rise of the export of illegal Latin American cocaine, tracing its history from its origins as a medical commodity in the 19th century to its repression during the early 20th century and its reemergence as an illicit good after World War II. Gootenberg's work is key to understanding one of the most vexing social dilemmas of late 20th-century America: the American cocaine epidemic of the 1980s and the subsequent U.S. drug war in the Andes.



Leading the Virtual Workforce

by Karen Sobel Lojeski, Ph.D.,
Assistant Professor, Department of
Technology and Society
2009, Wiley

This timely book examines the fact that although the modern U.S. mobile workforce is exploding, leaders are using methods and models that were created almost a century ago. Sobel Lojeski introduces the concept of Virtual Distance, a combination of physical separation, technology mediation, and disconnected relationships, leading to a psychological separation that builds over time and causes negative effects on productivity, innovation, and trust between employees and groups of organizations. The author introduces a new business model with core competencies designed to mitigate these negatives and develop a successful virtual workforce.

New & Noteworthy

**Class Definitions:
On the Lives and Writings of
Maxine Hong Kingston, Sandra
Cisneros, and Dorothy Allison**
by Michelle M. Tokarczyk, Class of '85

The Fifth Servant (novel)
by Kenneth Wishnia, Ph.D., Class of '96

Demystifying Dissertation Writing
by Peg Boyle Single, Ph.D., Class of '96

**The ETF Handbook: How to Value
and Trade Exchange Traded Funds**
by David J. Abner, Class of '92

Practice Diary
by Sanford Brown, M.D., Class of '68

Cardiac Intensive Care
edited by Allen Jeremias, M.D., MSc, and
David L. Brown, M.D., Division of
Cardiovascular Medicine

**Yucatán Women and the
Realities of Patriarchy**
by Stephanie J. Smith, Ph.D., Class of '02

Reflections on Spain's St. James
by Robert Hodum, Class of '84

**Ricci Flow and Geometrization
of 3-Manifolds**
by John W. Morgan, Director,
Simons Center for Geometry and Physics;
and Frederick Tsz-ho Fong

Seeking the Write Stuff *The Brook* welcomes submissions of books recently written by alumni, faculty, and staff. Send a review copy and relevant press materials to: Susan Scheck, Editor, "Brookmarks," Office of University Communications, Administration Building, Room 144, Stony Brook University, Stony Brook, NY 11794-0605. Please note: To purchase a copy of any of these featured titles, contact the University Bookstore at (631) 632-9747. Visit www.stonybrook.edu/bookstore for a calendar of events, including a series of faculty author readings sponsored by the Friends of the Library and the University Bookstore.

Events Calendar

NOVEMBER

Sunday, November 7 • 2:00 pm

**Sunday Street Acoustic Series: Slaid Cleaves
University Café, Stony Brook Union**

Slaid Cleaves' bio simply says: "Writes songs. Makes records. Travels around. Tries to be good." Tickets: \$22 by November 3 at www.shopsbu.com or \$27 at the door. For details, visit universitycafe.org

Sunday, November 7 • 7:00 pm

Katharine McPhee

Staller Center Main Stage

Katharine McPhee, the singing sensation of *American Idol* Season Five, comes to Staller for an exclusive evening of song. Tickets: \$34. For details, visit www.stallercenter.com

Saturday, November 13 • 8:00 pm

Kenny Endo in Gateway: Ma vs. Groove

Charles B. Wang Center Theater

The Wang Center celebrates 35 years of drumming by legendary drummer Kenny Endo. Tickets: \$35 for priority seating; \$20 for general; \$15 for seniors. For details, visit stonybrook.edu/wang

Saturday, November 13 • 8:00 pm

Suzanne Vega

Staller Center Recital Hall

Suzanne Vega created a sensation with her poetic stories and exquisite melody in her hit songs, such as "Luka." Join her as she sings classics and new tunes. Tickets: \$38. For details, visit www.stallercenter.com

Saturday, November 20 • 8:00 pm

Ken Peplowski's Welcome to the Club

Staller Center Recital Hall

An evening of jazz and comedy with master of ceremonies Ken Peplowski, on clarinet and saxophone; the Derek Smith trio; comedian Pete Barbutti; and jazz vocalist Clairdee. Sponsored by Renaissance Technologies. Tickets: \$38. For details, visit www.stallercenter.com

Sunday, November 21 • 4:00 pm

Galumphia: Not Just for Kids

Staller Center Main Stage

A human jungle gym in action! A one-hour show recommended for ages 7 and up. Presented by Bank of America. Tickets: \$12. For details, visit www.stallercenter.com

Tuesday, November 30 • 8:00 pm

Emerson String Quartet

Staller Center Recital Hall

Stony Brook has been privileged to have the Emerson String Quartet, named "America's greatest quartet" by *Time* magazine, as its resident ensemble since 2002. Eugene Drucker and Philip Setzer, violins; Lawrence Dutton, viola; and David Finckel, cello, make up the Quartet. Tickets: \$42. For details, visit www.stallercenter.com

● SAVE THE DATES • 2011

Saturday, February 12, 2011

Basketball Alumni Day and Game

Stony Brook Seawolves vs. Maine Black Bears in the SBU Arena, 11:00 am

Saturday, March 12, 2011 • 8:00 pm

Staller Center Gala 2011

MOMIX Botanica

Staller Center Main Stage

MOMIX'S most spectacular dance creation, Botanica, follows the rhythms of the seasons, the evolution of the world, and the passing of a day, performed by an outstanding company that defies categorization as easily as its dancers defy gravity. Tickets: \$55. To learn how you can become a Gala Benefactor, which includes VIP seating and admission to the Gala Benefit Party, visit www.stallercenter.com

Monday, April 4, 2011

The Stars of Stony Brook Gala

Pier Sixty, Manhattan

Visit www.stonybrook.edu/alumni for details.

Monday, June 20, 2011

Stony Brook Alumni Association

Scholarship Golf Classic

Hamlet Willow Creek Golf and Country Club

Visit www.stonybrook.edu/alumni for updates.

2010 DISTINGUISHED ALUMNI

Scott Abrams, B.E. '80

President, The Omnicon Group Inc.

Diane Brink, B.S. '80

Vice President, Marketing and Strategy, Global Technology Services, IBM Corp.

Christine Goerke, B.A. '94

Grammy Award-Winning Soprano

Kevin Law, B.A. '82

President and CEO, Long Island Association Inc.

Hyun-Soon Lee, M.S. '79, Ph.D. '81

Vice Chairman, R&D Division, Hyundai Motor Co.

David Walt, Ph.D. '79

Robinson Professor of Chemistry, Howard Hughes Medical Institute Professor, Tufts University Department of Chemistry



To learn more about this year's Award recipients, who were honored at a reception on November 4, visit www.stonybrook.edu/alumni

Alumni Golf Outing Benefits Student Scholarships



A few alumni and friends take time to relax during the Annual Golf Classic. From left to right: John H. Cierski '90, senior vice president/investments, Gilford Securities Inc.; Gloria Snyder '72, vice president, Mark J. Snyder Financial Services and Alumni Association president; Wolfie the Seawolf; Bob Stafford '72, '82, inspector, University Police; Rick Guarino, director, Annual Giving; Joseph M. Crook '80, vice president, Star Communications; and Guenter Jonke, D.D.S. '82, partner, Suffolk Oral Surgery Associates

This past June, the Stony Brook Alumni Association hosted its annual Scholarship Golf Classic at the Hamlet Willow Creek Golf and Country Club in Mt. Sinai, New York. This was the Association's most successful golf outing to date, and the funds raised will be entirely dedicated to Alumni Association-sponsored student scholarships. At the scholarship awards dinner following the outing were a few of the 2009 student scholarship recipients: Anne Di Salvo, Geordan Kushner, and Jason Shank. "This scholarship from the Alumni Association means so much," said Di Salvo. "In fact, it made it possible for me to be the first person in my family to graduate from college."

The Brook, Vol. 9, No. 2

Assistant Vice President and Creative

Director: Yvette St. Jacques

Editor in Chief: Joanne Morici

Managing Editor: Shelley Catalano

Editor at Large: Carol Richards

Senior Editors: Patricia Sarica,
Susan Tito

Senior Writer: Howard Gimple,
Toby Speed

Copy Editor: Susan Scheck

Art Director: Karen Leibowitz

Designers: Aiyi Liao, Allison Schwartz

Cover: Gail Swedberg, GDesign Company

The Brook is a publication of the
Office of University Communications,
144 Administration, Stony Brook University,
Stony Brook, NY 11794-0605. © 2010

Stony Brook University/SUNY is an affirmative
action, equal opportunity educator and
employer. This publication is available in
alternative format on request. 10020706

Back cover photos: University Archives,
Sam Levitan

Sullivan, Stephen W.
Serials and Acquisitions - Ma
3315

Flashback: C.N. Yang Puts SB on the Map

In 1965, Stony Brook had only just begun to realize New York Governor Nelson Rockefeller's vision to make the University "the MIT of New York." To fulfill that vision, then President John Toll made it his priority to recruit elite scholars and researchers. Chen Ning "Frank" Yang more than fit the bill. At the Institute for Advanced Study in Princeton, and during summer visits to Brookhaven National Lab, Yang, with Robert Mills, made a series of discoveries that laid the foundation of contemporary particle physics. In 1957, he and Tsung-Dao Lee shared the Nobel Prize for Physics for the startling suggestion, quickly confirmed by experiment, that the laws of nature distinguish between mirror images.

"[Yang signed] a letter saying that if we got an Einstein professorship [at Stony Brook] he would accept it. It was a statewide competition—Columbia, Syracuse, Cornell, and other institutions expected to win. But when we submitted the name of C.N. Yang, with his letter, we got the first Einstein professorship," said Toll. And the first Nobel laureate to join the faculty. By doing so, Yang transformed a fledgling institution into a world-class university.

Yang was the founding director of Stony Brook's Institute for Theoretical Physics, renamed in his honor in 1999. Through a series of influential joint seminars at Stony Brook, organized with then Department of Mathematics Chair Jim Simons, Yang helped initiate a new chapter in the cross-fertilization of physics and mathematics. Yang was honored last spring at the Stars of Stony Brook Gala and was on hand for the dedication of what will become the University's first LEED-certified residence hall—named for him and part of, appropriately enough, SB's Nobel Halls.



C.N. Yang, above, in 1966, was the first Nobel laureate to join the faculty at Stony Brook. Yang, at right, was the honoree at the Stars of Stony Brook Gala last spring, which raised \$2.2 million for student scholarships.

