

COMMENCEMENT



Mathilde Krim, left, and Isabel Allende will receive honorary degrees at this year's ceremony on May 19.

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CONCERT



The Lumiere Dancers join the Camerata Singers, Chorale and University Orchestra on April 25.

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I-CON X



The annual three-day science, sci-fi and fantasy convention returns to campus April 19-21.

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UNIVERSITY AT STONY BROOK • SUNY • CURRENTS

APRIL 1991

VOLUME 9 NUMBER 3

FOCUS: RESEARCH

The Science of Stress

Researchers explore the connection between health and mood

By Sue Risoli

We've all experienced it: a slight crunch of the stomach when stress starts to mount. Or maybe it's that soul-sapping weariness after a day of tilting at our own personal windmills.

Scientists are beginning to establish what laypeople have always known: stress makes you feel bad, physically as well as mentally. At Stony Brook some faculty members are exploring the relationship between stress and physical well-being, studying everything from pregnancy to the common cold.

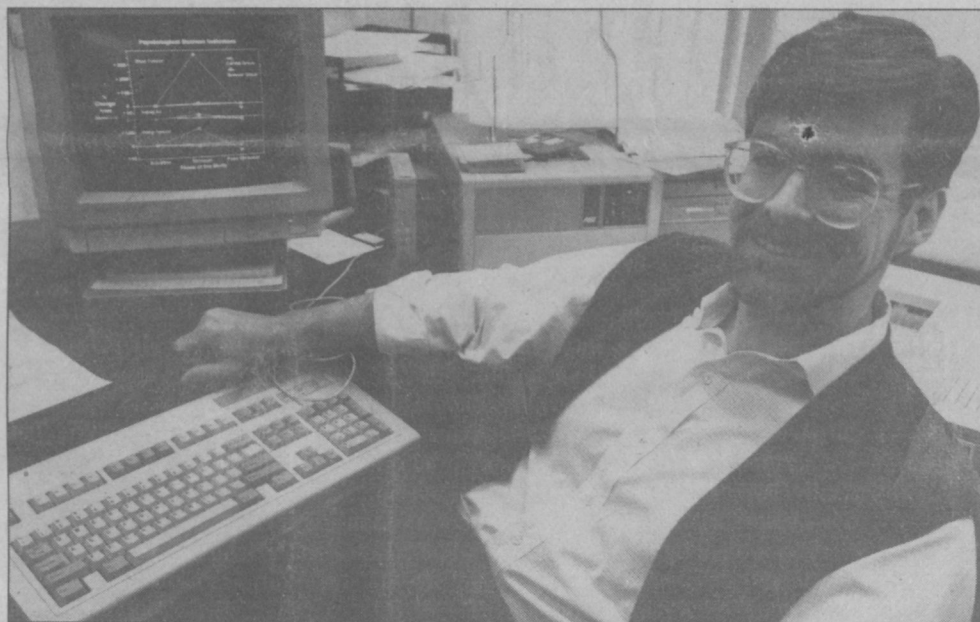
Though the precise definition of stress varies, most researchers agree on certain factors that define a situation as stressful. "It's the perception of an environmental demand which is threatening or dangerous, in excess of our ability to cope," says Richard Friedman, associate professor of psychiatry and psychology. "Certain things increase the stressfulness of a situation, such as when we feel a lack of control or unpredictability about the outcome."

It's the body's reaction to the stress-induced rush of fear, anger or anxiety that can trigger illness. "We use the word 'perception' because everyone has a different idea of what is stressful," notes Friedman. "Some people feel stressed out when they're stuck in traffic or waiting on bank lines. There's no real physical danger, but if the person perceives it as stressful, the body responds to the situation as if it were a real threat."

For the past 10 years Arthur Stone and John Neale have been examining the relationship between daily experiences and the onset of cold symptoms. Subjects fill out event booklets, ranking such items as "things that happened at work" or "family interactions" as desirable or undesirable. They also chart the intensity of their moods each day and note any physical problems.

Stone, associate professor of psychiatry and psychology, and Neale, professor of psychology, have concluded that when positive daily events decrease and stressful events increase at the same time, the body's immune system becomes depressed. "The change in the immune system makes you more vulnerable," says Neale. "If you encounter a virus at that point, infection occurs. Respiratory infection symptoms — coughing, sneezing, watery eyes — show up three to five days later."

The researchers are now investigating the blood and saliva of the people in their study to find out exactly how the immune system is affected by stress. They're also looking at how moods affect the severity of colds that result



Arthur Stone plots data on the relationship between physical health and emotional stress.

"Some people feel stressed out when they're stuck in traffic or waiting on bank lines...if the person perceives it as stressful, the body responds to the situation as if it were a real threat."

— Richard Friedman

from unpleasant events, and how long it takes for people to recover.

Stone and Neale suspect these factors are controlled by interleukin-2, an immunological blood protein, and secretory immunoglobulin A (IGA), a protein generated in the salivary glands and secreted directly onto mucous membranes in the throat or mouth. "Our hypothesis is that IGA is suppressed by negative daily events, even minor ones," Stone explains. "Usually it binds to receptors on the virus, so the virus is not able to stick. But when IGA is depressed it can't do that, and that allows the virus to get in."

Stress doesn't have to deliver a major wallop in order to

affect you physically, Stone and Neale point out. "It doesn't have to be a really bad event like getting fired," says Neale. "The cold could result just from relatively minor daily hassles." Neither does there have to be a dramatic increase in the number of those hassles. "The average is 1.3 undesirable events a day," Neale continues. "If that increases to two, you see a change in people's physical condition. On the other hand, the average of desirable events is five per day. If that drops even by one, you'll also see a change."

Once symptoms start, is it possible to stave off the infection by putting oneself in a better mood? "We think so," says Stone. "A change in mood or events could turn it around. If you're in a relatively good mood, you secrete a relatively good level of IGA, even if cold symptoms have already started."

Saliva and blood samples in the latest phase of the study are collected weekly by a nurse who visits subjects' homes to

draw their blood. Subjects collect saliva themselves with what Neale calls, "the old cup-and-lemon-drop method. They place a small cup over their parotid gland, then pop a lemon drop. The saliva starts to flow into the cup. Then they put it in the freezer until the nurse comes to pick it up." Immunological assays are done by Donald Cox, associate professor of periodontics, in his lab at the School of Dental Medicine.

Participants in the study are limited to those who have children, says Stone, "because we know they're exposed to all kinds of germs that the kids bring home from school." When asked if the subjects ever find the booklet-inscribing, saliva-producing and blood-letting stressful in itself, Neale remarks, "Well, we pay them for their participation, and it only takes about 10 minutes to fill out the health and mood checklist. But people do report feeling hassled sometimes by the saliva part of it."

Other researchers are studying the role stress plays on pre-existing physical conditions. Assistant professor of psychology Marci Lobel is looking at the role chronic stress during pregnancy plays in difficult labor, preterm (premature) delivery and low birthweight babies.

"People have studied the effects of major life events in pregnancy, things like the mother's moving or being robbed," says Lobel. "That's not always helpful, since people regard those events differently. We are examining chronic stress, feelings of being anxious, nervous or overwhelmed on a continuing basis throughout the pregnancy."

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"In the 1990s, I predict that growth in the applied sciences at Stony Brook will have an impact on our region comparable to that of biotechnology in the 1980s. The fields of materials science, chemistry, applied mathematics and physics, and applied geosciences, are all growing in strength and visibility at Stony Brook."

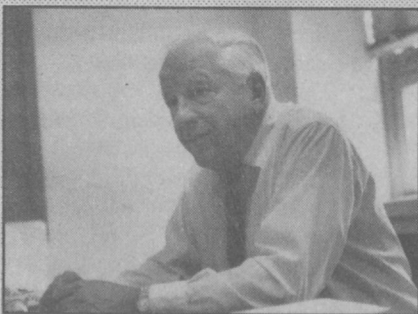
—John H. Marburger
President of the University
at Stony Brook

Campus Clean Up

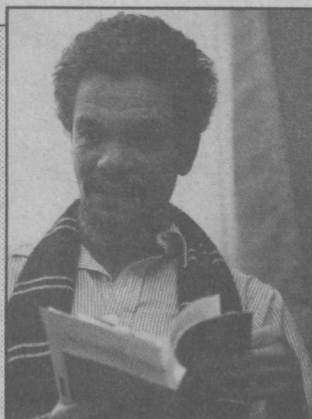
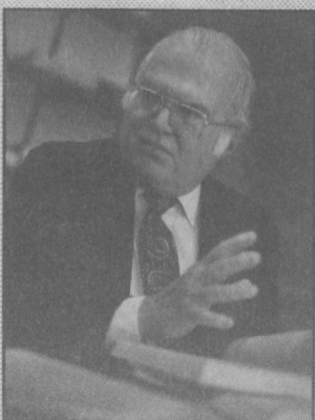
Students, faculty and staff: volunteer to weed, rake, paint and spruce up the campus during the fourth annual Campus Cleanup Day, Friday, April 26. Rain date, Monday, April 29. The reward: an ice cream party. Call Arlene Skala at 632-6320 for more information.

Coming Next Issue

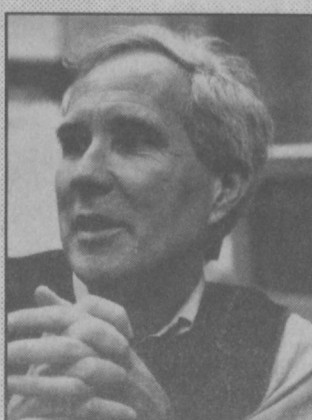
FOCUS: BOOKS AND AUTHORS

**New Liberal Arts Curriculum**

Currents talks with John G. Truxal (recently retired from the Department of Technology and Society) and Marian Visich, Jr., associate dean of Engineering, about bar codes and English majors.

**LeRoi Jones/
Amiri Baraka
Reader**

William J. Harris, associate professor of English, nears completion of an anthology of the writings of Baraka, professor of African Studies.

**Theatre of India**

Farley Richmond's ongoing, on-site research into Indian drama — ancient and modern — bears fruit in a major new reference book.

PHOTOS BY MAXINE HICKE

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The University at Stony Brook is an affirmative action/equal opportunity educator and employer.

Marburger Spells Out Budget Cut Impact

With prospects dim for a new state budget in place by the April 1 deadline, university officials can only wait and see what 1991-92 holds for Stony Brook.

"We have been keeping in close touch with the Long Island delegation," says Janice Coughlin, director of governmental relations. "They are aware of the serious nature of our needs."

The implications of Governor Mario Cuomo's proposed 1991-92 executive budget were recently spelled out by University President John H. Marburger in a report to the University Senate. The reduction — ranging from 3 to 6 percent — would have a "serious impact" on Stony Brook's daily operations and overall mission, Marburger said.

The 3 percent scenario, which would carry with it the elimination of 86 positions and a loss of \$5.4 million in funding, assumes a tuition increase of \$500 and no other cuts in addition to those already proposed in the Executive Budget.

"At this level, Stony Brook would survive with its missions and enrollment intact, but the quality of life on campus would be diminished. A smaller tuition increase will have direct impact in terms of jobs and accessibility of courses and programs to all students," Marburger said.

"In addition to the access problem, which I see at this point as dominated by program reductions rather than by cost to students, we are deeply concerned about the possibility of diminishing those missions that are most likely to assist the New York economy out of its slump," he added, citing federally sponsored research, economic development activities, small business assistance, the technology incubator program, availability of consulting and technical services, programs with secondary schools, teacher training and retraining and continuing education.

"Stony Brook can help create an economic future for New York in which all, not only we ourselves, will be beneficiaries.

But even at the 3 percent scenario, our ability to deliver that future is diminished," Marburger said.

If the budget is adopted along the lines proposed by the governor, Stony Brook would lose anywhere from 86 to 172 positions and 187.3 lines on the state payroll now devoted to graduate student stipends. The GA/TA lines would be transferred to a new IFR accounting system. Funds for the stipends would remain intact, subject to campus-level reductions.

If Stony Brook takes a 6 percent (\$10.8 million) hit, \$2 million would have to come from non-personnel items such as equipment replacement funds and library acquisitions, Marburger said. "Given the current inadequacy of funding for non-personnel needs, all the rest would have to come from personnel reductions."

The consequences of such massive reductions for campus services, added Marburger, "is fewer services, slower service, deferred maintenance and reduced access to surviving services," including the curtailment or elimination of painting, custodial services, building maintenance, purchasing, stores, financial services, student programming and services, job recruitment and transaction processing delays. "Progress toward automation of functions would be delayed," Marburger told the University Senate, "and projects specifically designed to save energy would have to be deferred."

At the 3 percent level, he said, "some Health Sciences units are reporting the likelihood of enrollment reductions. At the 6 percent level, it is unlikely that enrollments could be maintained at current levels." Graduate enrollment, he said, would be particularly hard hit.

Already in 1990-91, some 30 courses or course selections were cancelled, Marburger

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Stony Brook Posts Record Enrollment for Spring Semester

The University at Stony Brook posted a record enrollment for the 1991 spring semester, the second time in a row that enrollment has topped initial projections. This past fall, Stony Brook had the largest enrollment in its history with 17,623 full and part-time undergraduate and graduate students spread between the main campus and Health Sciences Center.

Though spring enrollment figures are not yet available for SUNY statewide, a spokesperson for SUNY's Planning and Policy Analysis in Albany noted that this past fall, the state university experienced the highest enrollment in its history. In September, a total of 403,028 students registered for classes in the network of state and community colleges that make up the 64-campus SUNY system, an increase of 14,000 over the previous year. The figures are in line with a nationwide trend that has seen enrollment grow despite a decline in the traditional college-age population. In a recent report on enrollment trends, the U.S. Education Department noted that more women and more people over the age of 24 were attending college.

If fall figures are any measure, nearly three-quarters of the 16,921 students attending class at Stony Brook this spring are age 20 or over, with 16 percent of that number over age 25. In addition, 80.8 percent of Stony Brook's graduate student population is age 25 or older.

That comes as no surprise to Theresa LaRocca-Meyer, assistant vice president for student affairs and dean of enrollment planning and management. "College populations are graying, so to speak, but for some reason, you tend to see it more in the spring. That's when you get a lot of adults signing up who either postponed their education and have now decided to go back to school or who have their finger on the pulse of the economy and want to upgrade their education so that they can get a better job in the future."

As in past years, most of the new students enrolling at Stony Brook for the spring semester are transfers from Nassau Community, Suffolk Community and Farmingdale, LaRocca-Meyer said. The trend toward older enrollees, she adds, has led to some reshaping of the admissions process and will continue to mold the services and programs offered by the university.

"You have to have some flexibility in

dealing with mature applicants. For example, if they've been out of high school for say, 17 years, you can't expect them to furnish the standardized test results you might seek from a recent graduate. And you might take into consideration their life's experiences. They also ask about the services available for older students and that, in turn, will be shaping that area in the future."

Stony Brook's fastest growing area continues to be the School of Continuing Education, where enrollment is up 10 percent this spring despite a reduction in offerings

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At last year's regatta on the Roth Quad Pond.

Annual Regatta Returns to Roth Pond

An armada of pond-worthy cardboard boats will take to the water in stiff competition, when the third annual Roth Regatta gets underway Friday, April 26, at 4 p.m. at the University at Stony Brook.

The regatta is a boat race run by the Roth Quad Yacht Club, pitting a flotilla of hand-made craft against one another in an uncompromising crossing of Roth Quad Pond, five feet deep and 200 (endless) feet long. The race is open to students, faculty, staff and alumni of Stony Brook.

The boats — wind or paddle-powered — can be made from cardboard, duct tape, aluminum foil, rope, string, cloth, papier mache, paint, glue and wax. Period. Strictly prohibited are wood, metal, styrofoam, staples, rubber, milk crates, plastic, and just

about everything else. Judging will be based on appearance as well as speed, and prizes will be awarded. Just making it across the pond is no mean feat.

Boats will compete in two categories this year: speedster and yacht. A speedster is a boat piloted by one person; a yacht carries a crew of two to four members. The Roth Cup will be awarded to the winning yacht and the Challenge Cup, to the speedster.

This year's student admiral is Penny Wong, senior psychology major from Astoria. She is assisted by First Mate Richard Matzelle, senior psychology major from Rosedale, Queens.

Regatta headquarters can be reached at 516-632-4015.

Commencement News

AIDS researcher and educator Mathilde Krim and novelist Isabel Allende will be the honorary degree recipients at this year's Commencement ceremony Sunday, May 19. Krim will deliver the Commencement address.

Krim became involved in AIDS research through her work with interferons, natural substances which proved effective in treating certain viral diseases and several forms of cancer, including Kaposi's sarcoma, common in patients with AIDS. Later, she dedicated herself to increasing public awareness of AIDS.

Krim founded the AIDS Medical Foundation (AMF), the first private organization concerned with fostering and supporting AIDS research. In 1985, AMF merged with a California-based group to form the American Foundation for AIDS Research (AmFAR), the only private, nonprofit national organization devoted to AIDS research, education for AIDS prevention and the development of AIDS-related public policies.

Krim received her Ph.D. from the University of Geneva, Switzerland, in 1953. From 1953 to 1959, she pursued research in cytogenetics and cancer-causing viruses at the Weizmann Institute of Science in Israel, where she was a member of the team that first developed a method for the prenatal determination of sex.

Following her marriage to New York attorney Arthur B. Krim, now chairman of the board of Orion Pictures Corp., Krim joined the research faculty of Cornell University Medical School and later, the Sloan-Kettering Institute for Cancer Research. She is now adjunct professor of public health and management in the School of Public Health at Columbia University.

Krim has been awarded five honorary doctorate degrees and numerous other honors and distinctions.

Allende is the author of several novels, including *The House of Spirits*, *Of Love and Shadows* and *Stories of Eva Luna*. She also has written several plays and stories for children. She is currently teaching creative writing at the University of California at Berkeley.

Allende is the niece of former Chilean President Salvador Allende, who was assassinated in 1973 as part of a military coup against his socialist government. Allende had been a noted journalist in Chile before she and her family fled to Venezuela. Her memories of her family and country became the genesis of *The House of Spirits*, her first novel, which received critical acclaim from *The New York Times* and *The Washington Post*. The book has been compared to Noble winner Gabriel Garcia Marquez's *One Hundred Years of Solitude*.

Allende received the Quality Paperback Book Club New Voice Award nomination in 1986 for *The House of Spirits*; *Los Angeles Times* Book Prize nomination in 1987 for *Of Love and Shadows*. *Eva Luna* was named one of the Library Journal's Best Books of 1988.

Creating the Next Generation

Within the next decade the United States will face a shortfall of people prepared for work in science, engineering and mathematics. At the same time, half of all "science intenders" entering college will opt for another major by the end of their freshman year. Why are we losing that talent? Who will be the next generation of scientists and how should we prepare them, from preschool through postdoctoral training?

Currents asked Myrna Adams, David Ferguson, Mary Scranton and Robert Lichter to explore the changes needed not only in our educational system but also in our culture to find and nurture tomorrow's scientists.

As associate provost for affirmative action initiatives, Myrna Adams coordinates recruitment of underrepresented faculty and students. She is the chair and one of the founders of OpenMind, a Stony Brook-based organization that is part of a national multicultural/multidisciplinary network of scholars concerned with excellence and diversity in higher education.

David Ferguson is an associate professor in the Department of Technology and Society. He co-directs Stony Brook's C-STEP (Collegiate Science and Technology Entry Program), which serves minority students pursuing majors in mathematics, science and technology. He is editing two books on computers and design.

Mary Scranton is a chemical oceanographer and associate professor of marine sciences at the Marine Sciences Research Center. She chairs the center's graduate programs committee, and has served on the university's graduate council. She is currently exploring the processes that control methane concentration in the Hudson River.

Formerly vice provost for research and graduate studies at Stony Brook, Robert Lichter is now executive director of the Camille and Henry Dreyfus Foundation (established to advance the science of chemistry and chemical engineering). He is a member of the education advisory committee of the New York Academy of Sciences. His research interests focus on nuclear magnetic resonance spectroscopy.

Sue Risoli, who covers science for the university, coordinated the writing of this issue.



David Ferguson

CURRENTS: There has been a great deal of focus in popular and scholarly media on the coming shortage of people prepared to pursue science as a career in the next 10 to 20 years. What factors are creating that situation?

DAVID FERGUSON: Well, I think a lot of things are creating problems in access to science for various people. Introductory courses in mathematics, physics and a number of other areas do very little to attract students and get them excited about the disciplines. Take engineering, for example: before students get any sense or feel for what engineering is really about, they have to go through a couple of years of basic mathematics. Many of them leave before they ever really get a taste of the field.

ROBERT LICHTER: It seems to me that what we're seeing now is counter to the great golden age of science and science education. Right after the Sputnik era it was not only popular but desirable to become a scientist or an engineer. That popularity was backed up by money and prestige associated not only with doing it, but also teaching it. And that led to a real expectation of what one could do as a scientist, and what science itself would accomplish.

It's almost like a voltage surge, where you get this big push and then it levels off. We haven't learned how to deal with that because we're still doing things now the way we did at a time when science, engineering and mathematics were in that golden age. We make assumptions about who the people are, what motivates them, how to train them.

CURRENTS: Will there be another surge?

LICHTER: I think people need to be seduced into it. I don't think there's any evidence at all that science is inherently attractive to any group of people. It has to be made attractive, and the ones who are responsible for that are the scientists.

MYRNA ADAMS: You know, Bob, I think we're likely to get a surge of interest in technology and sciences as an outgrowth of the Persian Gulf war.

MARY SCRANTON: I think there are a lot of opportunities for scientists to get people interested. There's the whole issue of global change that you can sell not as a panic issue, but as something that needs study. The space race got people into basic physics 30 years ago, but now there are other issues that can interest people in science at the entry level.

CURRENTS: Regarding science education, what are some specific difficulties that need to be addressed and how do we do so?

ADAMS: When I did Christmas shopping this year, I wondered about the degree to which people who do science ever assist toy manufacturers in putting together really good

tools for training little children in the earliest stages of investigation. And we need to think about how to motivate parents to buy these educational toys.

Everybody who knows something about science should help parents understand more. They are the primary teachers and primary motivators. That's an audience that we tend to overlook as a target for many of our educational functions.

CURRENTS: Mary, you've spoken about differences in the mindsets of male and female students. How does that work?

SCRANTON: There's an article that was written a couple of years ago by Sheila E. Widnall, who was then president of the American Association for the Advancement of Sciences (AAAS), about why women proportionately drop out of science at the undergraduate and even graduate level at much faster rates than men. It focused on ways in which women perceive how they're being treated, and I'm sure it applies to minorities as well.

In this particular case, they compared MIT graduate students who were working with the same advisor. The male student would interpret the professor yelling at him as being unfair, and the woman would view it as a reflection of her inadequacy. So the woman would quit, and the man would keep going and he would fight harder and be more assertive.

FERGUSON: I think this whole issue of the cultural context in which science is carried out is something we haven't given proper attention to. That is, scientists like to think of science as just representing a certain body of material — maybe even a way of thinking about things — but the context in which that gets carried out is often not considered to be an issue worthy of scientists to think about.

SCRANTON: Well, I really think that the people who teach have to be sensitized to the people who are being taught. Even speaking as someone who is fairly conscious of this myself, you do tend to respond to the students who

of Scientists



Myrna Adams

MAXINE HICKS

are the more animated or responsive or whatever. But what you really need to do is to say, "Look, I realize the reason this particular student is not responding to me is because they're scared, they're feeling inadequate, and therefore I'm going to search that student out and make sure that I answer their questions." You can do this at the graduate level and at small colleges.

At Mount Holyoke, which I attended, they produce the most women chemistry Ph.D.s in the country. It's a bachelor's program but the women who come out of there go on to Ph.D.s in chemistry at a higher rate than any other university, including big state universities. Part of the reason is that they get a lot of support early on, and then they get to the stage where they won't give up.

But I bet they [undergraduate women] get into MIT and they're the ones saying, "That advisor doesn't think I'm smart," even though they come from a very competitive program.

ADAMS: Of course, everything you've just said applies to blacks. Some people say, "Well, the standards aren't as high at traditionally black schools and it's not as competitive. They don't have to do the same science that they would do if they were here." Well, it is true that those institutions may not have the latest technology or the newest equipment because they're not getting the same grants. But students there are viewed with a sense that they can do it.

Why is it that students who come to Stony Brook thinking they were going to be science majors or math majors end up in liberal arts? Why is it that students who come through black colleges end up with a degree in the subject they started out in? The difference is that, in big universities, when students encounter the first set of difficulties — the first GPA below the level they would want it to be, or whatever — people say to them, "I really think you ought to change because I don't think you can do this work." The reaction those students get at black colleges is, "No way you're going to change. I'll see you in my office on Sunday morning, and we are going to go over this material."

I don't know how you can get that experience at big universities.

LICHTER: You can do it. At the University of Wisconsin, a biologist named Paul Williams teaches a course which he calls "Fast Plants." He's developed a breed of plants that can be put into little film canisters and distributed to 500 students in a classroom. Over the course of a semester they do a variety of experiments, each student with his or her own plant to show exactly what happens in the biological process.

I was at a conference in which this procedure was demonstrated. Williams had several hundred well-respected scientists sitting around on the floor, because there weren't enough seats, doing some of these experiments. It was absolutely fascinating.

But there was some revealing commentary among a particular group of these scientists who felt it was embarrassing to have college level students doing elementary school experiments. The people who made those comments missed the point about science as a process, rather

than a result. I think that it is possible to deal with very large classes at big universities, but the mechanisms have to be different. People have to give up the tradition of doing things the way it was done to them when they were students.

ADAMS: Ron Douglas [USB's vice provost for undergraduate studies] recently said that we have been treating math as somehow separate and apart from the people who created it. He said we regard math almost as if it descended from God on high and down dropped this textbook of mathematics. Wouldn't it be wonderful if students understood that people struggled to derive the formulations? We should be getting people to understand and acquire the tools by which they can continue to learn beyond us — to learn for themselves, beyond a given span of time.

LICHTER: The best teacher fades out of the picture. A teacher eventually becomes unnecessary for a particular student or group of students.

FERGUSON: The nature of the role of a teacher will have to change. Right now our view of the teacher is as possessor of knowledge to be delivered, rather than partner in a process of trying to help the student understand some things. I think teachers very often feel uncomfortable when they're placed in the role of being an explorer, much in the way the students must be exploring.

A teacher is more a planner, facilitator of learning environments, a supporter of learning environments. To me that's a very different role than the teacher who stands up in the front of the room and delivers instructions.

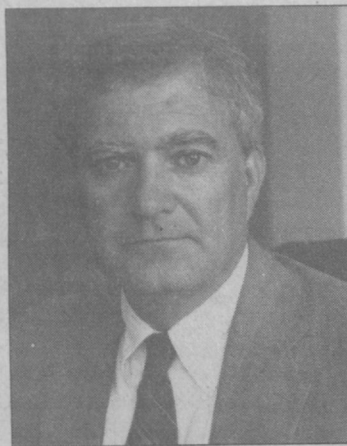
I also want to say that there are a lot of constraints on innovators in education. The whole Regents testing system almost pushes out innovators. The teachers have to meet a very rigid curriculum that has been laid down, and in many instances it has very little to do with the learning of science.

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Stony Brook Research: Key to Long Island's Future

Economics refers both to a field of study and to the actual movement and distribution of tangible resources within society. If the science were closer to the reality, we could say more certainly why our nation is in an economic recession and what it will take to get us out. But like much of academic work, our laboriously discovered insights give only part of the picture. Economics in practice owes much to chance and the influence of energetic and not always rational individuals.

The economics of our region certainly depends on the University at Stony Brook in many direct and indirect ways. We have become Suffolk County's health center. We award more degrees than any



John H. Marburger

MAXINE HICKS

other regional college or university. The part of our research enterprise not funded by the State is equivalent to a Hazeltine corporation (with the same number of employees on external funding). We are home during most of the year to a population larger than Port Jefferson Village. We are LILCO's biggest one-site customer. We have the only research library on Long Island, the only NCAA athletics program in eastern Long Island, the only comprehensive arts center. We teach, search, heal and serve through nearly eight

thousand employees. We are a business ourselves (many businesses) and we serve business everywhere.

Business and government leaders are urging us to accept even more responsibility for assisting the reorientation of Long Island industry away from the military market. We are responding with an enthusiasm even greater than I would have predicted. Stony Brook faculty are beginning to ask how they can help solve regional problems. This is happening not only in the area of science and technology, but also with teacher training, with programs in local school districts, with programs for the elderly. The recent initiative of the Humanities Center ("Jews in American Cinema"), in cooperation with the Museums at Stony Brook and other local organizations, expands our impact and appeal to a larger community. The appearances of anthropologist Elizabeth Stone to urge public attention to the preservation of antiquities during the Gulf War fulfill another equally important social responsibility.

Stony Brook continues to lead in new directions for our regional economy. Our hospital has had an extraordinary impact on the local health care industry. Our biotechnology initiative in the 1980s has produced not only heightened awareness of the potential of bio-industry but also a number of new biotech companies. I see a strong continuation of this theme, extending to the application of other technologies in health care including computing and imaging techniques. A growing collaboration among health sciences, engineering, and arts and sciences departments in the area of visual information processing promises major payoffs in new knowledge and new techniques.

In the 1990s, I predict that growth in the applied sciences at Stony Brook will have an impact on our region comparable to that of biotechnology in the 1980s. The fields of materials science, chemistry, applied mathematics and physics, and applied geosciences, are all growing in strength and visibility at Stony Brook. The newly designated National Science Foundation Science and Technology Center in high pressure physics will be a key component of this development, and materials science and technology will emerge as a principal theme. New technology is driven by new materials, and our ability to design materials for specific applications is a potent new tool.

Society is still learning how to use this tool, and Stony Brook and Brookhaven National Laboratory are going to be Long Island's teachers. The opportunities for high value added, low environmental impact industry in materials are much broader than in biotechnology, and the potential economic impact of this area is much greater for Long Island.

Stony Brook must demonstrate its social value to merit public support during a serious economic recession. We ourselves are part of the economic machinery, but that fact does not automatically ensure public support. This issue of *Currents* helps to spread the word of our success and gives some of the reasons why we deserve even more of the scarce public revenues.

John H. Marburger
President, University at Stony Brook

Listening To the World's Music

Long before Paul Simon was marching to the rhythm of the saints, way before David Byrne was flying down to Rio, Jane Sugarman was exploring the music of other cultures.

Unlike the two well-known pop stars who've spread the gospel of world music, Sugarman's is not a household name. But her musical odyssey is no less compelling. After living in Eastern Europe, she's now tracking the musical customs of Albanian immigrants who once were her neighbors. Sugarman also examines how gender determines who gets to play which music, be it Mozart or Metallica.

Sugarman is a self-described member of "the Peace Corps generation, people who took their interest in other parts of the world and translated that into studying ethnomusicology." Raised in California by parents who provided a steady diet of folk music, she joined a European exchange program as an undergraduate at Stanford University. She lived in Yugoslavia for several years as a UCLA graduate student, surrounded by music that was as much a part of everyday life as eating and sleeping. Sugarman recalls being "struck by the very vibrant, forceful singing that the people used to accompany themselves as they went about their daily chores. I've always been drawn to polyphonic music with more than one melody line, which is what these people were doing." The experience inspired her doctoral dissertation, called "May He Inherit: Singing and the Social Order Among Presba Albanians."

While in Yugoslavia, she befriended a group of ethnic Albanians. As many of them began moving to an Albanian community in Canada, they did two things: kept singing, and kept in touch with Sugarman. After her own return home, she decided to study whether their new lives would affect the way her friends made music.

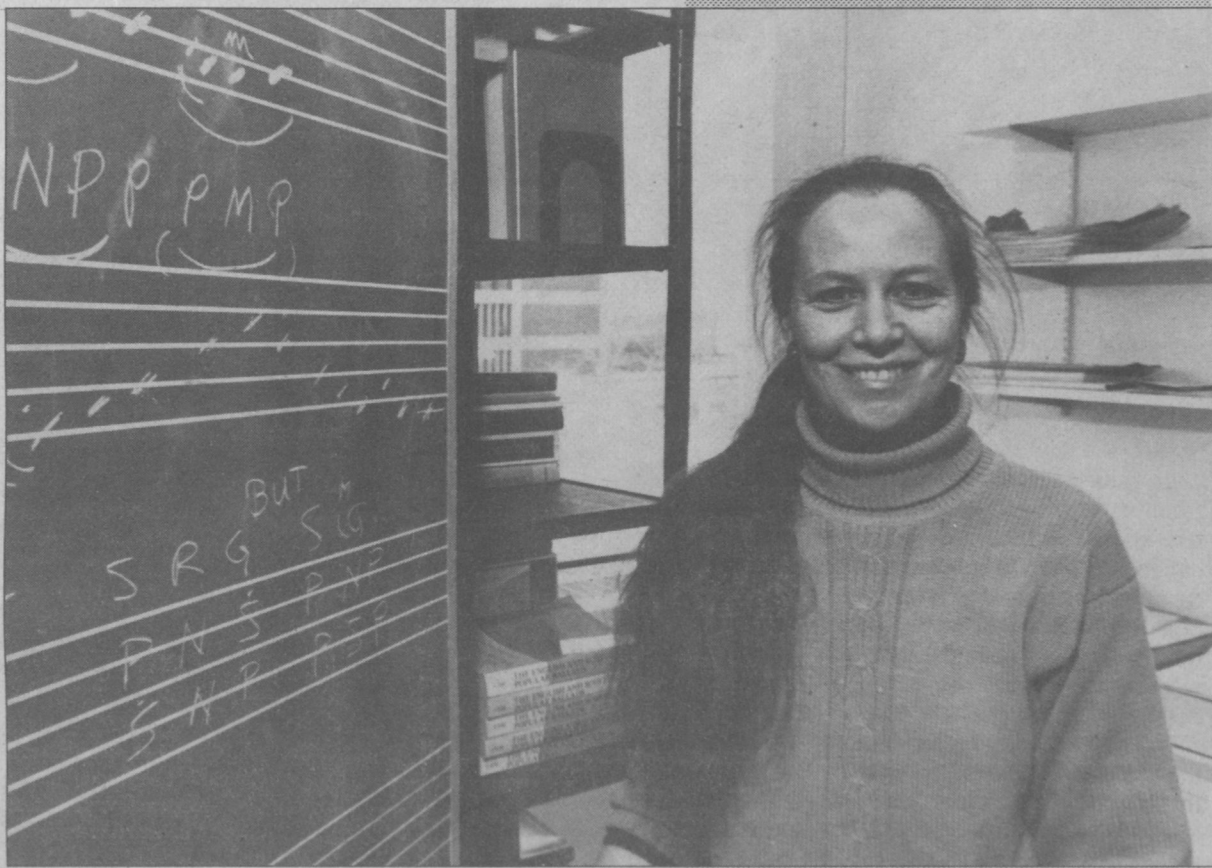
Her conclusion? "It did and it didn't. They haven't gone public with their music — they don't perform at folk festivals — so the music hasn't been diluted." But the peculiarities of Western life have made a few compromises necessary.

Apartment building neighbors are not always enthusiastic about the Albanians' fervent singing, reports Sugarman. Many of the singers were farmers who tilled the land all summer and whiled away the winter nights harmonizing. Now, Sugarman says, they often spend their evenings working extra hours to make ends meet. And the gypsies who provided instrumental accompaniment in Yugoslavia have been replaced by transplanted Albanians learning to play the traditional melodies themselves.

We live in an era in which a record called *The Mystery of Bulgarian Voices* has made the *Billboard* magazine Top 200 chart, and the term "world music" has become trendy — so Sugarman is hardly alone in her fascination with non-Western cultures. But what explains this communal hunger for international sounds?

"It comes and goes in waves," she says. "In the 60s there was a great interest in what people called 'ethnic' or 'authentic' music. We wanted to preserve cultural diversity. Even George Harrison was playing the sitar."

The Reagan years, says Sugarman, were "a low point in ethnomusicology, with an emphasis on Americana." But reggae music prevailed. "It was easy for people to relate to, being similar rhythmically and instrumentally to rock and roll," Sugarman notes. "It was the prototype for the current interest in world beat." In the early 80s, Nigeria's King Sunny Ade launched a world tour of juju, "similar to reggae except it has African drums." Eventually the township music of South Africa brought Paul Simon to *Graceland*, followed by the current crop of Brazilian classics on David



Jane Sugarman in her office in the Department of Music.

*"There's a whole world out there,
and people don't know much about
each other's musical traditions.
Every group has its own culture,
and it's just as sophisticated as
Western ones."*

Byrne's Luaka Bop label and Simon's latest record.

For some listeners, the enjoyment of world music is tainted by the uneasy suspicion that we're co-opting it. "There's this funny, American predilection that you hear some kind of music and you want to make it yourself," Sugarman agrees. "But — and I think this is hard for Western musicians to admit — there is something very imperialistic about working through the creative process using other musics."

"I have to ask myself," she says, "how I feel about being a mainstream American person studying these cultures. To what extent is that a reflection of imperialistic tendencies? It's a continuing dilemma for ethnomusicologists."

The musical travels of performers like Simon "are wonderful, especially because they're bringing the music of other cultures to a mass audience," she continues. "But unfortunately, what he does is set up a hierarchy: it's his song, he wrote it, it's his voice floating over the Brazilian music that becomes a backdrop. Would he care to be a backdrop performer?"

Even the digital sampling technology that has made it possible to bring snippets of music back from farflung locations has come under fire from ethnomusicologists. "It's now possible to make a digital sample of some kind of music, program your synthesizer and have it come out sounding the same," she says. "But instead of preserving the original, what you get is an emphasis on who programmed the drum machine."

Still, borrowing sounds is nothing new. Native Ameri-

can tribes were influenced by each other's music, says Sugarman. "African American music has provided genres that keep being redone. The blues were around for a long time before we heard the Rolling Stones playing them." And now there's rap music, "which is very creative. The music is so decontextualized you don't even know where it came from."

Sugarman also studies music closer to home. She's looking at the role of gender in music, and how music-making is shaped by notions of what's masculine or feminine. "In our culture, boys usually play instruments like the trumpet. It's associated with the military or with playing outdoors at public ceremonies. Girls are encouraged to play the flute or the piano." The latter instruments have a "pure" sound, says Sugarman, and are associated with stereotypically "female" domesticity.

Gender also informs our choice of music to perform, says Sugarman. In country music, even female stars renowned for their forthright stances and shrewd business decisions sing passively weepy love lyrics. In rock "garage" bands, "men write the songs. Then they tell the women how to sing them, until the women gain a lot of attention and fame and go off on their own."

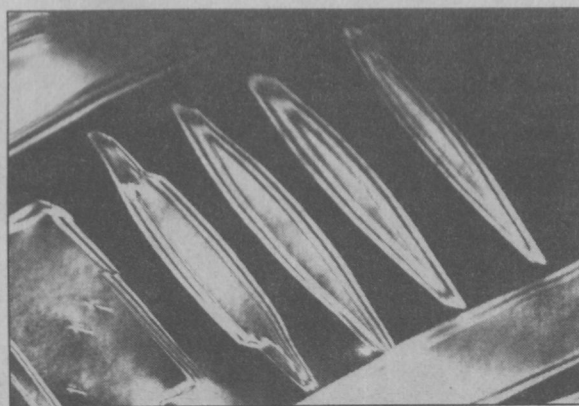
When asked about performers who blur gender lines, like Michael Jackson, Sugarman admits, "Well...he's a hard person to figure out. But in heavy metal, you've got very macho guys wearing long hair and makeup. I see it as a way to represent female roles while still preserving an all-male scene."

Sugarman has been watching MTV ("It's amazing how much serious scholarship is devoted to Madonna") and discussing musical trends with her students. "I learn so much from them," she comments. "They tell me there's been a recent fad for all-women string quartets, when they used to be all male." For Sugarman, it all comes down to communication and understanding.

"There's a whole world out there, and people don't know much about each other's musical traditions," she says. "We need to realize that every group has its own rich culture, and it's just as sophisticated as Western ones."

—Risoli

Journey to the Center of the Earth



Electron microscope image: The crystal structure of perovskite, a mineral found inside the Earth.

Don Weidner and Bob Liebermann don't waste time.

In January, the geophysicists stepped off a plane from Japan to news that their research group will receive \$10 million from the National Science Foundation to create a national science and technology center. Next morning the weary travelers were explaining to reporters how the center would provide new information on earthquakes and volcanoes. Several weeks later their work was already challenging old notions about the stuff our planet is made of.

Weidner and Liebermann study the rocks found thousands of kilometers down in the Earth's mantle — that portion between its core and the crust we walk on — to learn more about what happens on the surface. But there's a problem: no one has ever actually brought up samples from deeper than 300 kilometers. So the Stony Brook team duplicates deep-Earth conditions in the laboratory, with huge hydraulic presses that squeeze minerals at the same temperatures and pressures found in the mantle. The result is homegrown rocks made in two days, the same kind it took nature billions of years to create.

"Knowledge of the physical and chemical properties of these minerals and rocks can help us answer basic questions about earthquakes, volcanoes, the growth of continents and the origin of the Earth's magnetic field," says Weidner.

One of the hottest questions now debated by geophysicists is whether the mantle is made of two distinct layers — like an oil-and-vinegar dressing that has separated — or whether it is uniformly stirred up. Hinging on the answer is a better understanding of plate tectonics, the movement of continental plates caused by materials flowing within the Earth.

Prevailing wisdom says there is no mixing. Several years ago, Raymond Jeanloz of the University of California at Berkeley concluded that perovskite, the dominant mineral of the mantle, is richer in iron the deeper one goes. Because any significant mixing should make this difference in iron concentration impossible, Jeanloz concluded that there had been no such mixing.

The Stony Brook group has come to the opposite conclusion by conducting the experiment differently. The process involves measuring how perovskite expands as it is heated. Since the mineral starts to decompose when it reaches a certain temperature, USB scientists subject the sample to pressure first, hold the squeeze, then increase the temperature. That enables them to run the experiment longer than Jeanloz, who had to stop before his temperature conditions ruined the perovskite. Taking a longer look told the Stony Brook group that the iron percentage did not increase in the same way that Jeanloz said it did, leading to the conclusion that the Earth's interior is indeed all shook up.

"Knowing that the Earth is well-stirred tells us how much surface activity is happening," says Weidner. "It also tells us about the history of the planet and how it's currently evolving."

USB's high-pressure techniques are also being used to create new and exotic materials with industrial applications. The possibility of making better ceramics, superhard substances and materials with superconductive properties has already stimulated collaborations with General Electric, Dupont, Exxon and IBM. "With the support from NSF, we'll expand those col-

"What we're doing is an exploratory science. It hasn't been done before. You have to use intuition and have a little bit of luck."



Professors Donald Lindsley (left) and Robert Liebermann discuss the design and operation of a girdle-anvil type of high-pressure apparatus, similar to one first used to synthesize diamonds in the 1950s.

laborations to enable discoveries in basic research to move more quickly into the economy," Liebermann notes.

Continues Weidner, "We live in an age where so-called exotic materials are important. Many of them need to be made at high pressure." It's possible that the high-pressure center could help companies make industrial diamonds in bulk, he says, or allow researchers to make high-temperature superconductors by changing chemical reactions with pressure.

So far, USB research associate professor Tibor Gasparik (who oversees operations in the high-pressure lab) has used the hydraulic presses to create temperatures of 2,400 °C and pressures of 260,000 atmospheres (normal pressure on Earth's surface is one atmosphere.) That matches conditions found 1,000 kilometers down. The researchers' goal is to duplicate simultaneously pressure and temperature found 2,000 kilometers down, near the center of the Earth where pressures are one million atmospheres and temperatures are 3,000 °C.

"We know the Earth's core is not a rock, but is metal. It's iron," Weidner explains. "Its formation is the most significant evolutionary process in the history of the planet.

"Now we want to know why it's so different from the rest of the Earth. Did it form first or later? And what did it pull with it into the center?"

The equipment that makes the investigations possible is formidable. One machine, 18 tons and 12 feet tall, is so massive that it had to be lowered through the roof of the lab annex adjacent to the university's Earth and Space Sciences building. (The other — eight feet high and several tons, is "portable" enough to disassemble and cart to other locations.) It usually takes one day to prepare the minerals for squeezing, and another day for the press to do its job.

The lab-produced rocks are several millimeters in size. Each is made of tiny crystals, most a tenth of a millimeter — the diameter of a human hair. "Some of the samples are ugly and craggy-looking, but others are real pretty," says Weidner. "We can make them clear or



Donald Weidner at the high-temperature furnace, preparing starting materials for high-pressure experiments.

opaque, rough or beautifully shaped. They can be green, blue, whatever. Any color you want, we can make it."

There's a note of pride in Weidner's voice, and rightfully so. "What we're doing is an exploratory science. It hasn't been done before. You have to use intuition and have a little bit of luck," he explains. "There's a certain amount of art to this." When luck and intuition pay off, the crystals are accurate duplications of what's found inside the Earth.

But the scientists leave little to chance.

Liebermann and Weidner use seismology readings of the planet's interior as a blueprint for their experiments. "If the seismology of the area we're interested in matches the properties of the crystal we've made," says Liebermann, "we know we're on the right track."

These past few months have been hectic for the researchers. Now, though, the initial flurry over the NSF funding has died down.

"To tell you the truth, we've all given a big sigh of relief," Weidner confesses. "Now we can get back to the real fun — getting to work at the center on new science projects. We can try to move to the forefront of what's possible, because we have the resources.

"To us, that's the real excitement." — Risoli

RESEARCH BRIEFS

Lyme Disease Center Explores Vaccine and Treatment

As spring approaches, Stony Brook's Lyme Disease Center becomes a busy place.

Scientists are developing improved tests and refining treatment, and are also working to develop a vaccine.

Jorge Benach, professor of pathology and state Health Department researcher, first put Stony Brook on the map as a leading Lyme disease research center in 1982 when he and colleagues isolated the bacteria that cause Lyme. The findings were reported in *The New England Journal of Medicine*, along with similar findings from Yale University.

Today, Benach is working on two major research projects funded by the National Institutes of Health: how the bacteria adheres to cells and how the organism invades tissues. Benach says he and his team hope to find a molecule responsible for the binding so that a drug can be developed to block the action. "The bacteria's attachment to a cell is the first step in colonizing an organ," he says.

Benach is also studying why some organs, including the heart, joints and nervous system, are more receptive to the bacteria than others. "Most of the organs that seem to be affected are hidden," says Benach. "It may be that the body's defense mechanisms don't get to those areas as easily as others."

Dr. Raymond Dattwyler, director of the Lyme Disease Center, and colleagues in the Division of Allergy and Rheumatology are also working to establish treatment for late-stage Lyme.

Dattwyler and Dr. Benjamin Luft, associate professor of infectious diseases, are principal investigators for an international study that is examining three different groups of patients: those whose Lyme disease has spread to other organs; those with established central nervous system disorders; and those with chronic diseases.

The trial, sponsored by Hoffman-LaRoche, will compare different drug therapies and help determine how long a patient should receive a particular treatment. The two-year study expects to treat 300 patients from each group.

Dr. John Halperin, associate professor of neurology, is also studying late-stage Lyme, since the most severe cases

involve arthritic complications and neurological problems. A recent study by Halperin found that analyzing spinal fluid for antibodies to the bacteria can show that central nervous system ailments are reactions to the Lyme organism.

Among other findings, Halperin reported that Lyme does not cause multiple sclerosis but is associated with meningitis and encephalopathy (infection of brain tissue).

Stony Brook leads in Lyme disease testing, performing more than 500 tests daily for hospitals, doctors and laboratories worldwide. Dr. Marc Golightly, assistant professor of pathology and head of Stony Brook's Laboratory for the Diagnosis of Lyme Disease, has developed a test for Lyme that is becoming the "gold standard." He attributes Stony Brook's success to its methods of purifying and processing the antigen.

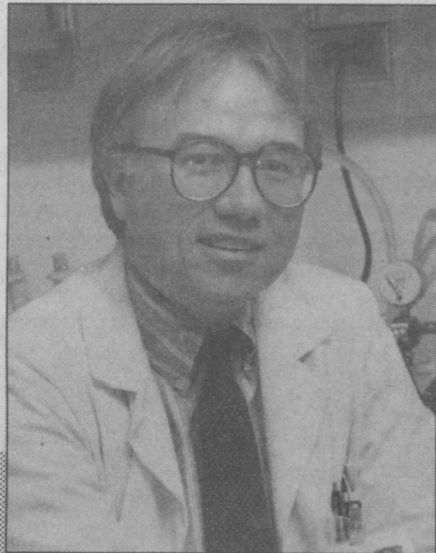
A vaccine for Lyme is another goal, but researchers say it is in its infancy stage. "We're using recombinant DNA techniques to produce peptides and proteins specific for the bacteria that causes Lyme," Dattwyler says. "These will be used to develop precise diagnostic tests and form the basis for vaccine development." Benach's lab is also working on a vaccine.

Stony Brook's center sees 1,000 patients yearly at University Hospital's outpatient clinic and at the nearby hospital-affiliated Tech Park. Other community outreach includes 24-hour consultation services and emergency room backup through University Hospital, a walk-in "rash check-up" service, and a hotline that serves 80 to 90 callers daily.

One program tests high-risk employees like these who work for New York Telephone and Fire Island National Seashore. Stony Brook doctors provide expertise on prevention and epidemiologic aspects of the disease to the Suffolk County Health Department and state Lyme Disease task forces.

Funding for research and outreach services comes from state legislative appropriations under the sponsorship of state Senators Kenneth P. LaValle, James Lack and other members of the Long Island delegation. This fiscal year, the center received \$500,000.

—Alpine



Raymond Dattwyler and colleagues are developing a vaccine for Lyme disease.



Jorge Benach identified the organism that causes Lyme.

New Genetic Evidence for Origins of Life from Lungfish

Little scraps of dead fish may not enthrall everybody, but to Axel Meyer, they're part of the most exciting research he has ever encountered.

Molecular biologist Meyer uses a technique known as polymerase chain reaction (PCR) to uncover genetic evidence of evolution. He extracts DNA from a tiny sample of preserved animal tissue, studies its sequence and traces the animal's evolution back to its genetic beginnings. Using this method, he's found that terrestrial life may have started in a vastly different way than scientists previously thought.

Current scientific theory says a particular type of fish called the coelacanth crawled out of the primordial sea to give rise to today's birds, reptiles and mammals. Not so, says Meyer. DNA from lungfish indicate that it was this species that conquered the land.

Evolution may also have to be rewritten for a different locale. Modern-day lungfishes are not saltwater dwellers, leading Meyer to suggest that life on land may not have started in the ocean after all.

Meyer is collaborating with a Swedish colleague who has provided him with samples collected 250 years ago by biologist Karl Linnaeus. It was Linnaeus who first devised binomial nomenclature, a species classification system still used today.

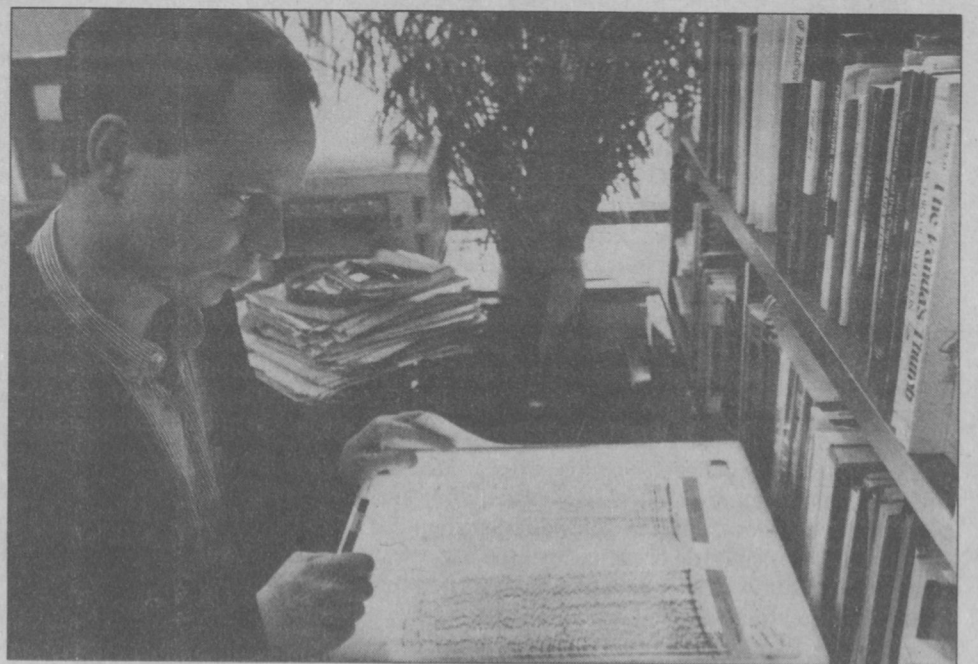
"I have pieces of fish and elephants," says Meyer. "I want to get DNA out of them and sequence it, then compare that to DNA of the same animals that are currently living." The process is a way to double-check Linnaeus' accuracy. "Hundreds of years later, it's not always clear that a specimen labeled in a museum is the species its classifier said it was," says Meyer. "You can't go by the physical appearance of the animal. We can confirm the identity of

the specimen, though, by comparing its DNA to the DNA of the species that's living now."

A quicker, easier variation of traditional gene cloning, PCR is the method used in forensics to make "genetic fingerprints." It has been used by other researchers in the past year to sequence the DNA of a 17-million-year-old leaf and to track down the "mitochondrial Eve," believed to be the common genetic ancestor of all humans. "Because it's faster and you need only a trace of DNA — sometimes as little as a trillionth of a gram—to get started," says Meyer, "this technique lets you do things you couldn't before, like work with damaged DNA or really old DNA from fossils. People are now rushing to sequence material from fossilized human bones as ancient as 6,000 years old."

A major problem with the method, "is that it's very sensitive to contamination. DNA from a curator in a museum who touched the animal sample can throw the whole thing off."

Meyer agrees that his recently published results are



This X-ray film of DNA sequencing gel gives Axel Meyer genetic clues to evolution.

controversial. His work and that of other molecular biologists contradicts some long-held assumptions provided by anthropologists and paleontologists about evolution.

"Molecular evidence certainly isn't written in stone either, but nobody can ever say a DNA sequence is incorrect," Meyer says. "You could interpret the data incorrectly, but the the data are undeniably there."

—Risoli

Down by the Riverside

Researchers study the ocean at the mouth of the Amazon

It pours a trillion cubic meters of water into the ocean each year. A billion tons of sediment are spit from its mouth. It makes the mighty Mississippi look like a trickle.

The Amazon is the focus of a Stony Brook-based study almost as big as the river itself. Led by scientists at the university's Marine Sciences Research Center (MSRC), the \$5-million National Science Foundation-sponsored project involves 200 people from 12 institutions in the United States and Brazil. Together they are exploring this natural laboratory so unique, yet so influential, that it's an oceanographer's dream.

"We're working at the equator, at the mouth of the largest river in the world," says Chuck Nittrouer, Stony Brook professor of marine sciences. "It's a pretty exciting place to be."

The five-year study, called AmasSeds — A Multidisciplinary Amazon Shelf Sediment Study — is the first scientific effort to collect data on the geology, chemistry, physics and biology of the region. So far the researchers have identified at least one major environmental change taking place there. "We've realized that until several hundred years ago the shoreline was being built up in places now eroding," says Nittrouer. "Other parts that were eroding are now accumulating. It's probably linked, and we're trying to find out why."

The MSRC team includes researcher Josie Aller, who is studying how worms and other small aquatic organisms that live on the ocean bottom are affected by the Amazon's powerful currents. Bob Aller and Jim Mackin examine the processes that carry iron and other minerals downstream from the tropical rain forest. Jim Rine coordinates the project, along with Nittrouer.

AmasSeds grew out of Nittrouer's own skepticism about how large rivers were traditionally studied. "People used to study smaller rivers and say, Now multiply what you've found by a factor of 10 or 100," he recalls. "I



MSRC Oceanographer Chuck Nittrouer brings up a piston-coring sample.

disagreed. Processes at large rivers are too extreme for this kind of extrapolation to work."

"Extreme" can mean 35-foot tides and constantly gusting trade winds. "The risk of losing data and equipment in such an environment is very high," says Nittrouer.

The human challenges of working the Amazon are even more daunting: an ever-changing political climate, cultural differences and language barriers. The MSRC contingent prepared themselves with a year's worth of Portuguese taught by Stony Brook faculty member Maria Luisa Nunes. There's also the pressure of maximizing results on expeditions that take five months to prepare and cost the NSF \$10,000 a day just for the research ship.



Rafting off the Amazon coast.

PHOTO BY IAN STUPACOFF

Scientists rotate sleep shifts, jumping into bunks for a few hours' rest before returning to work. "We're all pushing ahead constantly. That calls for a lot of tact and diplomacy," says Nittrouer. Orchestrating a large group of people from different institutions and countries — even from different scientific disciplines — can be "tough," he notes. "There are definite 'people skills' involved here."

But the benefits outweigh the hassles. "Despite the long hours of hard work, there's a tremendous friendship and scientific cooperation among all of us on this project," Nittrouer says. "We're getting a better understanding of the Earth's oceans by working together to study an area that's never really been looked at before."

—Risoli

This Year's Model

Predicting long-term climate change with computer models

If spring comes, can worry about the greenhouse effect be far behind? As the weather grows warmer, the change seems to reawaken concern about just how hot the world might become.

Robert Cess devotes his attention to the matter year-round. This professor of mechanical engineering directs a U.S. Department of Energy project to compare and improve the 19 computer models now being used throughout the world to predict long-term climate change. He's also part of a National Aeronautics and Space Administration study known as ERBE — Earth Radiation Budget Experiment — which is providing extensive satellite data on how clouds, snow mass and other factors influence global warming.

The computer models — which come to the Department of Energy from a number of countries, including the United States, Australia, the Soviet Union, several European and several Asian nations — are being used currently by scientists to forecast long-term global climate change.

"But they're wildly disparate. They are not reliable climate predictors," notes Cess. "Sometimes we even have two models very similar because they evolved from the same person or institution, but they give dramatically different output."

Cess and the 18 other research groups participating in the intercomparison use ERBE to check the accuracy of the models. "We take ERBE satellite data on what conditions were like during a given period," he says. "Then we see which of the models comes closest to 'hindcasting' what actually occurred."

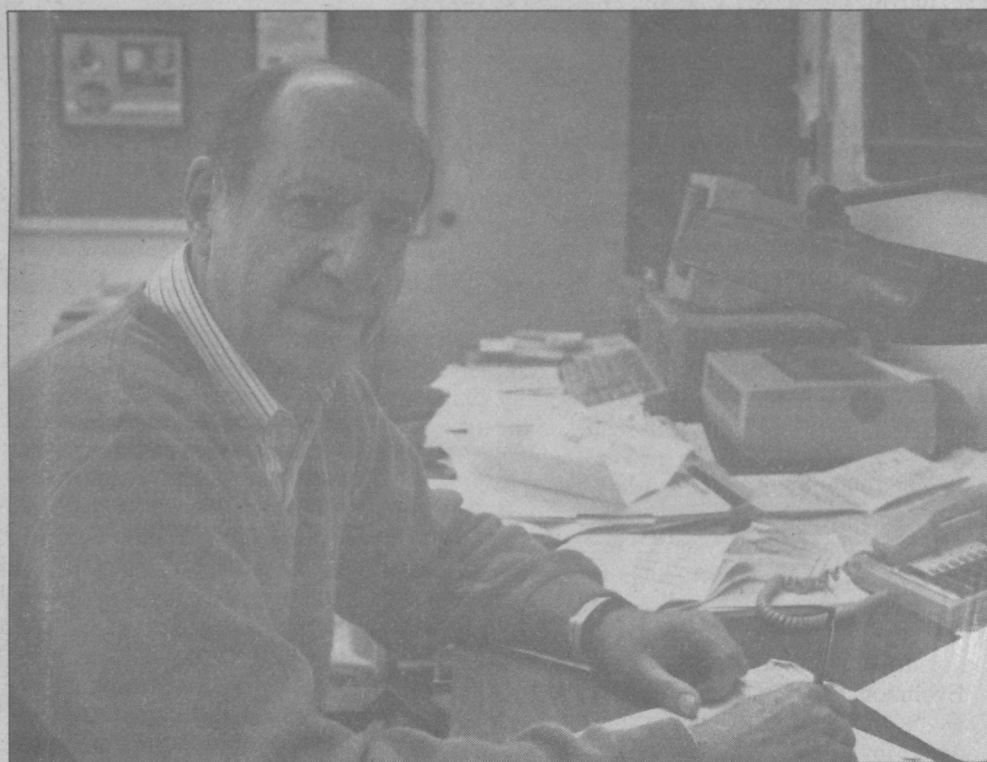
So far Cess and his colleagues have clarified the role of clouds in climate change, concluding that they have a net cooling effect but can't be counted on as barriers to the greenhouse phenomenon. The next step is to determine

how clouds affect global warming on a seasonal basis. The researchers will also examine the influence of surface snow and ice on the amount of heat received and generated by the Earth.

Cess plans to participate in the next phase of ERBE, a joint NASA-European project which will fly instruments on a number of satellites. The first launch is scheduled for 1996, with initial funding extending through the year 2000.

"Our ultimate goal is to narrow the 19 models down to a few that do the best job when we test them against ERBE information. We then can use those to predict long-term climate change," Cess says. "You don't want only one, in case that particular one is wrong. But if we can get a few computer models to agree on seasonal ERBE data, those are the good ones we will use."

Selecting the few good models from the mountain of data is a laborious task. It can take up to five months to examine one model, depending on how much computer time is needed. "We're like a World War II convoy, moving at the rate of our slowest ship," Cess remarks



How hot is it? Bob Cess monitors the greenhouse effect.

MAXINE HICKS

ruefully. So far, four models have been compared to ERBE data. "One did well, the others poorly," Cess reports.

Stony Brook is the repository for all data generated by ERBE. "It takes 70 magnetic tapes to contain one month's worth of data," says Cess, showing a visitor the stacks of tapes piled almost to the ceiling. But he and his colleagues have vowed to stay on the job as long as it takes to analyze the information.

"This is a very open-ended project," Cess observes. "We'll keep at it as long as we have to, to obtain accurate models for predicting climate change."

—Risoli

In the Blink of an Eye

Computer scientists create eye-tracking device

New hardware/software interface for a desktop computer allows a person to issue commands using only the eyes.

Help Nintendo's Mario zap his enemy with the blink of an eye, instruct a robot with a determined wink and — for the physically challenged — maneuver a wheelchair with a straight and narrow stare.

All this is not science fiction or the latest expensive laser technology. Rather, it's a hardware/software interface for a desktop computer that allows the user to issue commands using only the eyes. And it's being developed at Stony Brook's Department of Computer Science by faculty members Arie Kaufman and Amit Bandopadhyay, who recently were awarded a grant for the project from the New York State Science Technology Foundation, one of four such grants to members of the department.

This is how the system works: the eye is similar to a battery, with the cornea and retina corresponding to the positive and negative poles. This "battery" causes an electrical field in its vicinity that changes as the eyes move.

What Kaufman and Bandopadhyay have done is capture the electrical change with electrodes — in the developmental stage they'll be placed in goggles — amplify it, and send the signal by wire to activate the command menus on a computer.

The system is based on a technique called electro-oculography, an electrical measurement of eye position used by doctors to detect vision abnormalities. "So far as we know, we're the only ones using this technique for eye

tracking," says Kaufman.

According to Bandopadhyay, the difference between laser technology and his system is one of accuracy and cost: a laser beam's pinpoint accuracy is not necessary for a computer screen, and the cost of a similar laser application could be as much as a quarter of a million dollars. Kaufman and Bandopadhyay estimate that their system will cost about \$100 or less.

At present, the new technology is in its earliest stages. So far, computer science and biomedical engineering students have helped develop algorithms, perfect the signal processing and design a crude version of the goggles.

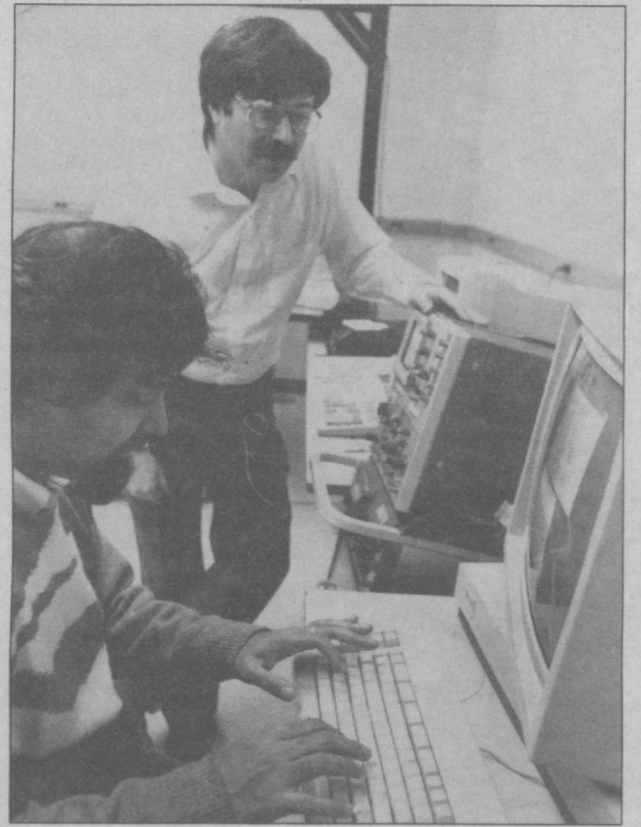
The first prototype, expected to be ready in about a year, will be a hardware and software package consisting of some sort of eyeglasses to keep a series of three electrodes touching the skin and a wire leading to an A/D converter box connected to the computer.

"The potential is very promising, much more than we expected," says Kaufman. "After we saw the results — that the signal can be picked up and the computer can process it — we realized we were on to something."

In fact, the potential for this eye tracking technique is so promising that the researchers already have a sales and marketing representative: ACDA Corporation, a medical technology company located in Setauket, is collaborating on the project and plans to sell the new product.

While computer games might be the largest market for the new technology, Kaufman sees other possible applications. They include robotics, hazardous materials management, vehicle navigation and wheelchair operation. "If we can help physically challenged people, we would be more than pleased," says Kaufman.

— Volkman



Computer scientists Amit Bandopadhyay (left) and Arie Kaufman (right) develop new ways to track images.

The Science of Stress

continued from page 1

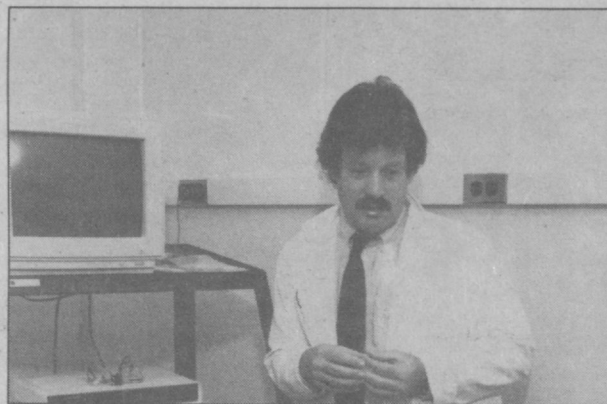


Pregnancy and chronic distress is the subject of Marci Lobel's work.

With UCLA psychologists Christine Dunkel-Schetter and Susan Scrimshaw, Lobel studied 130 women, aged 18 to 42, who received prenatal care at the UCLA Medical Center. They found that chronic emotional distress did contribute to earlier births and lower birthweight infants. Stress did not affect the difficulty of labor, the baby's physical condition immediately after birth, or subsequent neonatal complications. Ease of labor and the baby's health at birth did correlate, however, with the amount of social support — like child care or financial help — the mother received during pregnancy.

"We know that stress can increase the mother's levels of epinephrine (adrenaline) and noradrenaline," says Lobel. "This increase can interfere with oxygen and blood flow to the fetus, and is related to initiation of labor."

Lobel is now looking at how ethnic and cultural factors influence the ways women manage stress during pregnancy. "We also want to know what it is that women find

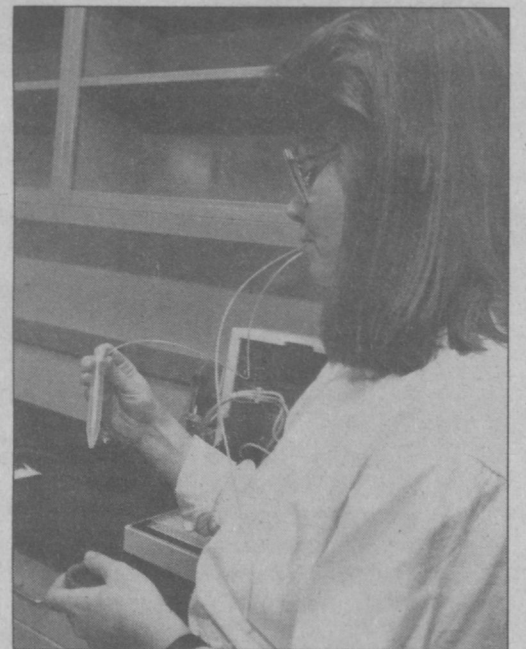


Stressed out? Richard Friedman can help with biofeedback-assisted relaxation therapy.

stressful about pregnancy, where they get social support, and how that relates to employment patterns and physical symptoms of nausea and vomiting," she says.

Associate professor of psychology Ronald Friend works with kidney patients who receive renal dialysis treatment. So far he's found that individuals who experience kidney failure and are on dialysis machines are not necessarily more depressed or angry than other people. Those who are upset for reasons having nothing to do with the treatment comply just as well with their medication regimen as patients who are not depressed. However, Friend (who collaborates with Nand Wadhwa, assistant professor of nephrology in the School of Medicine) says, "dialysis patients who are depressed or angry feel more physical discomfort. The stress of the dialysis treatment, which can create anything from dizziness to an increased fear of death, intensifies the experience of physical symptoms." Medical doctors, says Friend, "need to take this into account."

Stress management in traditional medical care can, says psychiatry professor Richard Friedman, "produce a dramatic decrease in health care utilization costs. Reduction of stress is not only good for the patient, it's good for the system." Friedman has completed a joint Harvard-Stony Brook study of 100 people enrolled in a health maintenance organization in New Hampshire. The patients' primary complaints included chronic back pain, arthritis, head and



Technician Cindi Miller demonstrates how to collect saliva.

facial pain.

Friedman designed a behavior intervention program which was administered by the HMO physicians. After two and a half years, he reports, "we reduced the patients' levels of anxiety and anger and alleviated their depression. They began to find it less necessary to come to the clinic for their physical pain." The findings are not surprising, says Friedman, "when you consider that 60 to 80 percent of all visits to the doctor are motivated by anxiety."

More and more, Friedman says, medical practitioners are becoming aware of the relationship between psychological stress and the development of a wide variety of physical illnesses. "Is it a new idea? It's as old as Aristotle," he remarks. "But in the past five years there's been an increase in the use of stress management as an essential component of medical care. That trend will continue."

High-Tech Classrooms Provide High Power Education

Two state-of-the-art Stony Brook facilities, both on the cutting edge of today's high technology, will hold official opening ceremonies this semester. The Social and Behavioral Sciences computer classroom has been designed to enhance statistics courses and, through simulation, bring data to life; the Executive Management Center at the Harriman School for Management and Policy combines up-to-date executive amenities and a staff ready to provide important services to businesses throughout the metropolitan area.

Computer Classroom *Division of Social and Behavioral Sciences*

By Carole Volkman

A few weeks into the semester, William Dawes, director of undergraduate studies at the Department of Economics, asked his econometrics students to test the hypothesis that stocks that fluctuate widely in price yield a higher rate of return.

To solve the problem, his students didn't run to a textbook to research statistical concepts, models and procedures. Instead, they pulled their chairs up to workstations at the Social and Behavioral Sciences Stony Brook Instructional Network Computer (SINC) site.

"Using computers makes what is an otherwise impossibly tedious computation procedure trivial," says Dawes. "It makes any kind of graphing of large data sets very easy and lets you try things out without spending a lot of time on computations."

Dawes' students are in one of 11 statistics-based social science classes using the SINC site. And because computer technology has become so important in the field, Dean for Social and Behavioral Sciences Andrew Policano decided to go one step further: He took some of the latest computer teaching technology available, purchased the software programs needed for each discipline, and established a new computer classroom in the Ward Melville Social and Behavioral Sciences building.

"What we were originally trying to do in computer training lacked the sophisticated technology necessary to bring up-

to-date techniques into the classroom," says Policano, who worked with Associate Professor of Psychology David Cross and Associate Dean Wendy Katkin to obtain a National Science Foundation grant for the project. The result is a facility complete with 25 networked workstations, a server, printers connected to each workstation and, due to arrive soon, an overhead projection system.

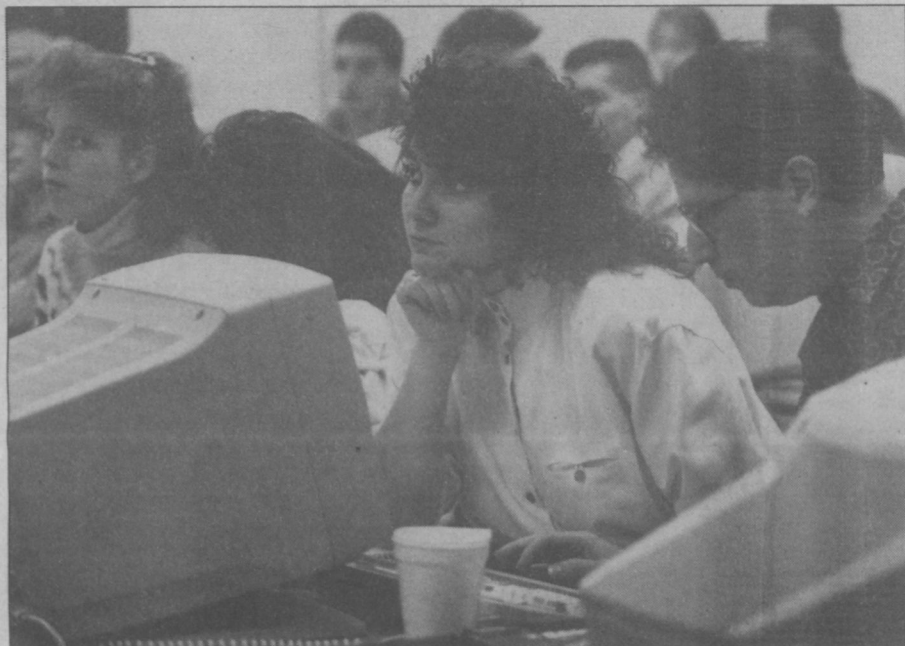
According to Thomas J. Phelan, director of social science data analysis, all social science courses now taught at the SINC Center will move into the new classroom next semester. Policano says the classroom will spark some dramatic changes in the way social science courses are taught. Economics students, for example, will be able to simulate buyers and sellers in a stock market; political science students can examine how a policy affects constituents, and sociology students can examine how data impact on the population.

These programs are designed to provide realistic simulations. "Instead of being told about something, students can actually see it for themselves," says Phelan. "Don't tell me that there's more crime in Detroit," he tells students. "Go to the computer and prove it."

The computers in the classroom are connected to each other via the Novell Network, installed under the direction of Richard Reeder, head of the Social and Behavioral Sciences electronics lab.

The classroom gets a regular workout. In addition to undergraduate psychology classes — the classes for which the NSF grant was written — students can use the computers for their own work. Currently, the security locks on the doors of the room — featuring codes to control access to the premises — record an average of 7,000 entrances and exits a month.

According to Phelan, "We're able to teach students more and more complicated concepts than ever before, and they love it. They've become fascinated by what they can do."



MAXINE HICKS

Amanda Buonora uses new software in Stony Brook's social sciences computer room.

Executive Management Center

Harriman School for Management and Policy

The advantages of a state-of-the-art facility and a staff well-versed in today's business trends will be offered at the new Executive Management Center, located at the Harriman School for Management and Policy.

The center, scheduled to open May 15, is the fruition of an idea originally proposed by Henry Mund, chairman of the Harriman advisory board. Designed to provide a full range of corporate conference services for businesses throughout the metropolitan area, the center will offer an executive facility along with a service unique on Long Island: the expertise and guidance of Harriman faculty, advisory board members and other business leaders.

According to Manuel London, director of Harriman's Center for Labor/Management Studies, this expertise will include services ranging from facilitating meetings to setting up custom-tailored training programs targeted to a company's individual needs. Programs can include strategic planning, communication, productivity, quality improvement, client maintenance, management development and human resources.

"At Stony Brook, you're dealing with a school of management with experts in many areas," says Mund, director of business development at Greenman-Pedersen, Inc., a civil engineering company located in Babylon. "The whole idea of the center is to enable companies to obtain outside help. At Stony Brook, businesses will be able to tap into the expertise of a faculty with a proven track record."

Faculty members will also be available for follow-up calls. "We want to reach out to the business community," says Gerrit Wolf, dean of the Harriman School. "It's important to establish ourselves as one of the better quality

management schools on Long Island."

According to Wolf, initial funding for the center, estimated at about \$100,000, was obtained through a \$40,000 grant from the SUNY construction fund; additional funding will come from in-kind donations, other fundraising efforts, and fees for businesses using the facility.

The services available at the center will be targeted to small and mid-size companies who typically don't have the internal resources — including conference room and staff consultants — to conduct strategic planning, management development and other important business sessions.

Harriman Associate Dean George Pidot, construction coordinator of the center, says the facility is designed for conferences, meetings and seminars, courses, workshops, retreats and more. Plans call for 16 networked computer workstations which will run the latest in business software. The center will be able to accommodate up to 30 people.

Wolf plans to start marketing the center this spring with a direct mail campaign targeted to 3,000 companies. Fees for use of the center will be competitive; free services will be offered to public agencies.

The Executive Management Center steering committee



MAXINE HICKS

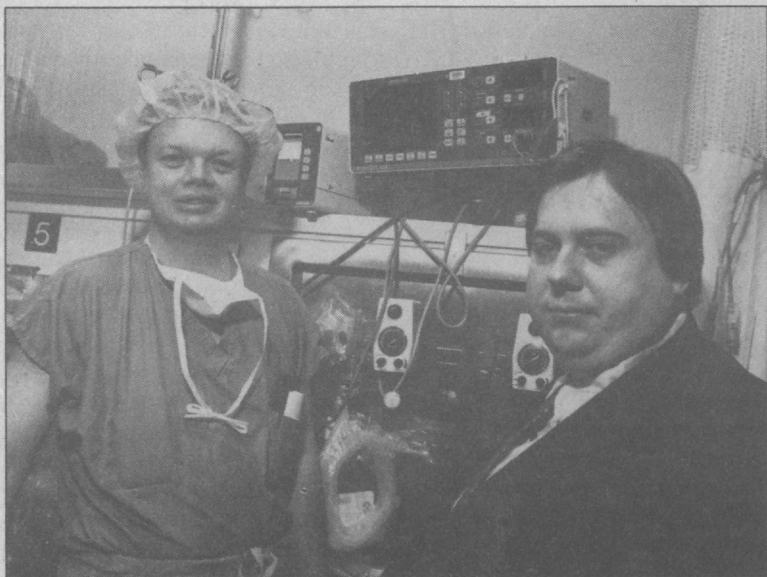
Harriman Dean Gerrit Wolf (standing, left) plans the new executive management center with Burke Libert of Ellery and Burke Advertising (also standing) and (seated, left to right) Harriman Associate Dean George Pidot; Henry Mund, chair of the Harriman Advisory Board; Harriman professor Manuel London and William Droeger of American Knitting Mills.

consists of London, Mund and Wolf, along with Bill Droeger, former chairman of the board of Great American Knitting Mills, Inc., and Stony Brook Professor John Bierwirth, former chairman of the board of Grumman.

— Volkman

PROFILE: Robert Frey '81, G '87

Diagnosis by Computer



Medical decision making has been streamlined, thanks to Stony Brook anesthesiologist John Gage (left) and alumnus Robert Frey (right).

By Wendy Greenfield Alpine

Robert Frey predicts the health of the stock market the same way he predicts the decision-making process of a physician: using mathematical models.

Frey (B.S. '81, Ph.D. '87) works as managing director of Kepler Financial Management Ltd., an investment managing firm in Setauket, where he uses mathematical models to forecast the ups and downs of stocks.

Now, working with Stony Brook anesthesiologist Dr. John Gage, he is applying these same principles to help doctors better diagnose and treat patients.

Frey first became interested in applying his math skills to medical decision-making when he needed a gallbladder operation in 1989. In discussing the reason for the procedure with his doctors, he found the decision was based more on experience and intuition than

knowledge and training.

"I saw that with very complicated situations, there is often not an established course of training other than actual experience," says Frey, who is an assistant professor in Stony Brook's Institute for Pattern Recognition. His undergraduate and doctorate degrees are from the Department of Applied Mathematics and Statistics, and he holds a position as adjunct assistant professor in that department.

Gage was also interested in quantitative approaches to medical problems.

According to Gage, "Most, if not all, of the decisions made by physicians are made using judgment. But judg-

ment is a black box. No one has a quantitative notion of what goes into it."

Working together, Frey and Gage developed a mathematical model that Frey says "captures the thought process of a physician." The researchers gave physicians a computerized test and measured how long it took to answer particular diagnostic problems. The longest period of time spent on a problem reflected the point in the model where there was the highest degree of entropy (a mathematical measure of uncertainty based on physics and information theory.)

Frey says doctors face a high degree of uncertainty when diagnosing patients. A medical test usually has four possible outcomes: positive, false positive, negative, false negative. But no test is perfect; it's impossible to distinguish with certainty between disease and non-disease.

In an intensive care unit, monitors produce a multitude of numerical data and doctors often have difficulty focusing their attention. "What you see," Frey says, "is physicians sometimes ignore situations instead of saying 'I don't know.' Anytime a physician makes a diagnosis there is a certain probability of error."

"We will have a tool that makes decision making explicit," Gage says. "Knowing the basis on which decisions are made, physicians will be able to change their practices and compare their decisions."

The pair published a paper on their work in *MD Computing* and are preparing to submit another paper for publication next month.

Frey began his career in government, working for the Internal Revenue Service for seven years as a management analyst. He then worked for Doubleday, European American Bank, the Harris Corp. and Morgan Stanley, where he worked as a Wall Street equities trader before joining with three partners to start his own company in June 1988.

"Most, if not all, of the decisions made by physicians are made using judgment.

But judgment is a black box.

No one has a quantitative notion of what goes into it."

— John Gage

PROFILE: Carmen Rita Rabell G'88

Revealing the Narrative Voice



Alumna Carmen Rita Rabell says Spanish author Lope de Vega was ahead of his time.

A woman cheats on her husband and both she and her lover are killed. A woman falls in love with another woman dressed like a man. An Arabic man raised as a Christian must leave his home in Spain because he is not a true Catholic and is torn between his heritage and society.

Some of this may sound like the stuff of modern-day Harlequin romances, but it's not. It's culled from the novellas of 17th-century author Lope de Vega, whom Carmen Rita Rabell (M.A. '88) says was ahead of his time.

"These are controversial topics — racial tension, women's sexuality — but they are hidden by the use of rhetorical devices," says Rabell, assistant professor in the Department of Hispanic Languages and Literature at the University of Pittsburgh. Rabell, who received her Ph.D. from Stony Brook's Department of Hispanic Languages and Literature last year, has recently finished rewriting her dissertation on de Vega for a book.

Rabell says though de Vega was well known as a playwright and poet, his novellas were virtually neglected. "He is probably the first author in the Western world to fully develop the reader as a fictional character and as a counterpart to the 'self-conscious' narrator," she says.

All four novellas, called *Novellas a Marcia*, were directed to a female reader, who was believed to be de Vega's lover. The books were written to amuse her since, it is believed, she went blind from syphilis. De Vega addressed her throughout the novellas, interrupting the narrative to say such things as, "I know you're going to like this," or "I know this will bother you."

He describes her in such a way that she becomes a character in her own right, and writes the stories according to how he thinks she will react. He used this device to pretend to teach, while satirizing 17th-century Spanish

society and morals.

For instance, in the story about the woman who cheated on her husband, the narrator underscores that he doesn't agree with the husband's decision to kill his wife and suggests that it would have been better if the husband pretended nothing happened. He tries to seduce the reader by telling her, "Probably you will be in the position of making some mistake, too." De Vega suggests to the reader that the concept of honor must be changed, though that view wasn't acceptable at the time.

In the story about the Arab, de Vega confronts racial conflict in Spanish society and the mixed feelings Spaniards had toward their heterogeneous culture. On the one hand, the narrator sympathizes with the protagonist since he has all the physical characteristics of a Spaniard.

On the other hand, he condemns anything the Arab does that is distinctly Islamic. He ascribes feelings to his reader, stopping the narration to tell her: "I know this doesn't bother you since you don't go to church every morning." The narrator teasingly says the female reader doesn't care if the man is Christian or Arab.

By the fourth and final novella, de Vega writes about war since, despite his best endeavors, he wasn't able to seduce the reader. He omits all love scenes, knowing full well that he is disappointing his reader: "I know this will bother you," the narrator says. As sort of a last ditch effort he inserts a poem in the middle of the story and tells her she can skip it if she likes.

"These techniques belong to the modern and post-modern novels," Rabell says. "De Vega was ahead of his time."

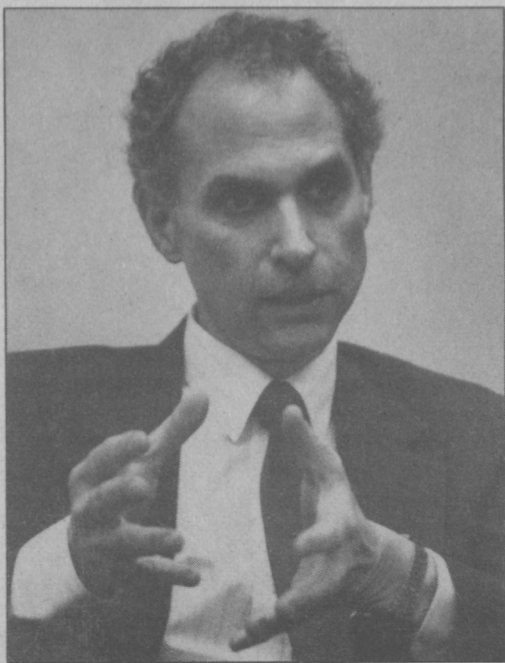
"These are controversial topics — racial tension, women's sexuality — but they are hidden by the use of rhetorical devices."

— Carmen Rita Rabell

— Alpine

Creating the Next Generation of Scientists

Continued from page 5



Robert Lichter, executive director of the Camille and Henry Dreyfus Foundation.

LICHTER: It will be interesting to see what happens through the National Science Foundation's systemic, statewide initiative. NSF will select 10 states into which they'll be putting several million dollars a year for several years, matched by state funds, from grades kindergarten through 16. It'll be very interesting to see how that experiment fares.

The culture question gets back to awards and incentives. A teacher has to ask, what's in it for me? Even in places where public statements are made that teaching is important, highly valued and assessed for tenure and promotion, there is still a subtext that it won't get you tenure.

SCRANTON: People are also scared of going into research. Everybody I know is trying to move out of the "soft money" jobs — in which they're supported 100 percent on research — into academic jobs. I see people afraid to move, or not knowing where to move to, or veering off into government work, where they're not going to be doing any research, because they're afraid the money will just disappear down the line.

LICHTER: That brings us to the Lederman report [released in January by the American Association for the Advancement of Science, and written by Leon Lederman, Nobel laureate in physics and president of the AAAS], which is OK as far as it goes — putting into print what most people know from anecdotal experience, and a highly selected set of anecdotes at that. Basically, it says that times are tough for people who are used to not having times tough, and if things don't change these people and their students will have to get out of science.

The problem with this report is that it assumes that the way to keep the enterprise going is to maintain the same structure — just dump more money in. I fear that there's a missed opportunity here. Given the fact that the whole framework within which science has been done is changing, it doesn't get the kind of popular, political and financial support that it needs. There's an opportunity now to examine how science is done and see if it can't be done differently, even more productively, than it has been done in the past.

SCRANTON: Your first goal should be to create a scientifically literate population, people who know how to read the *Science Times* without throwing it out because it's too confusing. That's not really creating scientists, but an ability to understand what science is. Another kind of teaching is to train people who are going to do government-type science — manage programs, advise on scientific issues or be science journalists. Those people need maybe a little bit more science background. Then the final stage is to train the scientific researcher. We tend to focus on those, but you can't forget the other levels.

ADAMS: In response to a shrinking pool of money available for the kind of research that we've been able to undertake, rather than throw up our hands and say we're losing people in science, should we examine whether we're setting up expectations for Ph.D. holders that presume a set pattern of what they do once the degree is conferred?

LICHTER: It depends on what they decide to do with the degree.

ADAMS: And what is our reaction to that choice?

LICHTER: It depends on who we are. We have to legitimize their choices and say, "That's terrific, here are the opportunities for you, and here's how you get some money."

SCRANTON: And prevent people from saying, "You've failed, you've chosen the wrong path." At Woods Hole when I was a graduate student, people would fail an exam and instead of being told, "You may need a different kind of preparation to meet your goals," they'd be told, "You're just not up to snuff."

LICHTER: The NSF education and human resources budget for the current fiscal year has been recommended for a substantial increase. The challenge is to make it legitimate for faculty members at any level to put the energy into writing a proposal, getting the money and putting an education-oriented effort into place. That, in my judgement, can be done.

All you need to do is provide the same kinds of perks for it that you do for research. Then you'll get that same warm feeling in the gut that, "By God, I've done something that's meaningful." I don't care what anyone says about making a major breakthrough for the good of the world. People do science because they feel good about it, because somebody says, "You done good."

ADAMS: Another important issue is the training essential for faculty appointments. I have a sense that postdoctoral appointments are in the control of individual faculty hands, and the process of selecting postdocs is done without accountability in regard to affirmative action scrutiny. That process has to be opened and more scrutiny brought in.

The story I get in science, where lab rotations are required for the Ph.D., is that a student who's different in any number of ways can present himself and find nobody really wants that student. Advisors say, "I can't afford to spend my time developing somebody who isn't going to facilitate my getting my work done as expeditiously as possible."

CURRENTS: What should Stony Brook do, on the undergraduate and graduate levels, to address some of the problems we've discussed? What are we doing currently?

FERGUSON: I know there's some effort to look at the attractiveness of introductory courses. I know that the math department plans to offer a computer-based calculus course that deals with quantitative visual methods of understanding calculus, rather than the more traditional symbol manipulation course. It's well-documented that there's a tremendous dissatisfaction among students and faculty as far as the traditional course of study goes. And it's not useful for much of anything, such as doing advanced work in math or engineering.

We have had at Stony Brook for people of color, up until it got slashed from the governor's budget recently, STEP and C-STEP for minority economically disadvantaged students. C-STEP at the college level had begun to have a major impact on the numbers of students — black and Hispanic — that we were getting into programs like biology and math. After five years we've just built a critical mass and it gets deleted from the budget, which is very disheartening.

SCRANTON: The Department of Mechanical Engineering has spoken about developing a course on current issues — acid rain, greenhouse effect, things like that. If it's offered the right way — if it doesn't turn into just atmospheric chemistry and is approached as an interdisciplinary program — it's a good thing to do.

At Marine Sciences we have undergraduate courses which are very popular. At least one gets people out into the field and sampling off a boat. That's a good way to go — it takes the introductory level undergraduates and gets them in a course that they find fun. Then they say, "OK, this is interesting. I'll go farther." It gives them incentive to take

the basic chemistry or physics.

LICHTER: You could also craft it so the course gives people the option to go in any number of directions.

SCRANTON: But there are a lot of turf battles. Everybody wants those FTEs [full time equivalent enrollments], which makes it difficult to initiate cross-departmental courses. I personally think that if you could minimize that, you'd get faculty more willing to cross departmental boundaries and try to put together an interdisciplinary course.

ADAMS: Ron Douglas has pointed out that undergraduate studies has to develop a more conscious approach to interdisciplinary work across the campus.

We could take undergraduate information that comes in at the admissions level — what students aspire to pursue in science or math or computer science — and work with those students through academic advising so that we don't lose people who find it's more difficult than they expected. We have to make sure they don't get discouraged walking into a classroom with a foreign teaching assistant who hasn't had guidance and grounding in what to expect of American students and how to approach pedagogic issues.

Faculty keep breathing down the necks of admissions people, saying, "Bring us the best and the brightest." But without feeling that we're compromising ourselves, we have to have a more developmental approach to our student body in general.

LICHTER: The disciplines have a responsibility as well. The American Chemical Society should say, "When our members get dossiers to review for promotion and tenure, they will want to see evidence of a commitment to education." But the critics say, "how can an outside observer evaluate that person's teaching?" The responder says, "We're not talking about teaching, we're talking



Mary Scranton, associate professor of marine sciences.

about a commitment to education. If we don't have the specific criteria for evaluating that, let's craft those criteria."

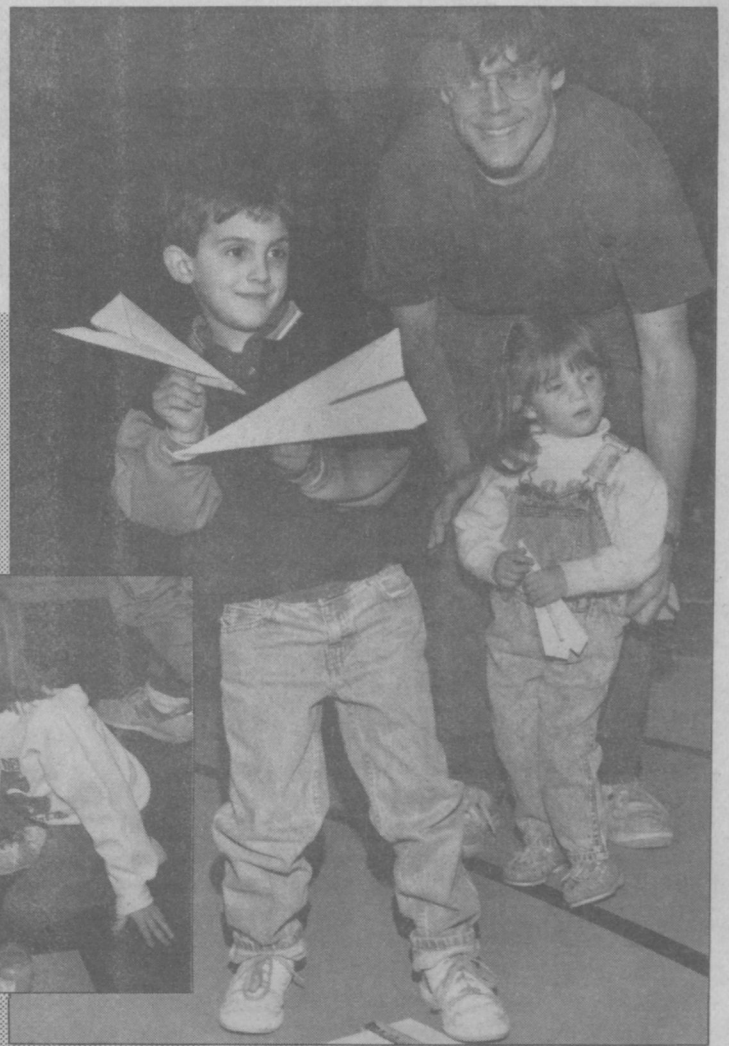
ADAMS: Maybe it's not enough to have a world-class department led by a few superstars. Maybe you want to build a community of people who understand and support science, and view that as just as important to us as some specific investigation. Maybe we should dedicate ourselves to that. Without that, we're just fooling ourselves about how long we are going to survive and thrive.

Community Partnership Day 1991

Saturday, March 16

Thousands of visitors — children and adults — participated in the third annual Community Partnership Day last month. Over 70 departments and organizations across campus sponsored events. In addition, students from 30 Suffolk County high schools competed in the regional playoffs of the national Science Olympiad.

University activities included a Mindpower Midway — with more than 50 booths, demonstrations and hands-on exhibits — a Little People's Track Meet, volleyball clinic, theatre workshop and the Great Stony Brook Paper Airplane Contest.



At the Great Stony Brook Paper Airplane Contest, a young aeronautical engineer prepares to launch his craft.



As part of the festivities, one young person paints a tee shirt.



Myrna Jacobson throws a cylinder on the potter's wheel, a demonstration provided by the Union Crafts Center.



Ribbons are awarded to winners of the Little People's Track Meet, a competition for children from nursery school through sixth grade.



Karen Mendelsohn, assistant dean for student affairs for the School of Allied Health, counts jellybeans as part of a fundraiser for the Stony Brook Child Care Services, while John Schmidt, assistant vice president for Graduate Studies, looks on.



William Wise, associate director of the Marine Sciences Research Center, encourages visitors to touch the fish on display.

PHOTOS BY H&C MEDICAL PHOTOGRAPHY

Stony Brook Music Student Solos with Arditti String Quartet



Stefan Litwin

When the internationally acclaimed Arditti String Quartet gives a concert at the Staller Center for the Arts on Saturday, April 6, one of the music department's rising stars will perform with them.

Pianist Stefan Litwin, a doctoral candidate at the university, will join the Arditti String Quartet in two of the featured pieces, Arnold Schoenberg's *Ode to Napoleon* and Anton Webern's Piano Quintet.

Schoenberg's ode is based on a poem by the English poet, Byron, and was written during World War II in response to the tyranny of Adolf Hitler. The text will be narrated by Kenneth Griffiths, who recorded *Ode to Napoleon* with Litwin and the LaSalle Quartet for Deutsche Grammophon.

Composer Schoenberg fled the Nazis during the war, coming to the United States for refuge. Litwin, himself the child of Holocaust survivors, will lecture on the Schoenberg

piece at 6:45 p.m., the evening of the concert.

Litwin was born in Mexico City and educated mostly in Switzerland. He has lived in the United States since 1984. At Stony Brook he has studied principally under pianist Gilbert Kalish, and also with composers John Lessard (retired) and Daria Semegan, associate professor of music. He lives in Setauket.

Litwin has performed with the Cleveland Orchestra, at the Salzburg Festival, the Ravinia Festival of Chicago, and several concert halls in Europe. Later this spring he will give recitals at Ravinia and in Canada with violinist Christian Tetzlaff, perform at Yale University's School of Music, and hold a faculty position at Ravinia's Steans Institute for Young Artists.

The Arditti String Quartet, a London-based contemporary group with an outstanding international reputation, includes Irvine Arditti and David Alberman, violin; Rohan De Saram, cello; and Garth Knox, viola. The other pieces on the April 6 program will be Jay Alan Yim's *Autumn Rhythm*, named for the Jackson Pollock painting, and Bela Bartok's String Quartet No. 5.

Tickets for the Arditti String Quartet's performance will be \$17.50 and are available at the Staller Center Box Office, 632-7230.

Handel's *Julius Caesar* At Staller Center

The Stony Brook Opera Ensemble and the Stony Brook Symphony Orchestra will present a semi-staged production of George Frederic Handel's *Julius Caesar*, Saturday, April 13, at 8 p.m. on the Main Stage of the university's Staller Center for the Arts. *Julius Caesar* will replace Puccini's *Madame Butterfly*, which had previously been announced.

Composed in 1724, this story of love, revenge and murder has been performed more frequently than any other of Handel's 40 operas. *Julius Caesar* was revived last year with enormous success by the Metropolitan Opera, starring Kathleen Battle.

The first Baroque opera to be performed at Stony Brook, *Julius Caesar* will be sung in English, in the translation prepared for the English National Opera in 1978 by Brian Trowell, and based on an edition by Sarah Fuller, associate professor of music at Stony Brook, and Winton Dean.

The cast is led by mezzo-soprano Gale Fuller, who plays the part of Julius Caesar. Born in Chicago, Fuller has performed extensively in Boston, New York, San Diego, and Washington, D.C. In 1987 she was a winner in the Liederkrantz competition. Recently, she appeared in concert with the Milwaukee Symphony to critical acclaim. The rest of the cast is made up of graduate voice students in Stony Brook's Department of Music.



Gale Fuller

Other members of the cast include Stony Brook graduate students Melanie Birnbaum, Patricia Landon, Marguerite Krull, Angela Madia, Eui Cheon Nam, Margit Adams and Jim Connor. The opera will be conducted by David Lawton, professor of music at Stony Brook and conductor for last year's production of Mozart's *Marriage of Figaro*. Gary Glaze, who recently directed the Stony Brook Ensemble production of Shakespeare's *Merry Wives of Windsor*, will stage the performance.

Richard Getke will be guest director for the production. Getke's revival of another Baroque opera, Alessandro Scarlatti's *Il Trionfo Dell'Onore* for the Pittsburgh Opera Theatre during the 1989-90 season was hailed by music critic Robert Croan as "one of the city's most satisfying operatic experiences in recent years."

One of the first recipients of a National Opera Institute (NIMT) career grant, Getke was invited to join the directing staff of the New York City Opera, where he staged many of the company's most critically acclaimed revivals. In addition to his activities as a stage director, Getke is involved with the training of opera performers. He currently maintains his own acting studio in New York City.

Tickets to *Julius Caesar* are \$15.00, \$13.00, \$11.00 and \$7.50, and may be purchased at the Staller Center Box Office at 516-632-7230. For further information, contact the Staller Center for the Arts at 516-632-7330.

Students Revive Medieval Dramas

The Medieval Drama Society will perform *The Creation* and *The Crucifixion*, two English mystery plays from the "Wakefield Cycle," at the Christ Church Episcopal on Barnum Avenue in Port Jefferson on Saturday, April 13, at 7 p.m.

The Wakefield mystery plays, a set of religious dramas which have entertained audiences for nearly half a millenium, deal with topics that are still relevant today.

"These plays are long-lasting forms of entertainment that are concerned with such questions as who we are, how we got here, and where we came from," says Steven J. Spector, associate professor of English.

Comprising almost 70 students from the undergraduate English course, "Medieval Literature in English," the Medieval Drama Society is chaired by Spector.

Spector, who has been involved in the production of medieval mystery plays at the university since the early 1970s, says his students have always shown "great enthusiasm" for this rather unusual assignment. He says, "By allowing the students to decide on almost all aspects of the productions, including the actors, directors, producers, costumes and publicity, a different mindset is created in the classroom. A bonding goes on among these students that I've often seen last beyond their college years."

The presentation is not merely for fun, however. All students receive a grade based on their individual efforts to make the performance a success. "This is essentially a scholarly endeavor," Spector notes. Students are required to research medieval theatre and social history to complete the project.

Frank Navas of Queens Village will direct *The Creation*. *The Crucifixion* will be directed by Russel Snider of Lindenhurst.

The event is sponsored by the Student Polity Association and will feature authentic medieval music. Medieval food and drink will be on sale.



Stony Brook students present the medieval drama, *The Slaughter of the Innocents*, performed several years ago at the Christ Church Episcopal in Port Jefferson.

Tickets may be purchased at the door for \$2.00, half price for students and senior citizens.

Dance and Music Unite in Madrigal Comedy

A special concert featuring a fully staged presentation of Gian Carlo Menotti's *The Unicorn, the Gorgon, and the Manticore* comes to the Staller Center on Thursday, April 25, at 8 p.m.

Subtitled "Three Sundays of a Poet," the Menotti piece is an unusual Neo-Renaissance madrigal comedy, complete with story and spectacle. Those familiar with Menotti's work will find the composition reminiscent of *Amahl and the Night Visitors*.

Thirteen members of the Lumiere Dance Company, under the artistic direction of Svetlana Caton-Noble, will perform the parts of count and countess, unicorns and other creatures.

Music will be provided by an ensemble of nine wind instrumentalists and the Stony Brook Camerata Singers. Lumiere is a professional company based in New York

City. Dramatic staging will be by Flower Huger, artistic director of the Flower Huger Dance Theater. The style of the dance is based on classical ballet.

The instrumental ensemble and singers will be under the baton of guest conductor Steve Friedes. This concert marks the triumphant completion of Friedes' doctoral requirements for the D.M.A. at Stony Brook.

Also on the program will be Schubert's Mass in A-flat, an early Romantic sacred work performed by the University Orchestra and the Stony Brook Chorale, conducted by Jack Kreiselman, professor of music. Soloists for the Mass will be Judy Curtis, soprano; Florence Hechtel, alto; George Phillips, tenor; and Timothy Mount, bass.

Tickets are \$7.00 at the Staller Center Box Office, 632-7130. For additional information, call the Department of Music at 632-7330.

CALENDAR

MONDAY

APRIL 1

Flea Market. Bargains Galore! This Faculty Student Association sponsored market is open every Monday and Thursday unless other special events are scheduled in the bi-level. 8:30 a.m.- 4:00 p.m., SB Union Bi-level. Call Michelle Liebowitz to confirm, 632-6826.

Intramural Registration for track and field and badminton singles begins. Registration ends April 12. Call 632-7168.

Astrophysics Journal Club meets every Monday at noon. 450 Earth and Space Sciences. Call 632-8221.

Catholic Campus Ministry Mass, every Monday, Tuesday, Wednesday and Friday at noon. Level 5, Chapel, Health Sciences Center. Call 632-6562.

Stony Brook Fencing Club meets every Monday and Thursday at 8:00 p.m. Indoor Sports Complex. Call 585-8006.

TUESDAY

APRIL 2

Men's Tennis vs. Mercy. 3:30 p.m. Varsity Courts. Call 632-7287.

WEDNESDAY

APRIL 3

Last day to register for the Roth Quad Regatta III (Race Day: April 26 at 4:00 p.m.). Stony Brook Union Lobby. For details, call 632-4015.

Campus Committee of N.O.W. general meeting. Noon. S216 Ward Melville Social

and Behavioral Sciences. Call 632-8066.

Department of Music Noontime Concert Series. Features undergraduate students performing. Recital Hall, Staller Center for the Arts. Free. Call 632-7235.

Department of Mechanical Engineering Seminar, "Investigation of Compressible Turbulence," Sutanu Sarkar, NASA Langley Research Center. 1:00 p.m. 301 Engineering. Call 632-8310.

Women's Softball vs. New Paltz. Doubleheader. 3:00 p.m. Call 632-7287.

Alternative Cinema at Stony Brook, *The Last Temptation of Christ*. Directed by Martin Scorsese. 7:00 and 9:30 p.m. \$2. Stony Brook Union Auditorium. Call 632-6136.

Stony Brook Contemporary Chamber Players Concert, will feature works of Schoenberg and Stravinsky. Donations. 8:00 p.m. Recital Hall. Staller Center for the Arts. Call 632-7330.

THURSDAY

APRIL 4

Flea Market. Bargains Galore! This Faculty Student Association sponsored market is open every Thursday unless other special events are scheduled in the bi-level. 8:30 a.m.- 4:00 p.m., SB Union Bi-level. Call Michelle Liebowitz to confirm, 632-6826.

National Science Foundation, CSMTE, and CEIE Chautauqua Short Course for College Teachers, "Dynamical Systems: Chaos, Fractals and Catastrophes," Max Dresden, Stanford University. 9:00 a.m. - 4:30 p.m. \$175. Peace Center, Old Chemistry. Registration required. Call 632-7075.

Campus Ministries Interfaith Prayer Service is held every Thursday at noon. Level 5, Chapel, Health Sciences Center. Call 632-6562.

Physical Chemistry Seminar, "TBA," Peter Kahn, professor of physics. Noon. 412 Chemistry. Call 632-7880.

Organic Chemistry Seminar, Rick L. Danheiser, Massachusetts Institute of Technology. 4:00 p.m., 412 Chemistry. Call 632-7880.

University Counseling Center Workshop, "Adult Children of Alcoholics." Discussion of problems encountered by children growing up in an alcoholic home. Workshop leader, Frank Valenti R.N. 7:00 - 8:30 p.m. Location upon registration. Call 632-6715.

FRIDAY

APRIL 5

Last day to withdraw from a course without withdrawing from the university or to change courses to or from Pass/No Credit. Call 632-6885.

Men's Tennis vs. Hofstra. 3:30 p.m. Varsity Courts. Call 632-7287.

Department of Chemistry Colloquium, "TBA," John Alexander, professor of chemistry. 4:00 p.m. C-116 Old Chemistry. Call 632-7880.

Astronomy Colloquium, "Rings Around the Giant Planets," Jack Lissauer, professor earth and space sciences. 7:30 p.m. 001, Earth and Space Sciences. Call 632-8221.

Non-Instructional Figure Drawing. Practice from a live model. \$4. Every Friday. 7:30-9:30 p.m., Union Crafts Center. Call 632-6822.

C.O.C.A. Film, *Home Alone*, Friday and Saturday, 7:00, 9:30 p.m. and midnight. Sunday, 7:00 and 9:30 p.m. \$1.50 or \$1 W/ SBU I.D. Javits Center. Call 632-6472 or 632-6460.

SATURDAY

APRIL 6

Asian Basketball Tournament. 8:00 a.m.-6:00 p.m., Indoor Sports Complex East Wing. Call 632-7200.

Undergraduate Studies — URECA Undergraduate Research & Creative Activities Symposium, showcasing the research and creative activities of Stony Brook undergraduates. 10:00 a.m. Staller Center for the Arts. Call 632-7080.

Union Crafts Center Course, "Raku Firing Workshop." \$100 students, \$120 non students. Meets Saturdays, 10:15-1:15 p.m., Union Crafts Center. Call 632-6822.

Women's Softball vs. Albany. Doubleheader. 11:00 a.m. Call 632-7287.

Antique Show. All day. Indoor Sports Complex. Call 632-9271.

Staller Center Chamber Music Series, Arditti String Quartet. \$17.50; USB student tickets half price. 8:00 p.m., Main Stage, Staller Center for the Arts. Call 632-7230.

SUNDAY

APRIL 7

Sacrament of Reconciliation. Every Sunday. 10:15 a.m. and 4:45 p.m., also by appointment (call 941-4141 or 632-6562), Peace Studies Center, Old Chemistry. Call 632-6562.

Catholic Campus Ministry Masses: Every Sunday. 10:30 a.m. and 5:00 p.m. Peace Studies Center, Old Chemistry; 9:00 a.m. Level 5, Chapel, Health Sciences Center. Call 632-6562.

Baseball vs. Staten Island. Doubleheader. Skyline Conference Game. Noon. Call 632-7287.

Men's Tennis vs. Fairleigh Dickinson. 1:00 p.m. Varsity Courts. Call 632-7287.

MONDAY

APRIL 8

National Science Foundation, CSMTE, and CEIE Chautauqua Short Course for College Teachers, "Historical Consideration as a Tool in Teaching Modern Science," Max Dresden, Stanford University. \$175. Three consecutive full-day sessions. 9:00 a.m. - 4:30 p.m. Peace Center, Old Chemistry. Registration required. Call 632-7075.

The Week of the Child Workshop, sponsored by the Stony Brook Child Care Services, "Infant Nutrition." Free and open to the campus community and the public. 11:30 - 12:30 p.m. 216 SB Union. For registration information, call 632-6930.

University Counseling Center Workshop, "Stress Management: Relaxing the Mind and Body Workshop III." Noon - 1:30 p.m. Location upon registration. Call 632-6715.

Department of Physiology and Biophysics Seminar, "Interactions and Activation of Protein Kinase C," Gary Nelsestuen, University of Minnesota. 4:00 p.m. T-5, 140 Basic Health Sciences. Call 444-3036.

Department of Chemistry Inorganic/Organometallic Seminar, "TBA," John B. Sheridan, Rutgers at Newark. 4:00 p.m. 412 Chemistry. Call 632-7880.

School of Continuing Education Professional, Management & HRD Programs Training, "Recognition and Reporting Child Abuse." Two-hour course. Offered April 8 and 23, May 2 and 20, and June 4 and 17. \$25. 6:00 - 8:00 p.m. N121, Ward Melville Social and Behavioral Sciences. Call 632-7071.

TUESDAY

APRIL 9

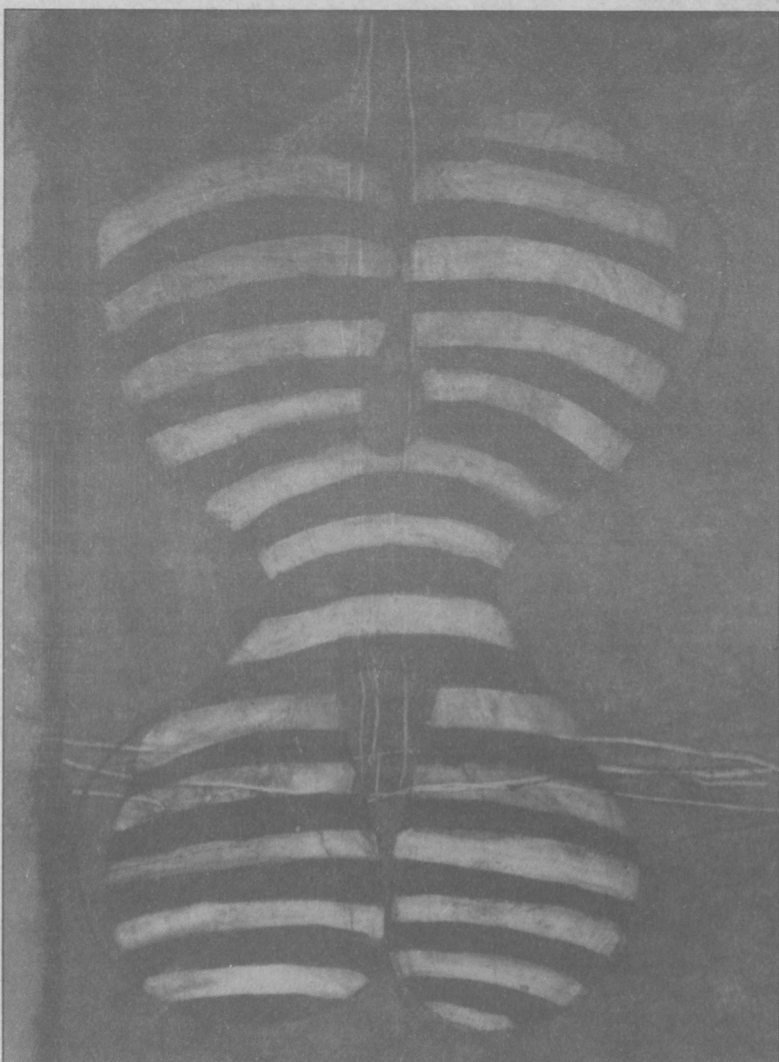
School of Continuing Education Management, Trade and Technical Seminar Series, "Developing and Managing the Workforce of the 90s: A Human Resource Workshop Series." First session: "The Role of the Human Resource Professional: Implications of Economic, Social, and Legal Factors." First in a three part series. \$55 each, preregistration required. 9:00 a.m.-noon. Other sessions held April 18 and June 4. To register, call 632-7071.

The Week of the Child Workshop, sponsored by the Stony Brook Child Care Services, "Living With Your Preschooler." Free and open to the campus community and public. Noon - 1:30 p.m. 216 SB Union. For registration information, call 632-6930.

University Counseling Center Workshop, "Women: The Consummate Juggler." 12:15 - 1:30 p.m. Call 632-6715.

Men's Tennis vs. Concordia. 3:30 p.m. Varsity Courts. Call 632-7287.

Department of Chemistry Bioorganic Literature Meeting (CH694), "Chemical Methods for Determining the Three Dimen-



PHILLIPS/SCHWAB

Buttonholes, by Roberto Juarez. Acrylic, charcoal and Japanese paper on linen. University Art Gallery, Staller Center for the Arts, through April 18.

sional Structure of RNA." 7:30 - 9:30 p.m.
603 Chemistry. Call 632-7880.

Department of Theatre Arts Production, Eastern Standard. Richard Greenburg's contemporary love story directed by Tom Neumiller, professor of theatre arts. \$8; \$6 USB students and senior citizens. 8:00 p.m., 2:00 p.m. matinee Sundays, Theatre II, Staller Center for the Arts. (April 9 - 14). Call 632-7230.

W E D N E S D A Y

APRIL 10

School of Medicine Pediatric Grand Rounds, "Cystic Fibrosis: New Approaches to Care." Fred Gilbert, co-director of human genetics, Cornell Medical University Center. All-day conference begins at 8:00 a.m. Level 2, Lecture Hall 4 Health Sciences Center. Call 444-2700.

Wednesday Noontime Concert Series. Students perform varied repertoire. Recital Hall, Staller Center for the Arts. Call 632-7235.

Campus Committee of N.O.W. Meeting with Women's Student Group. Noon. S216 Ward Melville Social and Behavioral Sciences. Call 632-8066.

University Counseling Center Workshop, "Coping with Anger." Designed to deal with the identification, experience and sharing of anger. Workshop leader, F. Towne Allen. Noon - 1:30 p.m. Location upon registration. Call 632-6715.

The Week of the Child Panel Discussion, "Young Children and AIDS, A Family Legacy," sponsored by the the Department of Child and Family Studies. 4:00 - 6:00 p.m. Main Library, Javits Center. Open to the public.

The Week of the Child Workshop, sponsored by Stony Brook Child Care Services, "Children's Safety in the Home." 6:00 - 8:00 p.m. Benedict Child Care Center, Daniel Webster Drive Building A. Call 632-6930.

Alternative Cinema at Stony Brook, Matador. Directed by Pedro Almodovar. 7:00 and 9:30 p.m. \$2. Stony Brook Union Auditorium. Call 632-6136.

Humanities Institute Visiting Fellows Lecture Series, "Popular Culture and the Humanities in the 1990s," Houston Baker, University of Pennsylvania. Cosponsored by the Poetry Center. 7:00 p.m., 256 Humanities. Call 632-7765.

Academic Prime Time. Intensive academic advising period for students. Through April 18.

T H U R S D A Y

APRIL 11

New York Council for the Humanities Symposium II, "Images of Jews in Hollywood: A Retrospective." Lester Friedman, Syracuse University; Annette Indorf, Columbia University; Audrey Kupferberg, Yale University. Temple Isaiah, 1404 Stony Brook Road, Stony Brook. Free. Open to the public. Reservations are required. Call 751-0066.

Center for Science, Mathematics and Technology Education Short Course for Secondary School Science Teachers, "Tracking Down the Missing Energy." 9:00 a.m. - 3:00 p.m. Free. Peace Center, Old Chemistry. To register, call 632-7075.

School of Continuing Education, PC Training Series, "Desktop Publishing Workshop: Design and Layout Using

**CONTEMPORARY PLAYERS
PRESENT SIX PREMIERES**

One of the highlights of the musical year at Stony Brook is the annual presentation of *Six Premieres*, a concert by the Stony Brook Contemporary Chamber Players featuring the world premieres of six works by living composers.

The concert will be held in the Recital Hall of the Staller Center for the Arts on Wednesday, April 17, at 8 p.m. The same program will be repeated at the Merkin Concert Hall, 129 West 67th Street in New York City on April 28 at 8 p.m.

Stony Brook's commitment to 20th century music is well known in the music world, and this concert is one expression of that mission. All the works were written specifically for the Contemporary Chamber Players. The close collaboration between composers and instrumentalists during rehearsals means the most authentic possible realization of the music. The Contemporary Chamber Players are under the direction of music professors Gilbert Kalish and Raymond Des Roches.

The program will include Tamar Diesendruck's *On That Day*, for violin, cello and piano. This is the third in a group of what will be five related pieces called *Theater of the Ear*. Each piece follows very different designs but all relate to the Tower of Babel story. *On That Day* uses the Biblical story as a scenario. Donald Grantham describes his composition, *Slobberin' Goblins*, as "a malevolent little scherzo based on a dream about three small children who refused to chew with their mouths closed."

Mathew Rosenblum's *Ancient Eyes (Egyptian Lullaby)*, was inspired by the birth of the composer's daughter on November 12, 1990. *Ancient Eyes* expands the 12-note equal-tempered system to include by just and equal tempered intervals.

Also on the program are David Lieberman's *Two Violins, Trumpet in B-flat, and Piano*; Augusta Read Thomas' *Haiku*, a double concerto for violin, cello and chamber orchestra; and Russell Pinkston's *Don't Look Now*, for string quartet and electronic sounds.

The Staller Center concert is free and open to the public. For additional information, call the Department of Music at 516-632-7330.

PageMaker. \$295, preregistration required. 9:00 a.m. - 4:30 p.m. Through April 12. To register and classroom location, call 632-7071.

Humanities Institute, Visiting Fellows Seminar, "Spike Lee and Black Popular Culture," Houston Baker, University of Pennsylvania. 10:00 a.m. E-4340 Melville Library. Call 632-7765.

University Counseling Center Workshop, "You Just Don't Understand: Men and Women In Communication." Noon - 1:30 p.m. Location upon registration. Call 632-6715.

The Week of the Child Workshop, sponsored by the Stony Brook Child Care Services, "Aggressive Themes in Children's Play." Noon - 1:00 p.m. 216 SB Union. For registration information, call 632-6930.

Organic Chemistry Seminar, "New Strategies for the Synthesis of Carbocyclic and Heterocyclic Compounds," Rick Lane Danheiser, M.I.T. 4:00 p.m., 412 Chemistry. Call 632-7880.

The Week of the Child Workshop, sponsored by the Stony Brook Child Care Services, "The Elephant in the Living Room - Family Violence and Child Abuse." 6:00 - 8:00 p.m. Benedict Child Care Center, Daniel Webster Drive Building A. Call 632-6930.

F R I D A Y

APRIL 12

University Counseling Center Workshop, "Clarifying Your Life's Purpose." Noon - 1:15 p.m. Call 632-6715.

University Counseling Center Workshop, "Introduction to Meditation." Covers basic systematic techniques. Noon - 1:00 p.m. Call 632-6715.

The Week of the Child Workshop, sponsored by the Stony Brook Child Care

Services, "Common Childhood Illnesses and Immunizations." Free and open to the campus community and public. Noon - 1:00 p.m. 216 SB Union. Call 632-6930.

Baseball vs. Upsala. 3:30 p.m. Call 632-7287.

Men's Tennis vs. Seton Hall. 3:30 p.m. Varsity Courts. Call 632-7287.

Chemistry Department Colloquium, "TBA," Jean-Pierre Sauvage, L. Pasteur-Strasbourg University. 4:00 p.m. C116, Old Chemistry. Call 632-7880.

Faculty/Staff Spring Dance. 6:00 - 11:00 p.m. \$15 per person. Call Cynthia Pedersen at 632-6136.

C.O.C.A. Film, Misery, Friday and

Saturday, April 13, 7:00, 9:30 p.m. and midnight. Sunday, April 14, 7:00 and 9:30 p.m. \$1.50 or \$1 W/SBU I.D. Javits Center. Call 632-6472 or 632-6460.

S A T U R D A Y

APRIL 13

Stony Brook Alumni Association Conference, "Playing Out the Recession: Strategies for Success in the 1990s." 8:45 a.m. Lifetime members of Alumni Association, \$10; Non-members, \$15; members of Student Alumni Chapter, free; USB students, \$5. Includes breakfast, four discussions, luncheon and reception. Reservations. Call the Office of Alumni Affairs, 632-6330.

Long Island Groundwater Conference, sponsored by the Department of Earth and Space Sciences and The Museum of Long Island Natural Sciences. Focus on current issues relating to the hydrogeology of Long Island and its water supply. 9:00 a.m. \$15. For location, call 632-8200.

Union Crafts Center Course, "Paper Making Workshop." Recycle paper and junk mail into handsome homemade paper. \$35 students, \$45 non students. 10:15 a.m. - 4:00 p.m., Union Crafts Center Fiber Studio. Call 632-6822.

The Week of the Child "Children's Fair," sponsored by the Stony Brook Child Care Services. A celebration of children and families together. 11:00 a.m. - 4:00 p.m. Fireside Lounge, SB Union. For information, call 632-6930.

Men's and Women's Outdoor Track and Field PAC Championships. 11:00 a.m. Call 632-7287.

Women's Softball vs. Staten Island. Doubleheader. Noon. Call 632-7287.

Men's Tennis vs. Baruch. 1:00 p.m. Varsity Courts. Call 632-7287.

Wheelchair Basketball. 2:00-5:00 p.m., Indoor Sports Complex East Wing. Call 732-7200.

Medieval Drama Society presentation of The Creation and The Crucifixion. Open to the public, the event will include medieval music and refreshments. \$2. Half price for senior citizens. 7:00 p.m. Christ Church Episcopal, 127 Barnum Avenue, Port Jefferson. Call 632-7383.

Stony Brook Opera Ensemble and



London's Arditti String Quartet performs Saturday April 6 in the Staller Center for the Arts.



North Carolina Dance Theatre comes to the Staller Center for the Arts on Saturday, April 20, 8:00 p.m.

Symphony Orchestra present Handel's opera, *Julius Caesar*. Tickets \$15, \$13, \$11 and \$7.50. 8:00 p.m. Main Stage. Staller Center for the Arts. Call 632-7230.

SUNDAY

APRIL 14

Baseball vs. Hunter. Skyline Conference Game. Noon. Call 632-7287.

MONDAY

APRIL 15

Advance registration for fall semester. Schedules announced prior to registration. Through May 3. Call 632-6885.

Women's Softball vs. Southampton. 4:00 p.m. Call 632-7287.

Department of Physiology and Biophysics, "Role of Physical Forces in Development and Adaptation in Cells and Tissues," Ken McLeod, department of orthopedic surgery. 4:00 p.m. T-5, 140 Basic Health Sciences. Call 444-3036.

TUESDAY

APRIL 16

Center for Science, Mathematics and Technology Education Short Course for Secondary School Science Teachers, "The Chemistry of Toys," C. V. Krishnan, professor of chemistry. 9:00 a.m. - 3:00 p.m. Free. 406 Graduate Chemistry. To register, call 632-7075.

School of Continuing Education PC Training Series Workshop, "Intensive Introduction to PCs: Overview of Software, two full days. 9:00 a.m. - 4:30 p.m. Preregistration required. To register, call 632-7071.

The School of Continuing Education Management Seminar, "Designing and Delivering Training Programs I." \$95, preregistration required. 6:00-9:00 p.m. To register, call 632-7071.

The Week of the Child Workshop, sponsored by the Stony Brook Child Care Services, "Dental Health for Young Children." 6:00 - 7:30 p.m. Early Childhood Center, Daniel Webster Drive Bldg D. For registration information, call 632-6930.

WEDNESDAY

APRIL 17

Campus Committee of N.O.W. Meeting. Noon. S216 Ward Melville Social and Behavioral Sciences. Call 632-8066.

Wednesday Noontime Concert Series. Students perform varied repertoire. Program to be announced. Recital Hall, Staller Center for the Arts. Call 632-7235.

Baseball vs. St. Joseph's (Patchogue). 3:30 p.m. Call 632-7287.

Stony Brook Contemporary Chamber Players. Preview Six Premieres. 8:00 p.m. Open to the public. Free. Staller Center for the Arts. (Second Concert: April 28 at Merkin Concert Hall, N.Y.C.) Call 632-7330.

THURSDAY

APRIL 18

School of Continuing Education, Management, Trade and Technical Seminar Series, "Developing and Managing the Workforce of the 90s: A Human Resource Workshop Series." Second session: "Training and Developing the Workforce," Virginia H. Brown, and Robert D'Angio, B.N.L. \$55. 9:00 a.m. - noon. Call 632-7071.



Actress Robin Curtis, Star Trek's Saavik, will make an appearance during the I-CON X science fiction convention, Friday through Sunday, April 19-21.

National Science Foundation, CSMTE, and CEIE Chautauqua Short Course for College Teachers, "Using Technological Case Studies in the Liberal Arts Curriculum," John Truxal, professor technology and society; Marian Visich, Jr., professor/associate dean of engineering. \$175. 9:00 a.m. - 4:30 p.m. Peace Center, Old Chemistry. 632-7075.

Physical Chemistry Seminar, "Surface Vibrational Spectroscopy Using Far IR Synchrotron Radiation," Gwyn Williams, BNL. Noon. 412 Chemistry. Call 632-7880.

Center for Biotechnology, "Cytokine Receptors: Immu-Regulatory Proteins with Therapeutic Potential," David Urdall, Immunex Corp. Noon, Lecture Hall 6, Level 3, Health Sciences Center. Call 632-8521.

University Counseling Center Workshop, "You Just Don't Understand: Men and Women In Communication." Noon - 1:30 p.m. Location upon registration. Call 632-6715.

Department of Mechanical Engineering Seminar, "Analysis of Space-Time Disorder in Transition to Turbulence and Turbulence," Nadine Aubry, City College of CUNY. 1:30 p.m. 301 Engineering. Call 632-8310.

Baseball vs. Dowling. 3:30 p.m. Call 632-7287.

The Week of the Child Workshop, sponsored by the Stony Brook Child Care Services, "What is Television Teaching Or Children?" 6:00 - 8:00 p.m. Benedict Child Care Center, Daniel Webster Drive Building A. Call 632-6930.

University Counseling Center Workshop, "Human Sexuality II." 7:00 - 8:30 p.m. Call 632-6715.

FRIDAY

APRIL 19

Office of Conferences and Special Events, "Old and New in the 15th Century." April 19, 1:00 - 5:00 p.m.; April 20, 8:30 a.m. - noon. Harriman Hall. Call 632-6320.

I-CON X Convention. East Coast's largest three-day science fiction, fact, and fantasy convention featuring writers, editors, artists, scientists, engineers, film and TV producers and actors, videos, writers workshops, displays and more. April 19: 5:00 p.m. - 2:00 a.m.; April 20: 9:00 a.m. - 2:00 a.m.; April 21: 9:00 a.m. - midnight. Ticket prices vary. For information on events and their campus locations, call 632-6460 or 632-6472.

The School of Continuing Education, Management Seminar, "Designing and Delivering Training Programs I." Customize efforts, select and apply appropriate training techniques to organization needs. \$95, preregistration required. One day, 9:00 a.m. - 4:30 p.m. To register, call 632-7071.

University Counseling Center Workshop, "Introduction to Meditation." Covers basic systematic techniques enhancing awareness, deepening concentration and relaxation. Noon - 1:00 p.m. Workshop leader, Cheryl Kurash. Location upon registration. Call 632-6715.

C.O.C.A. Film, Fantasia, Friday and Saturday, 7:00, 9:30 p.m. and midnight. Sunday, 7:00 and 9:30 p.m. \$1.50 or \$1 W/ SBU I.D. Javits Center. Call 632-6472 or 632-6460.

SATURDAY

APRIL 20

United States Volleyball Association Tournament. 8:00 a.m.-7:00 p.m., Indoor Sports Complex East Wing. Call 632-7200.

Association of Suffolk County Swim Coaches Swim Meet. 8:00 a.m.-10:00 p.m., Indoor Sports Complex East Wing. Call 632-7200.

School of Continuing Education, Real Estate Education Program Module, "Real Estate Taxes on Investment Properties." \$99, preregistration required. Meets April 20 and 27, 9:00 a.m.-5:30 p.m. To register and classroom location, call 632-7071.

School of Continuing Education, Real Estate Seminar, "An Introduction to Commercial/Industrial Real Estate." \$49, preregistration is required. 10:00 a.m.-noon. To register and classroom location, call 632-7071.

Women's Softball vs. Mt. St. Vincent. Doubleheader. 11:00 a.m. Call 632-7287.

Men's Tennis vs. Dowling. 1:00 p.m. Varsity Courts. Call 632-7287.

Staller Center Dance Series, North Carolina Dance Theatre. \$22.50, \$20.50, \$18.50; USB students half price. 8:00 p.m., Main Stage, Staller Center for the Arts. Call 632-7230.

TUESDAY

APRIL 23

School of Continuing Education, PC Training Series Workshop, "Intensive Introduction to PCs: Overview of Software, two full days. 9:00 a.m. - 4:30 p.m. Preregistration required. To register, call 632-7071.

Center for Science, Mathematics and Technology Education Short Course for Secondary School Science Teachers, "Hands-On Experience in Chemistry with Microcomputer." 9:00 a.m. - 3:00 p.m. Free. 432 Graduate Chemistry. To register, call 632-7075.

University Counseling Center Workshop, "Finding the Right Position: Tips for Your Job Search." 3:00 - 4:30 p.m. Location upon registration. Call 632-6715.

School of Continuing Education, PC Training Series, "Introduction to Data Base: Base IV." First of eight sessions. Appropriate for personal or business use. Preregistration required. Tuesday/Thursday, 5:45 - 7:45 p.m. To register, call 632-7071.

The School of Continuing Education, Management Seminar, "Designing and Delivering Training Programs I." \$95, preregistration required. 6:00-9:00 p.m. To register, call 632-7071.

Department of Chemistry, Bioorganic Literature Meeting (CH694), "Identifying the Biologically Active Conformation of Peptide Hormones." Hosted and organized by Kazu Touhara, student. 7:30 - 9:30 p.m. 603 Chemistry. Call 632-7880.

W E D N E S D A Y

APRIL 24

Wednesday Noontime Concert Series. Students perform a varied repertoire. Specific program to be announced. Recital Hall, Staller Center for the Arts. Call 632-7235.

Campus Committee of N.O.W. meeting, "Female Engineers and Male English Majors," Sally Sternglanz. Noon. S216 Ward Melville Social and Behavioral Sciences. Call 632-8066.

Baseball vs. USMMA. Skyline Conference Game. 3:30 p.m. Call 632-7287.

Lacrosse vs. Fairfield. 4:00 p.m. Patriot Field. Call 632-7287.

Women's Softball vs. Molloy. 4:30 p.m. Call 632-7287.

Humanities Institute Visiting Fellows Lecture Series, "Feminist Film Theory Revisited," Teresa de Lauretis, University of California at Santa Cruz. 4:30 p.m., 109 Javits Lecture Center. Call 632-7765.

Humanities Institute Seminar, "Freud, Sexuality, Perversion." 4:30 p.m. 109 Javits Lecture Center. Call 632-7765.

Association for Women in Science Lecture, "Protecting Wetlands: What You Need to Know," Carol Collier, Ecologist, BCM Engineers, Inc. 7:30 p.m. S240 Math Tower. Call 282-2139.

T H U R S D A Y

APRIL 25

National Science Foundation, CSMTE, and CEIE Chautauqua Short Course for College Teachers, "Origins of the Solar System," Roger Knacke, professor earth and space science. \$175. 9:00 a.m. - 4:30 p.m. Peace Center, Old Chemistry. Call 632-7075.

Department of Mechanical Engineering Seminar, "Flow Induced Vibration & Noise," F. Y. Hwang, David Taylor Research Center. 2:00 p.m. 301 Engineering. Call 632-8310.

Humanities Institute Visiting Fellows Seminar, Teresa de Lauretis, topic to be announced. 4:00 p.m. E-4340 Melville Library. Call 632-7765.

Organic Chemistry Seminar, "Recent Stereochemical Studies on Tetrahedral Intermediates," Moses K. Kalquistian, Fordham University. 4:00 p.m. 412 Chemistry. Call 632-7880.

Dance, Drama, Choral and Instrumental Music, Concert at the Staller Center for the Arts at 8:00 p.m., featuring members of the Lumiere Dance Company, the Stony Brook Camerata Singers, the University Orchestra and the Stony Brook Chorale. \$7. Call 632-7130 or 632-7330.

F R I D A Y

APRIL 26

School of Continuing Education, Management, Trade, and Technical Seminar, "Customer Service: Techniques for Increasing Sales and Productivity" Presented by Jacques Weisel, coauthor of *The Magnificent Motivator*. \$95. 9:00 a.m. - 4:30 p.m. Call 632-7071.

Humanities Institute, Faculty Seminar, "Psychofeminisms," Teresa de Lauretis. 10:30 a.m. E-4340 Melville Library. Call 632-7765.

Regatta at Roth Quad Pond, sponsored by the Roth Quad Yacht Club. 4:00 p.m. Open to students, faculty, staff and alumni of Stony Brook. Call 632-4015.

C.O.C.A. Film, Hamlet, Friday and Saturday, 7:00, 9:30 p.m. and midnight. Sunday, 7:00 and 9:30 p.m. \$1.50 or \$1 W/ SBU I.D. Javits Center. Call 632-6472 or 632-6460.

S A T U R D A Y

APRIL 27

Women's Soccer Tournament. 9:00 a.m. - 6:00 p.m. Practice Soccer Field. Call 632-7200.

Lacrosse vs. Boston College. 1:30 p.m. Patriot Field. Call 632-7287.

Men's Tennis vs. USMMA. 2:00 p.m. Varsity Courts. Call 632-7287.

Stony Brook Jazz Ensembles, under the direction of Stephen Salerno, will present "An Evening of Jazz," featuring Ellington's *Mood Indigo* and Porter's *What is This Thing Called Love*. Modern classics will include John Coltrane's *Grand Central* and Thelonious Monk's *Evidence*. 8:00 p.m. Donations. Recital Hall. Staller Center for the Arts. Call 632-7330.

S U N D A Y

APRIL 28

Men's and Women's Outdoor Track and Field, Stony Brook Invitational. 10:00 a.m. Call 632-7287.

India Society "Indian Classical Dance and Music." Neera Batra, Ustad Kadar Khan, Vishwa Mohan Bhatt. 4:00 p.m. General public, \$12.50. Members and USB students and seniors, \$7.50. Stony Brook Union Auditorium. Call 751-1810 or 689-2625.

M O N D A Y

APRIL 29

Lacrosse vs. Boston College. 1:30 p.m. Patriot Field. Call 632-7287.

Men's Tennis vs. USMMA. 2:00 p.m. Varsity Courts. Call 632-7287.

Men's Tennis vs. Old Westbury. 3:30 p.m. Varsity Courts. Call 632-7287.

Inorganic/Organometallic Seminar, "New Chemistry Involving Group IV Transition Metals," Steven L. Buchwald, MIT. 4:00 p.m. 412 Chemistry. Call 632-7880.

T U E S D A Y

APRIL 30

School of Continuing Education, Management, Trade, and Technical Seminar, "Computerization of Accounting and Bookkeeping Systems I." \$95. Preregistration required. 9:00 a.m.-4:30 p.m. To register, call 632-7071.

Center for Science, Mathematics and Technology Education, Short Course for Secondary School Science Teachers, "Statistics: An Introduction for High School

Independent Science Research Courses," Melanie Krieger. 9:00 a.m. - 3:00 p.m. Free. Old Chemistry, Peace Center. To register, call 632-7075.

School of Continuing Education, PC Training Series Workshop, "Intensive Advance Functions in Word Perfect 5.1," one-day, 9:00 a.m. - 4:30 p.m. Preregistration required. To register, call 632-7071.

Department of Physiology and Biophysics Seminar, "Structure and Expression of IGF-I Gene," Charles T. Roberts, National Institutes of Health. Cosponsored by department of endocrinology. 4:00 p.m. T-5, 140 Basic Health Sciences. Call 444-3036.

Baseball vs. St. Joseph's (Patchogue). Time TBA. Call 632-7287.

O N G O I N G

Through April 18: "Frederic Amat and Roberto Juarez." Recent work by Frederic Amat and Roberto Juarez. University Art Gallery, Staller Center for the Arts. Mon. - Fri., 10 a.m. - 4 p.m. Call 632-7240.

Through April 6: Department of Student Union and Activities, "The Joycean Year," paintings by Gerald Davis. Noon - 5:00 p.m. 2nd floor, Union Art Gallery. Call 632-6822.

April 8 - 18: Department of Student Union and Activities, "Ceramic Sculpture and Prints," Con Artist and Dot Pierce. Noon - 5:00 p.m. 2nd floor, Union Art Gallery. Call 632-6822.

April 19-May 17 "Authors and Editors." A display of books written and edited by Stony Brook faculty and staff. Library Galleria, Melville Library. Through May 17. Call 632-6320.

April 22-27: Department of Student Union and Activities, "Treasures of Our Homes," a collection of ethnic and religious art. Noon - 5:00 p.m. 2nd floor, Union Art Gallery. Call 632-6822.

April 30-May 10: Department of Student Union and Activities, "Paintings," an exhibition of works by students of Mel Pekarsky, professor of art. Noon - 5:00 p.m. 2nd floor, Union Art Gallery. Call 632-6822.



Members of the Lumiere Dance Company will perform Menotti's *The Unicorn, the Gorgon, and the Manticore*, in a performance on Thursday, April 25, at 8:00 p.m.

Blood Drives Postponed, Center Awaits Testing Approval

In a move to avert further campus protests, student and faculty/staff blood drives that were to be held here this spring have been postponed pending federal approval of a new test for the HIV-2 virus.

The decision to put the events on hold was made by the Melville-based Long Island Blood Center, which conducts the drives.

For more than a year, the Center and its parent New York City-based New York Blood Center, had come under fire from student groups and others for going along with federal Food and Drug Administration recommendations barring blood donations from Haitians and those from sub-

Sahara nations. Haiti and sub-Saharan countries have a high incidence of AIDS caused by the presence of the HIV-1 and HIV-2 virus.

The metropolitan area Haitian community was particularly incensed because it appeared that the FDA had arbitrarily changed its donor rules, at first allowing Haitians who had been in the United States for many years to give blood but later banning all Haitians from becoming donors. Though officials of the New York Blood Center opposed what it felt to be a discriminatory FDA policy, it had no choice but to carry it out, a spokesman said, since the FDA sets guidelines and regulates the

operations of the nation's blood banks.

Last spring, a small band of students from Stony Brook's Haitian Student Organization and others picketed outside the gymnasium where a student blood drive was being held. In October, an even larger group attempted to disrupt a student blood drive, blocking vans that were being used to transport students to the blood collection site at the Health Sciences Center. The students later paraded across Nicolls Road to the east campus where they continued their peaceful but noisy protest.

In December, a faculty/staff blood drive was cut short by several hours after a scuffle erupted between angry student protestors and public safety officers. Ironically, a few days later, federal officials lifted the ban on donors based on ethnic grounds. But the FDA said blood banks should continue to bar donors from sub-Saharan countries until blood testing for the HIV-2 virus becomes

available in the United States.

The HIV-2 strain is rare in the United States but is common in sub-Saharan Africa. The test for it is used elsewhere in the world, but has not yet been approved in the United States, Long Island Blood Center officials explained. The HIV-2 test is expected to be licensed in the near future, a spokesman said, and when it is, Long Island Blood Center drives will resume at Stony Brook and other New York metropolitan area campuses.

In the meantime, members of the campus community who planned to donate blood can still do so, by appointment, at the Blood Services unit of University Hospital (444-2626). Because of the constant need for blood, members of the campus community are encouraged to donate. Appointments can be scheduled weekdays from 7:30 a.m. to 4 p.m. and on Thursdays, as late as 7:45 p.m.

High Tech Incubator Update

by Carole Volkman

With groundbreaking scheduled for this summer and the official opening slated for the summer of 1992, the Long Island High Technology Incubator at Stony Brook — Long Island's only such facility — is an idea whose time has officially arrived.

On the drawing board for over five years, the incubator, originally proposed by State Senator Kenneth LaValle, was supported by business, research and community leaders. The facility is designed to nurture research and development efforts of fledgling high-technology companies, providing them with the academic and support services necessary to develop into viable businesses.

The need for such a facility is critical on Long Island. With a shrinking defense industry, the region needs new ventures that can capitalize on the technological know-how of its workers while producing low-bulk products that won't harm the fragile environment.

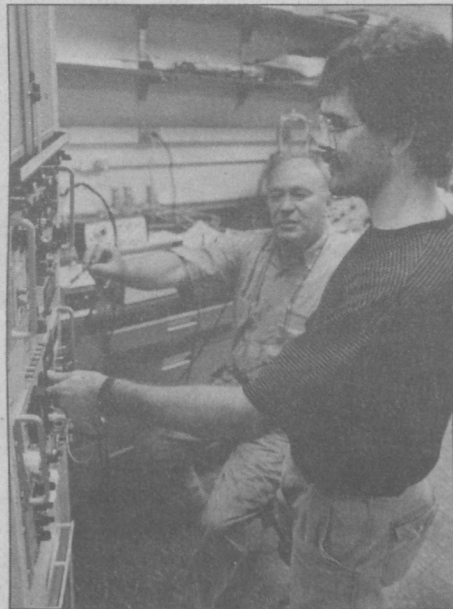
Technologies such as biomedicine, electronics, software, telecommunications and environmental science are some of the areas targeted for the incubator, which is being managed by a nonprofit corporation called the Long Island High Technology Incubator, Inc. (LIHTI). LIHTI board members include business leaders, SUNY officials, and from Stony Brook, President John H. Marburger; Marine Sciences Research Center Dean J.R. Schubel; Center for Biotechnology Director Richard Koehn; Deputy to the President Carl E. Hanes, Jr., who serves as LIHTI secretary/treasurer, and Manager of Advanced Technology F.P. (Pat) Hession, president of the corporation.

The incubator facility will be located on the east campus. Current plans call for a 42,000-square-foot building which will house up to 30 tenants; the corporation is seeking one or two "anchor" tenants to fill approximately 10,000 square feet of space. According to Hession, architectural design of the facility will be completed by the end of spring, with construction bids going out this summer.

The \$6 million incubator project will be funded by \$2.3 million in Urban Development Corporation low interest loans, \$1.065 million in grants provided by the New York State Legislature, and a Norstar Bank loan of \$2.635 million, which is pending State Job Development Authority approval of a guarantee.

In the meantime, the university's interim incubator program — established in 1985 — is expanding. A total of eight companies are now on campus, housed at space in Harriman Hall as well as the chemistry, computer science, engineering and life sciences buildings.

"All of us close to the project are aware of the effectiveness of an Incubator for producing new high technology-oriented industry," Marburger said after state funding was passed last spring. "We know this is what Long Island needs."



Researchers Leonid Boguslavsky and Paul Hale, work on a project at Moltech Corporation, an Incubator tenant located in the Chemistry Building.

Stony Brook Posts Record Enrollment For Spring Semester

continued from page 3

mandated by budget cuts. The school has 2,300 students this spring, more than half matriculated into degree programs.

"What's most amazing is that it shows no sign of abating," says Paul Edelson, dean of the School of Continuing Education (CED).

A substantial number of CED students, he says, are in the 25 to 35-year-old age group, working toward masters degrees or professional certification to improve their job opportunities. But another large group of enrollees, he says, are those in the 45 to 55-year-old range who are going back to school to prepare themselves for a new

career. "A lot of them feel that when they first went to school, they were too young to know what they really wanted and then because of family or financial reasons, couldn't afford to change their lives until now. They view the educational process as a way to design their lives in a new or different manner."

The School of Continuing Education continues to draw more women than men, Edelson said, but even that is changing. "Right now it is two-thirds women, one-third men, but it will be 50-50 within the next 10 years, he predicts. "There is an untapped need here and no shortage of students for the programs we have."

Veteran Officer Nabs Three In Car Break-In

Three Long Island youths are awaiting trial on charges of theft of a radio from a car parked in a residence hall lot last month. The three — none of them Stony Brook students — were nabbed by a veteran USB public safety officer as they attempted to flee the campus.

It was all in a day's work for public safety officer Herbert During who pursued and stopped the trio as they were leaving the campus in a 1978 Pontiac. During, whose reputation for "an eye for crime" last year won him an award for professionalism from SUNY's State Public Safety Director's Association, was radioed a description of the car by another officer alerted to the crime by students. During knew where to find the alleged thieves. Minutes earlier he had stopped their car for a minor traffic violation, his "sixth sense" telling him to take a close look at the vehicle and its passengers.

Just before that, one of the three allegedly broke into a blue Volkswagen parked at Roth Quad. The theft was witnessed by a student in a nearby residence hall who happened to be looking out a window, saw what seemed to be a crime in the making and recognized the car as belonging to a roommate. The student, now joined by the vehicle's owner and another student, ran into the parking lot but the thief had fled to a waiting car. They hailed a public safety officer who radioed a description of the car and the thief.

"As soon as I heard it, I knew it was the car I had stopped two minutes before," During said. "I was on routine patrol when I first spotted the car in the roadway." During became suspicious when he saw

someone quickly hop into the vehicle and drive away. "I followed it. When the driver made a left turn into a dead-end, I made the same turn and stopped them. The license plate was missing from the front of the car, but other than that, everything was in order so I had to let them go."

After hearing the radio description, During caught up with the trio near the north P Lot where they were identified by the students. The stolen radio was in the back seat, During said.

The three — William LaRue, 17, of Mastic Beach, Walter Furman, 19, of Shirley, and Cameron Jenkins, 19, of Shirley, were charged with petit larceny

and given appearance tickets.

During has been a member of the public safety force since 1970 and is its most decorated officer. "He's always a high performer," said Richard Young, director of Public Safety. In addition to the state award, last year During was one of 10 officers cited by the campus for meritorious service after he apprehended a drug dealer and helped Suffolk police crack an arson case and the armed robbery of Long Island Savings Bank in Stony Brook. At the time, During noted that "after 20 years on the road, you develop a sixth sense when something's wrong."

Marburger Spells Out Budget Impact

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noted. "Technical support positions, a limited number of which were slated for elimination in 1990-91, are likely to be reduced significantly." Some of these, he said, may be transferred to external research sponsor support, but others, he warned, "will be lost. The major impact is on instructional laboratories, graduate instruction and research."

Capital projects at the university will also be affected under the

governor's proposed budget. "SUNY has indicated its inability to participate in financing the proposed and urgently needed ambulatory care facility. Progress on some major rehabilitation projects has come to a halt, including the last phase of the Chapin Apartment upgrade," Marburger noted. In addition, no funds have been forthcoming for the proposed Life Sciences facility or the new Student Center.

Men's Basketball Concludes Impressive Season

by Robert Orlando

University at Stony Brook men's head basketball coach Joe Castiglie led his team to the NCAA Tournament for the second time in seven seasons. With Castiglie at the helm, the Patriots have competed in post season play in all of his seven years as head coach which is remarkable since Stony Brook has been involved in post season play 11 times in their 30 years of basketball history. During his reign he has posted a impressive .711 career winning percentage.

Stony Brook posted a regular season record of 23-3 which earned them the top seed in the NCAA East Region and the Skyline Conference Championship with a 9-1 conference record. As the top seed, Stony Brook received a bye in the first round and hosted Rochester in the second round but fell to the defending national champions, 71-67 on Saturday, March 2.

Stony Brook was denied a NCAA bid last year after a 24-5 season that culminated with Stony Brook winning the ECAC Championship. "In retrospect, a bid last year would have better prepared us for the NCAA's this season," said Castiglie. "It may have relieved some of the nervous energy that we had."

The players used the snub to motivate them for the 1990-91 season. "Last year we felt that we deserved to be in the NCAA tournament," said senior forward Yves Simon. "We beat Hunter twice and they wound up getting the bid. We felt cheated."

"We took it out on the ECAC's last year," said guard Emeka Smith. "Next year losing in the second round of the NCAA tournament will be our inspiration."

Castiglie set a standard for his team from the outset of the season. "We definitely wanted to win 20 games and be conference champions, but we also wanted to receive an NCAA bid. Being the number one seed in the East (Region) was very impressive but also unexpected."

Castiglie's 1986 squad also made the NCAA tournament. "Back then I was very anxious and I think that translated to the team. This time around I was much less anxious. I was actually looking forward to playing the national champions."

Stony Brook set an attendance record in the Indoor Sports Complex as 2,836 supporters showed their school spirit. "There was a tremendous outpouring of support for us," said Castiglie. "It made me feel good to look into the crowd and see faculty, old friends, people from high school and the faithful bunch. It was truly the culmination of one of my personal goals - to bring people from all over together at a basketball

game."

Stony Brook opened the 1990-91 season by winning the USB/Polera Tip-Off Tournament in the first games at the Indoor Sports Complex. They also captured the Elmira and Potsdam Tournaments during the season.

"Potsdam is traditionally one of the best teams in the country," commented the coach. "They are well-coached and have tremendously talented players. I was concerned entering this game because I had just witnessed Potsdam totally dominate St. Lawrence in every facet of the game. It turns out that my players executed the game plan flawlessly. It was the height of response from the team. The communication was there and we were not careless. It was a gigantic program builder."

Potsdam is rarely beaten on their own floor, which explains why they placed their team's name on the tournament trophy before the games started.

"Against Potsdam we played within ourselves and everyone played good defense," said senior forward Charwin Agard. "Beating Potsdam was the most positive thing that happened to this club because nobody thought that we could. We walked away with the trophy with their name on it."

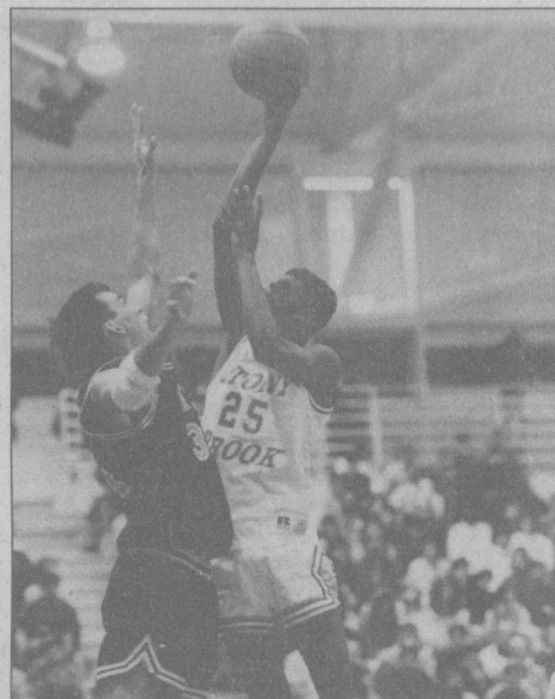
The Patriots peaked at number 12 in the national rankings and second in New York State in late February. "The recognition on a national level was tremendous," said Castiglie. "We must maintain that standard in the future."

The Patriots opened their season with a 12-game winning streak. "I think the streak was a carry over from last season when we did not get into the NCAA's," said senior forward Steve Hayn.

The basketball team's biggest and most impressive victories came at Potsdam, at Albany, and against New Jersey Tech. "We beat all the good teams on their floor," said Simon. "Many of the up state teams did not respect us, but we beat all of them except Rochester."

Albany hadn't lost to the Patriots in the four years Simon has been at Stony Brook and in the three seasons Hayn has competed for USB. "Albany wrecked our 15-game winning streak last season," said Hayn. "It was especially sweet for Sy (Yves Simon) and myself to beat them at their place."

Stony Brook defeated New Jersey Tech to clinch the Skyline Conference title on February 20, 92-79. "New Jersey Tech was boasting and bragging about how they were going to avenge last season's ECAC loss to us this season," said forward Vincent Farmer. "We just went



Sophomore forward Ricky Wardally (No. 25) goes for a score.

out there and beat them easily."

Patriot coaching staff will work to fill some voids that left them vulnerable this past season in size and shooting. Said Castiglie, "We have a great desire to keep this team intact and make another run at the NCAA next season."

The inevitable is known by even the players. "For next year we need one true center, that big guy in the middle," said sophomore forward Ricky Wardally. "We have good depth at our other positions."

"There are more division III basketball schools (297 total) than there are in division I," said the coach. "Only 40 of those 297 teams are invited to the post season tournament. It is so hard to get into the NCAA's, especially at this level. A team has to play a tough schedule in the regular season, win those games, and finish with at least 20 wins for a chance to be considered."

"Looking back, I will think about scoring 1,000 points and playing with a great bunch of guys," said Simon, "but the best thing that happened was making it to the NCAA tournament. It was a once in a life time experience."

Big Win for Stony Brook Indoor Track

The University at Stony Brook men's indoor track team captured three first place finishes to win the first ever Eastern College Athletic Conference Championship at Bates College in Lewiston, Maine. The Patriots' previous best in the ECAC's was 10th place in 1989. They overcame favorites Massachusetts Institute of Technology and Tufts University to win the title.

"We had high expectations to finish in the top three," said head coach Steve Borbet. "I knew that if everything went right we could finish with 60 points, which is always good enough to place in the top three."

The Patriots scored 82 points as they built a strong lead on MIT halfway through the meet and were able to hold on to ensure the victory. "It is a great feeling to win a meet that included all the schools between Maine and Virginia," said the coach.

The meet started with Roger Gill who cruised to a first place finish in the trials for the 400 meter race. This set Gill up for a showdown with Tufts top seed Tom Guglielmo in the finals, which Gill won and set a new university record in 49.88.

In the 500 meter run, coach Borbet sent Jerry Canada (5th seed) and Anthony Mercaldi (11th seed) to the line. Mercaldi finished first in a time of 1:07.77 and Canada placed second in 1:08.44. "Both Jerry and Anthony qualified for the finals," said Borbet, "which was quite a surprise."

The next event was 800 meters, with Dave Briggs the

only Patriot to qualify. He was the 13th seed out of 14 and had not met the standard to get into the meet, but since he was one of the top 14 he was allowed to run. "Dave set a university record in the 600 meters with a time of 1:24.2 on his way to the 800," said Borbet. "Interestingly enough the old record was set the same way by Pat Hardman in the 1984-85 season."

With exactly one hour to rest, Gill was set to run the 200 meter dash trials. "Roger was seeded fourth but being our school record holder we felt that he could do better," said the coach. Gill won his trials in 22.81 to advance to the finals. His time exceeded the ECAC record.

In the 55 meter hurdles Jean Massillon, NCAA qualifier, was the top seed heading into the event. "Jean ran well in his trials, placing first with a time of 7.6 and setting a new fieldhouse record," said the coach. The old record was 7.74. The 55 meter dash had Anderson Villien placing second with a time of 6.69 as he advanced to the finals. "Anderson also advanced to the finals of the long jump," said Borbet. "We were in far better shape than we ever dreamed we would be."

In the finals of the 55 meter hurdles, Massillon was cautious out of the blocks, not wanting to false start. "He had trouble for the first three hurdles, but pulled away for the victory in 7.66," said the coach.

Villien leaped to his best indoor long jump ever at 22' 1 3/4" - placing second. "I was happy to take second place at the ECAC's in the long jump," said Villien. "This was

my first season that I competed indoors. I am really looking forward to the outdoor season."

In the 400 meters, Gill took an early lead and never gave up any ground to his opponents. He set a new university record in a time of 49.88 and ran his third tough race of the day. Canada and Mercaldi finished first and third in the 100 meters, respectively. "This gave us 16 big points," said the coach. "Canada's 1:07.02 and Mercaldi's 1:07.12 were both personal bests."

Dave Briggs, seeking to duplicate his university record from the trials in the 800 meters, held onto second place by .001 of a second with a time of 1:57.02.

Heading into the relays, Stony Brook maintained a six point lead over MIT. After the distance medley, the Patriots lead had increased to 10 points. "We needed to beat MIT to clinch the victory, since we didn't have a 4x800 relay team, and MIT did," said the coach. "We had to have a strong showing in the 4 x 400. Mercaldi got us started and then Gill volunteered to run the second leg in the race, which was his fifth race of the day."

Courtney O'Malley finished strong and handed off to anchor leg runner Canada. Canada caught MIT's runner and fell .005 short of the winner. This earned Stony Brook second place in the 4 x 400 and clinched the first ever ECAC victory for the Patriots.

"Everyone contributed to the win," said the coach. "It was as exciting a victory as the coaching staff had ever experienced in their coaching careers."

— Orlando

1991-93 Undergraduate Bulletin Distribution

The 1991-93 *Undergraduate Bulletin* will be distributed on campus starting on April 8 to freshmen, sophomores, juniors, and seniors who will be returning next fall. Resident students should pick up a copy in the college office in their building, preferably in time to use it during Prime Time (which ends on April 18) and advance registration for fall 1991.

Distribution for commuting students will take place in the New Student Programs office, 102 Humanities, from 9:00 a.m. to 4:00 p.m., April 8 - 26. It will also be distributed from 9:00 a.m. to 11:00 a.m. April 29 - May 17. Each student will be given a copy upon showing his or her ID.

Students registered in the Undergraduate Evening Program may pick up their copies on Tuesday evenings between 5:00 and 7:00 p.m. April 9 - May 14, in the Office of Undergraduate Studies, Library E-3320.

After May 17 the 1991-93 *Undergraduate Bulletin* will no longer be available free to continuing students. It will then be sold for \$2.00 in the Barnes and Noble Bookstore, Library Plaza.

The *Bulletin* is an essential reference book for regulations and procedures as well as for course descriptions and academic requirements of the College of Arts and Sciences, the College of Engineering and Applied Sciences, and the W. Averell Harriman School for Management and Policy. Since students are expected to be familiar with its contents and are responsible for following procedures, regulations, and deadlines stated therein, they should be sure to get a copy during the distribution period.

Treasures of Heritage Sought

The Union Art Gallery is seeking religious, ethnic and cultural objects representing the heritage and cultural diversity of individual faculty, student and staff members for a special exhibition, "Treasures of Our Homes."

These treasures, which can be anything from statues to jewelry to articles of clothing, will be exhibited in the Union Art Gallery from April 22-26, in celebration of International Week.

If you have an item to submit for inclusion in the exhibition, contact Marcia Wiener at the Union Art Gallery no later than April 8. For further information contact the Union Crafts Center at 632-6822.

BASIX Service Center Opens

The Faculty Student Association (FSA) is pleased to announce the opening of BASIX, a new service concept on the Stony Brook campus.

Opened for the spring 1991 semester, BASIX is a fax and copy center and convenience store aimed at the changing needs of the campus community. Services include instant fax (send and receive to 632-9269), photocopy and binding, gifts, party supplies, mylar balloons, cosmetics and a wide range of convenience store items. Many first time customers are drawn into the store to purchase postage stamps, as BASIX is presently the only reliable place on campus to purchase stamps at cost.

BASIX is also a coordinating point for other FSA services. Income tax preparation is available, and a typing service for letters, term papers, etc., will begin shortly.

The first location for BASIX is in the lower level of the Stony Brook Union. The FSA fondly refers to this section as its "downtown" location, as it also contains a number of its other businesses including the campus haircutters, the video arcade and amusement center and SCOOP's Rainy Night House, where the FSA is planning a major facility renovation in the near future.

The FSA is planning to expand BASIX by adding other stores in additional locations on campus. Although all of the "stores" would be managed and stocked from a central area, each would cater to its individual "neighborhood." For example, a location convenient to a campus apartment complex would offer different merchandise and services from one located near the academic core or one near mandatory meal plan residence halls.

BASIX, open from 9:00 a.m. to 9:00 p.m. Monday through Thursday, and 9:00 a.m. to 5:00 p.m. on Friday, can be reached in the Stony Brook Union at 632-9281.

The opening of BASIX involved a newly developed FSA management trainee program in which a recent university graduate



Padma Kупpa in the BASIX store.

is given the opportunity for six to eight months to gain hands-on management experience with the support of the FSA business staff.

The FSA also provides check cashing and money order services in the Stony Brook Union, main campus and Health Sciences Center food services (including patient feeding), Stony Snacks, the Loop, residence hall laundry machines, test (MCAT, GMAT, etc.) preparation and driver safety courses, soda and snack vending, campus travel agency, College Rent-a-fridge and a variety of others.

All net income from these operations is returned to the campus to accomplish a large number of projects and to support a wide variety of campus programming including Community Partnership Day, I-CON, Student Faculty Staff Retreat, Opening Week Activities, Homecoming and many more.

The FSA is a not-for-profit corporation governed by a board of directors, all of whom are members of the campus and half of whom are students.

University Association Dinner Has International Flair

The accent will be global Saturday, April 13, when members and supporters of the University Association gather for the organization's annual Progressive Dinner.

Nineteen hosts and hostesses have volunteered to provide an international menu of dinners this year, with a record 153 participants attending the event. Proceeds from the progressive dinner underwrite the association's scholarship awards to members of the junior class who combine high levels of scholarship with service to the university community. The scholarships will be presented at an awards luncheon next fall.

The evening kicks off with cocktails at the homes of President and Mrs. John H. Marburger and Carl and Connie Hanes. Hanes is assistant to the president for Special Projects.

Later, participants travel to individual homes for dinners ranging from "New Orleans Heat" (Cajun) to "Where's The Meatball," (vegetarian Italian). At the end of the evening, participants will gather at the home of Jordan and Carole Cohen for dessert. Dr. Cohen is dean of the School of Medicine. Carole Cohen is vice-president for University Affairs.

"We're really pleased by the enthusiasm and generosity of all the participants," said Connie Hanes, who with Vicky Penner Katz, director of University News Services, is co-chairing the event for the University Association. "We hope the dinner will be our most successful to date!"

I-CON Returns to Campus

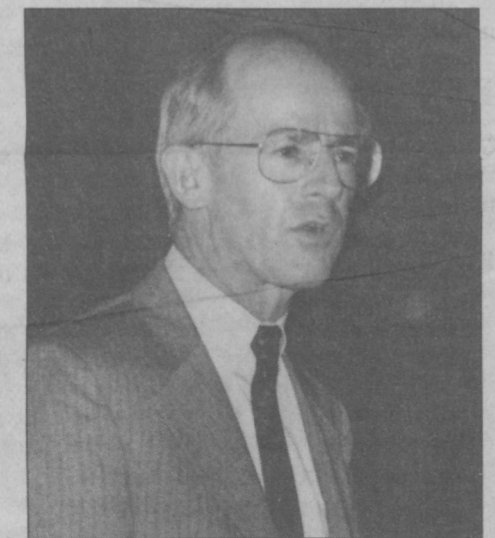
The largest convention of science, science fiction and fantasy on the East Coast is returning to Stony Brook, Friday through Sunday, April 19-21: I-CON X.

Writers, editors, artists, scientists, engineers, film and television producers and actors, game designers, comics creators and more will come to teach, entertain and share their experiences with the conference goers in a three-day long series of panels, films, exhibits and workshops.

Among the special guests coming this year will be actor Dean Stockwell, who plays Al in the television series *Quantum Leap*; Majel Barrett Roddenberry — Nurse Chapel, and Robin Curtis — Saavik, in the *Star Trek* films; Sylvester McCoy and John Levene from *Doctor Who*; Mercury Astronaut Deke Slayton; author Harlan Ellison; Marvel Comics writer/illustrator; and E. Gary Gygax, co-creator of *Dungeons and Dragons*.

The convention, coordinated by Stony Brook student Ralph Schiano, regularly draws about 4,000 visitors to campus. Hours are Friday, 5:00 p.m. - 2:00 a.m., Saturday, 9:00 a.m. - 2:00 a.m. and Sunday, 9:00 a.m. - midnight. Three-day passes are \$20 in advance, \$25 at the door. For Stony Brook students and staff, three-day passes are \$8 in advance, \$10 at the door. One-day passes will also be available.

Tickets may be purchased at the Union Box Office in the Stony Brook Union. For information call 632-6460 or 632-6472.



HSC MEDICAL PHOTOGRAPHY

Steven A. Schroeder, president of the Robert Wood Johnson Foundation, spoke at the university in March.

Health Care Priorities Addressed

Steven A. Schroeder, president of the Robert Wood Johnson Foundation, addressed an overflow audience at the Health Sciences Center (HSC) on "Priorities for the Health Professions: Challenges of the 1990s," on March 20.

As the HSC's 1991 Lecturer in Health and Public Affairs, Dr. Schroeder discussed the present state of health care in the United States, citing benefits that are increasing the life expectancy of Americans. He also reviewed problems such as escalating health care costs — approaching 12 percent of the country's gross national product — greater than any other nation, despite cost containment measures imposed on the industry; lack of access to health care for the nearly 40 million Americans who have no health insurance coverage; and increasing problems relating to substance abuse, including drugs, alcohol and nicotine.

Dr. Schroeder noted that the Robert Wood Johnson Foundation awards more than \$100 million annually in grants in support of its mission to foster improvements in the health and health care of the American people.



Honorary Chair of Suffolk's Blood Drive

Stony Brook senior Pablo Lattes, center, was named 1991 Honorary Chairperson of the Suffolk County Blood Drive by County Executive Patrick Halpin. Lattes received 734 blood transfusions during a five-month period in 1989, a record number for University Hospital. The transfusions saved his life and restored his health. After a medical leave, he is back on campus, completing his degree requirements. He is pictured here between Nancy Mitzman of Long Island Blood Services and Halpin.

K U D O S



Dawn Behr-Ventura

Dawn Behr-Ventura, a third-year student at the School of Medicine, has received a Hartford Foundation/American Federation for Aging Research Scholarship in geriatric pharmacology. Her award for \$5,000 was granted for a proposal to study medication compliance and prescribing patterns: an investigation of geriatric patients served by Stony Brook's Department of Family Medicine. Dr. Lory Bright-Long, assistant professor in the Department of Psychiatry, will serve as her mentor. Behr-Ventura's award also carries a \$5,000 grant to the institution.

Toby Buonagurio, professor of art, exhibited work in a group show, "The Collector's Choice," at the Center for the Arts, Vero Beach, Florida. The show ran from Nov. 23 through Jan. 13.

Barbara Frank, assistant professor of art, is spending the spring semester in Mali, West Africa, on a Fulbright grant. Her research on women potters, in collaboration with the National Museum of Mali, will be incorporated into a collection of African ceramics sponsored by the Museum of Cultural History at UCLA.

Frank W. Fowler, professor of chemistry, has been named a Fellow of the American Association for the Advancement of Science, an honor which the AAAS says, is accorded "to those whose efforts on behalf of the advancement of science or its applications are scientifically or socially distinguished." Fowler, who specializes in organic chemistry, has been associated with the university since 1968.

Jonathan Levy, professor of theatre arts, guest-curated an exhibition at the Harvard Theatre Collection, Dec. 20 through Feb. 4. The exhibition centered on children's theatre in English, 1780-1870.

Don Lukenbill (Class of '88) has been named director of public information for the Suffolk County Chapter, American Red Cross. Lukenbill previously served as public service director of WUSB, the campus radio station where he was involved in "Radiothon," the station's annual on-the-air fund raiser.

Jill Partin, coordinator of the Child Life Program at University Hospital, was named the hospital's "Employee of the Month" in recognition of her outstanding dedication to her work. Partin has been associated with the hospital since June 1989.

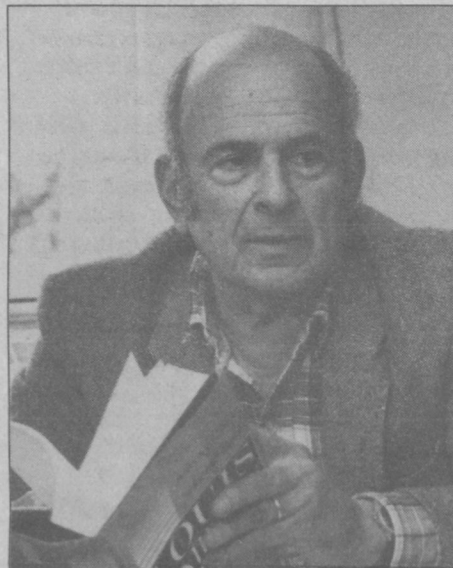
Mel Pekarsky, professor of art was exhibited in a one-man show during March at the G.W. Einstein Gallery in Soho.

Dr. Felix T. Rapaport, chair of surgery and director of the transplant program at Stony Brook, was honored recently with a special legislative resolution by the New York State Senate for his recent induction into France's Legion of Honor. Introduced by two Long Island legislators, Sen. Kenneth P. Lavallo and Sen. Michael J. Tully, Jr., the resolution commends Rapaport for his "magnanimous conduct and bearing" as a man of medicine and citizen of New York State. Dr. Rapaport was inducted into the Order of the Legion of Honor Dec. 20 by French President Francois Mitterand. France's highest accolade, the Legion of

Honor was bestowed upon him for his career achievements in medicine which have contributed to the renown of France.

James Rubin, professor of art and chair of the Department of Art, lectured on 18th-century drawings at the Kimball Museum in Fort Worth, Texas, during Feb.

Daria Silver's *Shirat Sarah* (Song of Sarah), had its Chicago premiere January 13 in a performance by the Chicago String Ensemble. Silver is associate professor of music. *The Chicago Tribune's* music critic, John von Rhein, wrote, "Silver speaks a musical language of her own, one rich in sonority, lyrical intensity and poetic feeling," and praised "the ecstatic sprays and spirals of the solo violin." The three-movement work was composed in 1987.



Louis Simpson

Louis Simpson, professor of English, was awarded an honorary Doctor of Letters by the Hampden-Sydney College of Virginia in Nov., where he delivered the college's convocation address.

Kay WalkingStick, assistant professor of art, will be a visiting artist/lecturer at Stanford University in California, from April 15 to April 20. An exhibitor in "The Decade Show" last summer, WalkingStick spoke

about the show and what it meant to her at the Mid-America College Art Association conference held at the University of Arizona in Tucson.

Marcia Wiener, coordinator of the Union Crafts Center and curator of the Stony Brook Union Art Gallery, was named Woman of the Year in the Arts by Supervisor Henrietta Acampora, the Brookhaven Town Board and the Office of Women's Services. The announcement was made during March in honor of National Women's History Month.

Four undergraduate music students were selected as the 1991 winners of the solo competition held March 4. They are Elizabeth Knowles, violin; Feng Yao, piano; Barry Craford, flute; and Christine Goerke, voice. Each student will perform a solo piece with the University Orchestra, under the direction of music professor Jack Kreiselman, during the 1991-92 season.

Retirement Party

A retirement party will be held on Friday evening, May 10, 1991, at the Watermill Inn in Smithtown for A. Henry von Mechow.

Von Mechow will conclude 33 years of distinguished service to the university at the end of this academic year. In 1958 he began his career at the university, then located at Oyster Bay, when he was appointed the university's first director of Physical Education and Athletics. Since that time he has served in various administrative positions. He is presently serving the university as the Division of Physical Education and Athletics' Special Assistant to the Vice President for Campus Operations. While in this role for the past several years, he has been the division's liaison to the construction fund during the planning and building of the west wing of the Indoor Sports Complex.

For details on the retirement party contact:

John Ramsey
285 Grant Avenue
Islip, New York 11751



Best in Show and best black and white photograph: "Ear Cuff" by Albert Sauberman of the Department of Anesthesiology.

Third Annual Faculty/Staff Juried Photography Winners

Black and White Second prize: "Hide Out," Glenn Hudson. Third prize: "The Visit," Ann Begam.

Color First prize: "Boat Shed at Molesey Locks, England," Ethel Parks. Second prize: "Costa Brava Fantasy," Richard Miksicek. Third prize: "Sheltered," Renee Rogers.

Scenic Vista First prize: "Danish Summer 1," Eckard Wimmer. Second prize: "Winter Day at Long Island Sound," Germaine Rowan. Third prize: "Malbosc, France," Helene Volat-Shapiro.

O B I T U A R I E S

Justus Buchler, Distinguished Professor Emeritus in Philosophy at the University at Stony Brook, died March 19 from complications following a stroke that he suffered in late 1979. He was 76.

Dr. Buchler was a leading representative of American naturalistic philosophy. Prior to joining Stony Brook in 1971, he had been Johnsonian Professor of Philosophy at Columbia University, where he also directed the Contemporary Civilization program and chaired the Department of Philosophy.

At Stony Brook, Dr. Buchler played an instrumental role in developing the young university's graduate philosophy program. His appointment was one of several in the late 1960s and early 1970s that "signalled that Stony Brook was a university of major intellectual interests of the very highest order," said Sidney Gelber, Distinguished Service Professor. He retired in 1981.

Books authored by Dr. Buchler include *Toward a General Theory of Human Judgement* (1951), *Nature and Judgement*, (1955), *Concept of Method* (1961), *Metaphysics of Natural Complexes* (1966), and

The Main of Light: On the Concept of Poetry (1974). A collection of his essays, *Nature's Perspective: Prospects for Ordinal Metaphysics*, was published this year by the State University of New York Press.

In 1973, Dr. Buchler was awarded Columbia's Nicholas Murray Butler Medal in Silver for his contributions to philosophy and to the general education program in Columbia College. As chairman of the Contemporary Civilization program, he effected many changes in Columbia's core curriculum, introducing more substantial readings of the classics into the second year of the program.

Dr. Buchler grew up in New York City, attending Dewitt Clinton and Seward Park high schools. He was graduated from the City College of New York in 1934, and received the M.A. and Ph.D. from Columbia in 1935 and 1939, respectively.

He is survived by his wife, Evelyn Urban Shirk, of Garden City, New York; his daughter, Katherine Tessen of Lititz, Pennsylvania, and his sister, Beatrice Buchler Gotthold, of Saddle River, New Jersey.

Informing the Public About Science

by Richard N. Porter

While on leave at another university before coming to Stony Brook, I was asked by a leading member of my host department what I thought were the greatest challenges in science for the coming decade. He undoubtedly expected me to reply with an example from my own specialty. Instead, I saved that for a seminar I was giving the following week, and replied that the greatest challenge for science was informing the public about what we do.

"Informing the public?" My host's gasp could not have conveyed greater dismay if I had just dropped his Ming vase or poured ketchup on my caviar. He then mumbled something about science being hard enough to do without having to explain it to the man in the street, and that was the last I saw of him that evening—or the rest of my visit, for that matter. To my young mind (that was nearly 25 years ago), that conversation—or rather lack of one—confirmed the correctness of his junior colleagues when they told me he was over the hill.

The need to inform the public about science was of course not new then. Nor is the public's thirst for science a recently developed one. Over a century and a half ago, Humphrey Davy and his successor Michael Faraday offered audiences scientific entertainment that rivaled the opera for the enthusiasm with which it was received. Things have changed a bit since then. Science now competes with many other things for the public's attention. Most scientists wish that the public were better informed about science, and many are helping to inform them. This issue of *Currents* represents the involvement of some of the most active researchers at Stony Brook in the process of journalism. The question is, as Ed Koch might put it, "How am I doing?" Are scientists sufficiently concerned about making science "user-friendly," "reader-friendly" and "patron-friendly"?

The November 1990 issue of *Physics Today* should be required reading for all scientists who take seriously their responsibility to inform the public. Although the targeted science is physics, it is not difficult to extrapolate the subject matter to the other sciences. Allan Bromley, James Watkins, Sheila Tobias, Gerald Holton and others discuss science literacy. Watkins, the Secretary of Energy, brings an aspect of the problem into sharp focus: "One reason lies in our basic fear of the unknown and the view that what is not understood is sinister." This identifies a gulf between the scientist and many laypersons, since scientists surely are considerably less afraid of the unknown than most people.

For the scientist, the unknown has the lure of a roller coaster ride. We begin with a slow upward journey as we learn with patience and labor what others know about a phenomenon. Then the plunge—a lesson in linear and centrifugal acceleration relieved at almost random intervals with moments of calm during which we can get our bearings and prepare for the next assault on our still unsolved problem. The reverie of discovery, of understanding, of solution may come as suddenly and unexpect-



Richard N. Porter

edly as the slow and comfortable deceleration at the end of the roller coaster ride. Even the best of us occasionally gets thrown from the track and must bandage wounds to our pride. But we always buy another ticket. Whether we are successful in communicating the excitement of science when we teach could be the subject of another essay.

In "Getting Physics into the Paper," Charles Petit, a science reporter for the *San Francisco Chronicle*, tells what it is like to wake up in the morning not knowing what subject you will be writing about that day—let alone

A warning to the uninitiated
scientist: Respect
the reporter as an intelligent
professional whose specialty
happens to be different
from yours.

Some advice to reporters:
Researchers are as concerned
about their reputations as
politicians, and will be even
slower to forgive you if you
misquote them.

knowing any of the background—and going to bed that night reading your story about the latest scientific discovery. This shows that science is not the only exciting profession!

The key to such reporting is of course the use of metaphor. We all have shaken our heads and clucked our tongues when the metaphors are inept, but we recognize the value of appropriate ones. We use metaphor when we describe our work to other scientists, and often in searching for understanding of our own data. Some would go so far as to claim that mathematics, when applied to scientific problems, is itself a metaphor. Dudley Herschbach, the Nobel laureate in 1986 for his fundamental work in chemical dynamics and coiner of the phrase "lawn-sprinkler effect," is particularly adept in the use of homey metaphors. Yuan Lee, who shared the prize with Herschbach, uses apt analogies from baseball to explain some of his surprising experimental results in the dynamics of molecular collisions. We would do well to follow their example, especially when informing the public.

News about science is not without danger to the careless scientist. Science often becomes newsworthy, but science is not done by press release. That is a clear message from the cold fusion fiasco. But if we are sure of the reproducibility of our results, if our knowledgeable and critical colleagues agree on the validity of our findings, if we exercise prudence and restraint in making claims, and particularly if our paper has been accepted for publication in a reputedly reviewed scientific journal, we should cooperate when a journalist knocks. The result could be a highly informative newspaper article such as the one in *Newsday* last year about Michael Marx's EMPACT detector for the SSC, or one of the excellent articles in this issue of *Currents*.

A warning about science news that may come as a surprise to the uninitiated scientist: news is not PR, nor is a science news article a simplified textbook on the subject. You don't get to correct the proof. You can't excise skeptical or critical material, or change the wording to suit your own notions of what the article should say. Be prepared for the reporter to call up your competitors and to print their disdainful comments. Reportorial and scientific mores are quite different. If you are afraid that the "wrong" metaphor might appear, choose the metaphors carefully in advance of the interview and use them to describe the significance of your work. Above all, respect the reporter as an intelligent professional whose specialty happens to be different from yours. And some advice to the reporters: Researchers are as concerned about their reputations as politicians, and will be even slower to forgive you if you misquote them.

In spite of the pitfalls, we must inform the public by all the means at our disposal. It takes time and energy away from our scientific work to respond to invitations to give public lectures, to give workshops for teachers, to address prospective students at open house events, and to be interviewed by the press. But as Charles Petit quotes Roald Hoffman, a recent Nobel laureate in theoretical chemistry and a champion of the beauty of science: "The alternative... is a cutting off from the society that supports us; a sinking into still more jargon; the alienation of just those young people whom we want to join us." And after all, "going public" can add to the excitement.

Richard N. Porter is a professor of chemistry. He is former acting dean of physical sciences and mathematics.