The Research Foundation

The State University of New York

2001 Annual Operations Report

The Research Foundation
The State University of New York

The list of the Board of Directors reflects the composition as of the fiscal year end at June 30, 2001.

The Research Foundation serves The State University of New York by providing high quality, cost effective, efficient, and reliable administrative support for sponsored programs conducted by SUNY faculty and staff.

The Foundation assumes fiduciary responsibility for sponsored and agency fund activities on SUNY's behalf, in an environment in which the integrity of all is assumed and each individual is treated with dignity, respect, and fairness.

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The Year in Review

President John J. O'Connor (second from right) with RF officers (from left to right) Executive Vice President Timothy Murphy, Senior Vice President and Treasurer Bonny Boice, and General Counsel, Secretary, and Vice President of Legal Affairs James Dennehey.

The Research Foundation and the State University of New York this year marked the 50th anniversary of a unique and highly successful partnership.

One of the youngest state universities in the country, the State University was created by the New York State Legislature in 1948. Shortly thereafter the University's Board of Trustees recognized the need for flexible and responsive management for grants and contracts as the University's mission, rooted for decades in basic technology, agriculture, and the preparation of teachers, began broadening into graduate study and preparation for the professions. Indeed, from a historical perspective, among the early manifestations of SUNY was the creation and development of its Research Foundation.

In 1951-52, the first full fiscal year of the Research Foundation's operation, $340,000 in sponsored research funds was spent through the Foundation. During 2000-01, the Research Foundation managed over $477.7 million in grants from federal and state governments, corporations and foundations in support of more than 7,500 campus-based research and training programs. This represents a seven percent increase in financial support over the past year and continues a four-year upward trend. This increase in volume and rate reflects both the enlarging commitments by SUNY to research programs, staff and facilities and the rising demand by industrial and governmental supporters of scientific research programs for the contribution of academic researchers and academic research teams.

The State University of New York is rapidly becoming one of our nation's finest public universities and the Research Foundation is playing a key role in this resurgence. During his first "State of the State University Address" in December 2000, Chancellor Robert L. King unveiled a five-year plan to attract $5 billion in new resources for the University system. Citing its solid reputation for providing high quality and efficient services, he specifically called upon the Research Foundation to work with campuses to increase sponsored research at SUNY to $1 billion and raise $1 billion through philanthropic support.

The Research Foundation has made a great deal of progress with these two major initiatives. Under the direction of vice president Matthew Behrmann, the Office of Foundation Relations coordinated a system-wide approach for submitting requests for federal appropriations to New York's congressional delegation and provided campuses with information and training on how to increase grant funding. With the recent appointment of Michael F. Luck, Ph.D. as the new vice president for philanthropy, the Research Foundation is ready to move forward with a SUNY–wide effort to boost contributions from alumni, friends, corporations and foundations.

At the same time, the Foundation continues its primary mission of providing business and grants management services to the State University including:

- Encouraging and supporting economic development efforts and technology transfer. To date more than 570 U.S. patents have been issued through the Foundation and gross royalty income for fiscal year 2000-01 exceeded $13 million.
- Facilitating the creation and operation of high-technology development and business incubator facilities and research centers from Buffalo to Long Island. The Research Foundation provided continued support to Stony Brook in managing the world-renowned Brookhaven National Laboratory.
- Administering agency funds of approximately $97 million annually, including clinical practice plans, campus-based foundations, faculty-student associations and other University-related organizations.
- Managing several endowment funds and providing information technology services to other state agency-related research foundations.

As the relatively young State University matures, it must be poised to meet the challenges of a new century and a truly global economy. The Research Foundation's solid base of service to the University over the past half-century places it in a position to help propel the University into the front rank of American higher education.

Note: Data in this report is presented on a cash basis. As a result, it is not consistent with corresponding information appearing in the financial statements, which is presented on an accrual basis, in conformity with generally accepted accounting principles.

Chancellor Robert L. King (right) hosted two recognition dinners to celebrate the academic achievements and research contributions made by SUNY's outstanding faculty. He is pictured here with (left to right) Plattsburgh professor Taher Zandi, his wife Shabanoo Zandi and Horace Judson, President of SUNY Plattsburgh and a member of the Research Foundation Board of Directors.

Research Foundation Highlights

A review of the 7,500 projects administered by the Research Foundation during FY 2000-2001 indicates that much has changed over the past half century. Many areas of exploration — nanoelectronics, telemedicine, genomics — did not exist when the Research Foundation published its first annual report in 1952. And many of the tools today's scientists routinely use to conduct their research — lasers, computers, fiber optics, robotics — existed only in the realm of science fiction.

Still, the mission of SUNY's research enterprise remains the same — to increase our existing body of knowledge and to explore pressing social and economic problems as well as new technologies for New York's benefit. Medical research and education continue to be top priorities at SUNY as does understanding and preserving New York state's myriad natural resources. An important engine of economic growth, the University's research enterprise annually attracts hundreds of millions of nonstate dollars to New York. The new technologies and knowledge generated through research have led to the creation of new industries such as biotechnology and photonics and have helped existing industries such as wood products, ceramics and agriculture remain competitive in today's global economy.

The Research Foundation is an essential partner as the State University seeks to improve its standing as one of the nation's leading research organizations. By administering grants and contracts, advancing funds to get projects up and running and providing fiscal guidance, the Research Foundation provides SUNY faculty with the resources and flexibility they need to pursue their research goals. During the past fiscal year, the State University experienced a sharp increase in the volume of sponsored program activity. Sponsored awards grew to $477.7 million, a seven percent increase over 1999-2000. The scope of research taking place spans all academic disciplines. Some current work focuses on urban preservation and land use, physics, forensics, art conservation, the genome project, epilepsy research, chemistry, public education, environmental issues, and information technology materials.

With 50 years experience in managing grants, the Research Foundation ensures the smooth administration of diverse projects that are funded by a wide range of sponsoring agencies including governments, corporations, foundations and other entities. Major sponsors in FY 2001 included the following federal sources: National Institutes of Health, National Science Foundation, Department of Education, Department of Defense, Department of Energy, Small Business Administration, Agency for International Development, Department of Commerce, and National Aeronautics and Space

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Since assuming management of the world famous Brookhaven National Laboratory for the Department of Energy in 1998, Brookhaven Science Associates, a partnership between the Battelle Memorial Institute and the Research Foundation on behalf of SUNY Stony Brook, has received numerous accolades for making lasting improvements in environmental, safety and health performance at the facility. During the past year BNL received two prestigious Pollution Prevention Awards from the DOE, and was ranked among the top five major institutions worldwide in terms of the impact of its environmental research.

Administration. Other nonfederal sponsors included the NYS Office of Science, Technology and Academic Research, NYS Education Department, NYS Department of Health, Lockheed Martin Federal Systems, Inc., NYS AIDS Institute, NYS Energy Research and Development Authority, W.K. Kellogg Foundation, and Axys Pharmaceuticals, Incorporated.

Chancellor Robert L. King has championed research in the State University system, setting the goal of doubling sponsored research within five years to $1 billion annually. He hosted two Chancellor's Recognition Dinners to celebrate the academic achievements and research contributions made by SUNY's outstanding faculty. The University's top science researchers were honored in January and an event honoring research and scholarship in the humanities, arts, and social sciences was held in May. The recognition dinner idea was first put forward by Dr. George B. Stefano, a researcher at the Old Westbury campus and Vice Chair of The Research Foundation Board of Directors.

To assure that all research taking place at SUNY complies with government regulations and standards, the Research Foundation's Compliance Office keeps abreast of changes in federal and state regulations in the sponsored programs arena; informs campuses of new requirements; brings in workshops and other forms of education and training; and coordinates university-wide response to proposed regulations. Approximately 500 people including SUNY researchers and sponsored program administrators as well as representatives of other institutions from across the state attended the 2001 Office of Human Research Protections (OHRP) workshops held at HSC/Brooklyn, University at Albany, Upstate Medical University and University at Buffalo April 23-26. The workshops served as one of the components in the fulfillment of the short-term education requirements outlined by the National Institutes of Health (NIH) last year. The policy states that "...the National Institutes of Health (NIH) will require education on the protection of human research participants for all investigators submitting NIH applications for grants, proposals for contracts, or receiving new or non-competing awards for research involving human participants."

The Compliance Office, in collaboration with the SUNY campuses, provided comment to the Department of Health and Human Services (DHHS) on the request for comment, interim/draft plan of action to implement Public Law 106-107, the Federal Financial Assistance Management Improvement Act of 1999. The purposes of the Act are to improve effectiveness of federal financial assistance programs, simplify application and reporting requirements, improve delivery of public services, and facilitate coordination among those responsible for delivering the services.

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Approximately 500 people attended the 2001 Office of Human Research Protection (OHRP) Workshops organized by the RF's Compliance Office. The workshops served as one of the components in the fulfillment of the short-term education requirements outlined by the National Institutes of Health last year.

Technology developed by SUNY faculty frequently finds its way into the marketplace with help from the Research Foundation. The technology transfer program protects research discoveries and helps faculty market new technology by offering inventors valuable links to industry and handling the nuts and bolts of the patent process — reviewing invention disclosures; patenting and marketing inventions; negotiating and administering licenses; and collecting and distributing royalty payments.

Following an extensive national search, M. Guven Yalcintas, Ph.D., was appointed as Assistant Vice President and Director of the Office of Technology Transfer. The Office strives to establish networks of relationships in order to enhance commercialization and industrial research support for State University of New York faculty.

The Research Foundation's challenge now is to increase the level of success throughout the SUNY system. High levels of activity marked fiscal year 2000-01 with 68 patents awarded to the Research Foundation. Technology transfer staff executed 32 new licensing and option agreements, signed 139 confidentiality agreements, received 186 invention disclosures and filed 149 patent applications. As of the end of the fiscal year, more than 570 patents had been issued to the Research Foundation on behalf of SUNY and its faculty.

Three of the Research Foundation's affiliated corporations – Brookhaven Science Associates (BSA) on Long Island, the Center for Environmental Science and Technology Management (CESTM) in Albany and the Calspan-UB Research Center, Inc. — were established by the Research Foundation to facilitate university-industry-government partnerships and accelerate the growth of applied research opportunities at SUNY. In addition, the Long Island High Technology Incubator, Inc. and incubator programs at CESTM and Calspan act as educational resources to train scientists, engineers and researchers in such diverse areas as atmospheric chemistry and thin films technology and give start up companies access to university libraries, computing support and other important scientific and technological tools.

The Research Foundation is leading efforts aimed at helping campuses succeed in securing an increased share of research funds and private gifts. The Office of Foundation Relations was established to work with campus presidents and faculty to increase sponsored research at the University to $1 billion by 2006. Headed by Vice President Matt Behrmann, a former congressional staffer, this office serves as a liaison between the University and federal and state governments. In its first year of operation, the Office of Foundation Relations developed a coordinated and unified approach for submitting campus

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Dr. Mikhail Gouzma gives Bill Paxon a briefing on the Stony Brook developed desktop DNA sequencer. This invention, which makes the DNA sequence quicker, much more accurate and less expensive, holds great promise for use in such fields as forensics and medical diagnosis.

requests for federal appropriations to New York's congressional delegation; created *Washington Update*, a Web page that provides information about key House and Senate happenings, appropriations, regulations and federal agency news; and sponsored a one-day seminar entitled "How to Increase Federal Funding" for representatives of SUNY's University Colleges. Future plans include creating a New Researchers Initiative to provide support strategies and successful funding approaches to prospective SUNY researchers.

A new office was established to work with the campuses to obtain gifts, grants and bequests. Michael F. Luck, Ph.D., who has been named the new Vice President for Philanthropy and Alumni Affairs, will direct a comprehensive development program to enable the State University to match the alumni support given to other great public university systems. Prior to joining the Research Foundation, Dr. Luck served as vice chancellor for institutional advancement at the University of Massachusetts, Boston, where he just completed the $50 million UMass Boston First campaign.

On January 1, 2001, the Research Foundation replaced its mainframe-based business system with the Oracle suite of grants management, financial and human resources applications. The benefit of moving to the Oracle-based business system is that it integrates Research Foundation processes and provides the Internet-based infrastructure that will allow SUNY to pursue electronic research administration and e-commerce. The initial implementation period was challenging and the Research Foundation made stabilizing the system its top priority. The vast majority of the start-up problems have been solved. The ultimate goal is to have a system where a grant proposal is entered once, submitted to sponsoring agencies, and then throughout the lifecycle of that grant, all transactions and interactions are conducted electronically. The Research Foundation's Internal Audit department conducted a controls review in conjunction with PricewaterhouseCoopers (PwC) to identify internal control issues. The review included an appraisal of new processes resulting from implementation of the new business system and their impact on the financial statements. The report indicated that the Research Foundation had taken the steps necessary to improve internal controls and to minimize risk.

From the development of the first heart-lung machine in 1951 to current explorations of how phenomena associated with electron spin can be managed to improve data processing and communications technology, research conducted by SUNY faculty and staff and supported by the Research Foundation has had a significant impact on New York State and the rest of the world.

SUNY Distinguished Professor and Vice Chair of the Research Foundation Board of Directors, Dr. George Stefano.

Research at SUNY
A Message From the Vice Chair

This is an exciting time to be a researcher at The State University of New York. More than ever before, this is a university devoted to excellence and dedicated to achievement. Indeed, SUNY is rapidly becoming one of our nation's finest research universities.

In 1998, SUNY began an historic $2 billion capital program that physically transformed the University and provided researchers with the tools necessary to meet the challenges of the 21st century. Ongoing initiatives such as the nationally recognized Centers for Advanced Technology (CATs) and the Strategically Targeted Academic Research (STAR) Centers further demonstrate New York's commitment to creating an infrastructure that will support the research enterprise at all of SUNY's colleges and universities. The recently announced Centers of Excellence initiative opens the door for SUNY researchers to work in collaboration with leading companies in important emerging fields such as photonics, bioinformatics and nanoelectronics.

Recognizing that scholarship and research play a major contributing role in maintaining New York's leadership on the world's stage, Chancellor King has championed research in the State University system, setting the goal of doubling sponsored research within five years to $1 billion. To that end, the Chancellor has reinvigorated the Research Foundation and expanded its scope in the areas of advocacy, development and technology transfer in order to get the resources needed to reach this ambitious goal.

SUNY researchers invest a tremendous amount of time and effort in their work — often without any additional compensation. The Research Foundation is developing a New Researchers' Initiative that will enable SUNY to more directly support the efforts of first-time researchers who may need assistance in identifying funding sources, writing proposals, and managing the dual roles of instructor and investigator.

SUNY's single greatest resource is its people. Never before has the University excelled in so many branches of research and scholarly activity. The Chancellor demonstrated his belief in SUNY's faculty and their capabilities by hosting two events to recognize the accomplishments of 46 men and women who have made outstanding contributions in their respective fields of study. Reflecting the rich diversity of New York State and the State University system, this extraordinary group of scientists, scholars and artists personifies SUNY's tripartite mission of instruction, research and public service.

A new culture, articulated by Chancellor King and put into practice by the campuses working closely with the Research Foundation, has provided SUNY with the advanced facilities, outstanding staff, supportive environment, and excellent students needed to attract world-class researchers. Speaking as a researcher, I am proud to be part of a university system that aims to be the best of the best.

Following is a sampler of campus-sponsored program activities from the past year.

Purchase's Neuberger Museum of Art Leads Consortium Exhibition on Central African Art

Reconsidering the Arts and Cultures of Central Africa is a two-year National Endowment for the Arts grant-funded consortium exhibition and educational programming project lead by Purchase College's Neuberger Museum of Art under the direction of Dr. Lucinda Gedeon. The consortium, which includes the National Museum of African Art, Smithsonian Institution in Washington, D.C., and The Israel Museum in Jerusalem, Israel. The consortium has developed a traveling exhibition that features 75 exceptional pieces of Central African art formerly in the collection of Lawrence Gussman and now dispersed among the three organizing institutions.

This collection is notable for its strong regional concentration, focusing on art from Gabon and the Congo, and for its representation of the breadth and wide range of artistic creation within that area. Accompanying the exhibition is a 168-page catalogue written and published by a team of consortium curators including Dr. Christa Clarke of the Neuberger, and several educational programs designed to encourage diverse audience participation.

Related activities include an African film series sponsored by Purchase College's School of Continuing Education and Professional Development, a visiting artist lecture series sponsored by the College's School of Art+Design, and ten relevant credit-courses offered through Purchase's Humanities and Social Sciences Divisions.

For more information, see *www.neuberger.org.*

This early 20th century harp from Gabon is one of the exceptional pieces displayed at the Neuberger Museum of Art.

Buffalo State is Home to a Nationally Recognized Art Conservation Program

Buffalo State College's prestigious Art Conservation program—one of four such accredited degree-granting graduate programs in the nation—received a $2.4 million grant from the Andrew W. Mellon Foundation.

The grant, the largest gift the college has received to date, will be used to increase art conservation graduate fellowship support. Buffalo State College's Graduate Art Conservation Program trains students for careers as museum or private conservators to care for artistic, historic or culturally significant material artifacts. The competitive program includes a 12-month internship and its graduates are sought by museums throughout the world.

The two-to-one challenge grant requires the college to raise $1 million over the next four years to receive $2 million from the Mellon Foundation for a total endowment of $3.4 million. A grant of $400,000, earmarked for student fellowships and program development, has already been made outright to the college from the Mellon Foundation.

Dr. F. Christopher Tahk, SUNY distinguished service professor and director of the program, said the college has already raised $685,000 in cash and pledges to meet its $1 million obligation for the Mellon grant, including $250,000 from the Samuel H. Kress Foundation and $200,00 from the Stockman Family Foundation over four years.

The department was also awarded two grants from the National Endowment for the Humanities. The $450,000 challenge grant is one of only 26 such grants to be awarded in the country during the NEH's first round of awards for the fiscal year. A three-year $250,000 NEH grant will be used to train conservators in the preservation of material culture collections or artifacts.

For more information, contact F. Christopher Tahk, PhD., Director, (716) 878-5025, *tahkfc@buffalostate.edu,* *www.buffalostate.edu/depts/artconservation.*

SUNY Brockport Associate Professor of Biological Sciences Christopher Norment is flanked by students Heather Halbirtter and Sarah Wasson at the Iroquois National Wildlife Refuge where they are participating in a study of grassland bird habitat for the U.S. Fish and Wildlife Service.

SUNY Brockport Research Focuses on Conservation Biology of Grassland Birds

Christopher Norment, associate professor of biological sciences at SUNY Brockport, is a long-time student of the ecology of grassland birds.

A member of the SUNY College at Brockport faculty since 1993, Norment's current research is focused on the conservation biology of grassland birds in Western New York. His fieldwork has included investigations at the Iroquois and Montezuma National Wildlife Refuges. The work has been partially funded by a grant from the US Fish and Wildlife Service. The goal of the study is to collect data that can be used to guide management techniques that will promote the health of grassland bird populations in the area.

In addition, Norment and several SUNY Brockport graduate students are studying migratory birds that stop over on the southern shore of Lake Ontario on their annual treks north and south. "I feel that one of the most important uses of research grant dollars is to give students hands-on experience," Norment says.

For more information, contact Christopher Norment, associate professor biological sciences, SUNY College at Brockport, *cnorment@brockport.edu.*

NSF Grant Brings Powerful Equipment to Study Gene Expression

The Biology and Chemistry departments at SUNY Fredonia used a $66,045 grant from the National Science Foundation to purchase a Storm Phosphorimager system.

Faculty members Dr. W. Theodore Lee (biology) and Dr. Matthew Fountain (chemistry) wrote the NSF proposal and will use the equipment in their research on food-borne pathogens. It is also intended for use in upper division biochemistry and recombinant gene technology laboratories at Fredonia to provide training for undergraduates.

The Storm system, manufactured by Molecular Dynamics, Inc., is a gel and blot imaging system that can detect and precisely determine the amount of DNA, RNA, and protein molecules in a sample. Available only in the best-equipped university and industrial laboratories, the system is replacing x-ray film in life science imaging applications throughout the world.

As a self-contained computing, scanning, and imaging system, it will also allow Fredonia students and faculty to review and compare data and images from a single project on a computer screen, analyze them, print out results for documentation or publication and electronically archive them for quick retrieval and review.

For more information, contact Dr. W. Theodore Lee, (716) 673-3816, *Theodore.Lee@fredonia.edu.*

Students from Around the Country Attend Summer Research Project at Altona Flat Rock

The Center for Earth and Environmental Science and the W.H. Miner Agricultural Research Institute co-hosted a six-week summer research experience at Plattsburgh State University of New York for undergraduate students from around the country who are interested in ecosystem research.

Made possible through a Research Experiences for Undergraduates grant from the National Science Foundation, participants studied different components of the ecosystem and the effects of the 1998 ice storm at the Altona Flat Rock jack pine barrens. The high level of damage to the pine barrens by the ice storm and the subsequent restoration provide a unique opportunity for undergraduate students to investigate impacts of natural disturbances on ecosystem processes.

Students enrolled in one of six research courses in geology and environmental science depending on their interests and academic backgrounds. They worked closely with the program's faculty mentors on research projects ranging from bedrock geology to terrestrial plant and invertebrate ecology.

The NSF is providing $50,000 a year for the two-year program. "We're extremely happy to be a part of the program," said Dr. Timothy Mihuc, assistant professor of earth and environmental science and coordinator of the Lake Champlain Research Institute.

For more information, contact Dr. David Franzi, Professor, Earth and Environmental Science, (518) 564-4033, *franzida@plattsburgh.edu* ***or Dr. Timothy Mihuc, Assistant Professor, Earth and Environmental Science/Coordinator Lake Champlain Research Institute, (518) 564-3039,*** *mihuctb@plattsburgh.edu.*

Wendy Freed from Case Western University in Cleveland, Ohio, and Matt Charles from Colby College in Maine collected soil samples at Altona Flat Rock as part of the NSF summer research program.

ARC Grant Supports Historic Preservation

The Appalachian Regional Commission (ARC) awarded a $60,000 grant to Alfred State College to create a historic renovation and restoration curriculum within the college's existing building trades program. New York State has nearly 70,000 properties listed on the National Register of Historic Places — more than any other state in the nation. Since 1976, more than $2.5 billion has been invested to rehabilitate and reuse NYS historic structures.

The college is working with the Cattaraugus Local Development Corporation to develop a Historic Preservation Institute that will offer short courses, workshops, and degree programs in the areas of ornamental and structural masonry plaster, wood, stained glass, decorative finishes, and related fields.

Participants in the various programs will expand Western New York's population of building trades workers who are knowledgeable and skilled in the various aspects of historic preservation. The project director for the grant is Craig Clark, Dean of the College's School of Applied Technology.

Congress established the ARC in 1965 to support economic and social development in the Appalachian region. Fourteen counties in New York State's southern tier are located in the northernmost part of the region. This is the fourth year in a row that the Research Foundation has received a grant from the ARC to assist Alfred State in the development and start up of a new program area.

For more information, contact Craig Clark. (607) 587-3101.

This kayaking class is one of the 400 programs that have been offered by the Catskill Outdoor Education Corps since it was established in 1997.

Catskill Outdoor Education Corps Provides Many Benefits in Local Communities

The Catskill Outdoor Education Corps (CEOC) is an AmeriCorps project sponsored by the SUNY College of Technology at Delhi. Its mission is to provide environmentally friendly outdoor recreation and education experiences to all individuals and non-profit organizations in Delhi and the surrounding communities.

The project provides benefits to Northern Catskill communities through the development and maintenance of outdoor education facilities such as trails, parks, wildlife areas, gardens, campsites, etc. Corps members also plant trees, build stone walls, stabilize shorelines, lead hikes, and help in teaching kayaking, ski touring, backpacking, and snowshoeing. Since it was established in 1997, COEC has offered more than 400 programs and provided services to 15,000 people.

All COEC members typically provide 40 hours of community service and attend five hours of training per week. The many benefits of the program include enjoying the outdoors while improving the environment, gaining skills and practical experience in parks and recreation, environmental science, forestry, and construction, deferment of qualified student loans and the opportunity to audit courses at SUNY Delhi.

For more information, contact David DeForest, Assistant Project Director, (607) 746-4112, *eforeda@delhi.edu.*

NY Gear Up Helps At-Risk Students Prepare for College

Gaining Early Awareness and Readiness for Undergraduate Programs (GEAR UP) is a national initiative to create innovative programs to help at-risk youngsters, beginning in the eighth grade, to get ready for college.

SUNY Cobleskill has been granted the NY GEAR UP from the New York State Higher Education Services Corporation. The SUNY Cobleskill NY GEAR UP College for Me project is serving 232 students in the Jefferson, South Kortright, Charlotte Valley, Laurens, Morris, St. Johnsville, and Van Hornesville school districts. The program provides academic tutoring, mentoring, enrichment activities, summer programs, and college field trips for the cohort until they finish their junior year of high school.

To introduce technology to the students' families, NY GEAR UP offers free computer training sessions to parents and loans Internet appliances to families who complete the training. This enables families to visit the NY GEAR UP Web site (http://www.nygearup.com), and other interesting sites.

As the cohort reaches 10th and 11th grade, each student will be eligible to go on job shadows where they will meet with a local businessperson in a profession that interests the student.

For more information, contact Linda Carpenter, (518) 234-2114.

Department of Education Grant will Strengthen SUNY Cortland's School of Arts and Sciences

SUNY Cortland is one of only two successful recipients of the U.S. Department of Education Title III funding for New York State this year. This five-year award seeks to increase the enrollment in the College's School of Arts and Sciences and increase the College's resource base through endowment building.

Over 80% of the Arts and Sciences faculty are actively engaged in creating attractive and marketable new majors. Faculty attend workshops for infusing technology in their course curricula, collaborate to create cross-disciplinary learning communities, and hone advisement approaches to meet students' needs. As part of the initiative to strengthen enrollments, new internship programs and articulation agreements with community colleges are underway.

Unlike any other federal awards, Title III funding supports endowment-building. This project specifically seeks to support SUNY Cortland's efforts to increase funding for faculty development programs, academic equipment replacement, and the sustainability of the College's three Outdoor Education Centers located at Camp Huntington on Raquette Lake in the Adirondacks, at Brauer Field Station near Albany, and at Hoxie Gorge in Marathon, N.Y.

For more information, contact Judson H. Taylor, President, SUNY Cortland, (607) 753-2201.

A representative group of Title III faculty who are participating in the five-year project to increase enrollment and endowments at the SUNY Cortland College of Arts and Sciences (left to right): Dr. David Miller, Dr. Terrence McGovern, Dr. Charles Heasley, Dr. Christopher Cirmo, Dr. Scott Anderson and Dr. Patricia Francis.

SED Grant Funds Institute for Applied Research at SUNY Potsdam

The State University of New York at Potsdam has received a grant for $2.7 million over five years from the New York State Education Department to complete the Post School Indicators (PSI) Project.

PSI is a longitudinal study of the transition of high school graduates. Successful transition for young people is defined as working, participating in lifelong learning opportunities and living independently in and contributing to their community. Students with disabilities have similar dreams and goals as their peers without disabilities and most succeed in similar ways. Access to appropriate accommodations and supports are sometimes necessary in order for individuals with significant disabilities to achieve this success.

Considering the many facets of transition and success, the project has developed survey tools to examine the transition experience of students with and without disabilities.

SUNY Potsdam professors Pat Turbett and Michael Nuwer, in partnership with Robert Shepherd of BOCES, have formed the Potsdam Institute for Applied Research and Evaluation (PIARE). In addition to the PSI study, the institute will assist individuals and organizations in the North Country with research and evaluation projects. Research activities would include needs assessment, program evaluation, and consumer satisfaction surveys as well as other applied research endeavors.

PIARE also will serve as a resource center for any public or private organization in need of consulting or research services.

For more information, contact Patrick Turbett or Robert Shepherd. (315) 267-2718. nyspsi@potsdam.edu.

The SUNY Maritime College Apprentice Training Program produces well-trained, highly-skilled individuals ready to assume positions within the construction industry.

Long Running Program Provides Specialized Construction Industry Training

The SUNY Maritime College Apprentice Training Program provides classroom instruction accompanied by hands-on training for apprentices in the construction industry. ORISKA Corporation partnering with SUNY Maritime College administers this project for sponsoring employers.

Led by a team of industry professionals, first year apprentices learn the core curriculum, which consists of basic knowledge of the construction industry coupled with several hands-on experiences unique to Maritime College and the Apprentice Training Program.

During the second year of instruction, apprentices are able to select one of several trade specific tracks to continue their industry training. Each area of the curriculum has been approved by the ORISKA Corporation and New York State Department of Labor, Bureau of Apprenticeship Training and completed training reports have been filed with the New York State Department of Education.

This program produces well-trained, highly-skilled individuals ready to assume positions within the construction industry. With the help and support of the Research Foundation and the ORISKA Corporation, the SUNY Maritime College Apprentice Program will continue to produce qualified candidates ready to take on the challenges of the ever-changing job market.

For more information, contact Rebecca McCaffrey, (718) 409-7451, *rmccaffrey@sunymaritime.edu, http://www.sunymaritime.edu.*

Rockefeller Institute Studies Welfare Reform

The Rockefeller Institute of Government is the public policy research arm of the State University of New York. The Institute conducts research on the role of state and local governments in American federalism and the management and finances of states and localities in major areas of domestic public affairs.

The Institute is especially well known for its research related to welfare reform. As Congress prepares to consider reauthorization of the landmark 1996 federal welfare reform law, the Institute has been stepping up its welfare-related research. The Rockefeller Institute's many new research projects in this area include: a cooperative agreement with the U.S. Department of Agriculture on the administration of the food stamps program; field research supported by the Robert Wood Johnson foundation on Medicaid administration; field research on the uses of TANF block grants, funded by the U.S. Department of Health and Human Services and conducted in cooperation with the U.S. General Accounting Office; a national study for the U.S. Department of Labor on the implementation of the Workforce Investment Act, and a project with the Annie E. Casey Foundation on the use of information technology for human services.

For more information, visit the Institute's Web page at *http://www.rockinst.org.*

Geneseo "Rock Doc" Investigates Mystery of Prehistoric Catastrophes

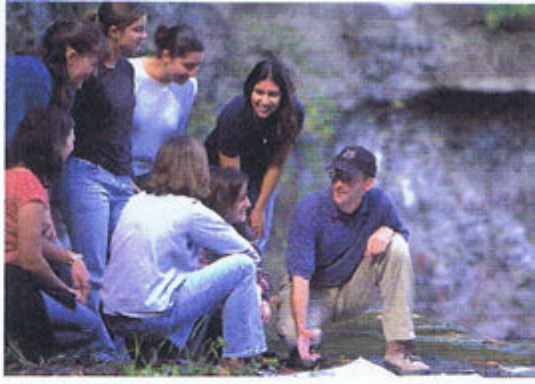
Jeff Over, a geology professor at The State University of New York at Geneseo, has received almost $100,000 in National Science Foundation funding to investigate catastrophic events that occurred more than 300 million years ago. The ultimate goal of Over's research is to solve the mystery of how and why numerous species became extinct between 362 and 418 million years ago, a period termed the "Devonian" era.

"If we can find out what caused the extensive dying off that took place during the Devonian era, we may find clues as to whether we ourselves face a similar risk of extinction," Over said.

By tracing the carbon content in rock, strata researchers have shown that higher levels of carbon coincided with the extinction event. "Since we know our modern, industrial society is emitting high levels of carbon-based pollution, this should tell us to take the risk of global warming very seriously right now."

As a member of the International Union of Geologists' Sub-Commission on Devonian Stratigraphy, Over belongs to a working group studying the Frasnian and Famennian periods of the Devonian era. These and others in the field of stratigraphy identify segments of time by matching specific layers of rock, or strata, with different time periods. The deeper the layer is, the older the rock is and the older the fossils in it. "Because it is the fossilized remains of living creatures and plants that tell the story of the Earth," Over said, "the layers of rock are like the pages of a book that document an old and changing planet."

For more information, contact Dr. Jeff Over, Professor of Geological Sciences, (716) 245-5294, *over@geneseo.edu, http://www.geneseo.edu/~geol/.*



Professor Jeff Over (right) takes students on a field trip to explore local geology and fossil remains.

Empire State College Introduces Online Degree in Community and Human Services

SUNY Empire State College has introduced an online degree program in community and human services, which accepted its first students in the Fall 2000 semester.

A pilot group of 20 students, under the supervision of faculty "mentors" and supported by the loan of laptop computers, formed a "cohort," which will move through educational planning as well as their entire online degree programs together. Their progress will be tracked from the time they enroll in the program through completion.

"The introduction of online program options in community and human services is a very exciting development," said Patricia Lefor, vice president for educational technology. "Many ESC students pursue programs in this area, and they will now have the opportunity to do so entirely on-line. It also opens the possibility of college-level study to a wider audience of working adults throughout New York State and beyond."

SUNY Empire State College's community and human services degree program is one of 11 areas of study available. It offers students interested in the helping professions the option of earning associate or bachelor's degrees through independent study.

For more information contact: Paul Trela, Student Advisor, (800) 847-3000, ext. 300, *Ptrela@esc.edu,* ***or*** *CDL@esc.edu.*

SUNY New Paltz professors Dávila and Greenow with Dr. Eduardo Rodrigues Gomes, project consultant from the Universidade Federal Fluminense, Rio de Janeiro, Brazil.

Grant Supports Latin American Studies at SUNY New Paltz

Students at SUNY New Paltz can take more courses about Latin America thanks to a faculty development project funded by the U.S. Department of Education's Title VI Undergraduate International Studies and Foreign Language Program. Dr. Elisa Dávila, Chair of Foreign Languages, and Dr. Linda Greenow, Associate Professor of Geography, received an award to fund two years of activities designed to support eight faculty members as they develop new or revised courses in Brazilian Studies and in Intermediate Business Spanish.

Brazil is the focus of six new courses taught by faculty from the Departments of Black Studies, Foreign Languages, Geography, History and Political Science. In addition, two new courses in Intermediate Business Spanish are being introduced and coordinated with internships in Ecuador for SUNY New Paltz business students. A highlight in the area of faculty development is intensive Portuguese language study for three faculty members, who also attended an international faculty development seminar in Brazil this past summer for intensive academic background in Brazilian topics.

The grant also provides release time for faculty to develop new courses, a lecture series and a film series about Brazil, workshops for university faculty and area teachers, a Web site to provide information about the project and resources for those interested in Brazil, and funds to strengthen the campus library's Latin American Studies collection.

For more information, contact Dr. Elisa Davila, Chair, Department of Foreign Languages, (845) 257-3489, *davilae@newpaltz.edu,* *http://www.newpaltz.edu/foreign_lang* ***or Dr. Linda Greenow, Chair, Department of Geography, (845) 257-2994,*** *greenowl@matrix.newpaltz.edu.*

Digital Towpath E-Government in the Mohawk Valley

Niagara Mohawk Corporation (NMPC) and its partners, Applied Theory Corporation and the SUNY Institute of Technology at Utica/Rome, launched the Digital Towpath e-government in July 1999.

The project partners helped 16 communities in Oneida and Herkimer counties develop Web sites allowing their constituents 24-hour access to information from any remote location. The Web sites also allow isolated towns and villages to share information with county and state government agencies and with each other.

The partners, along with local government officials, created a template for local government database-driven Web sites. Training and support followed the development phase for local government officials as they adopted the Web sites and planned for the integration of Web technology into their daily operation. The communities continue to expand their Web sites and stay in touch with one another through an e-mail listserv.

For more information, contact Deborah Tyksinski, Director of Continuing Professional Education, (315) 792-7151, *debtyk@sunyit.edu* ***or visit the project's Web site at*** *https://www.digitaltowpath.com.*

Stony Brook Professors Study Reading Problems

Saying reading problems among children have reached "epidemic levels," two Stony Brook University professors have been awarded a five-year, $1.25 million grant from the U.S. Administration for Children, Youth, and Families to establish a Head Start Quality Research Center. The center, designed to evaluate the reading skills of pre-school children raised in poverty, will be located in the University's Department of Psychology and work with Head Start centers throughout Suffolk County and New York City.

Grover J. Whitehurst, Ph.D., Chairman of the Department of Psychology, and Janet E. Fischel, Ph.D., Associate Professor of Pediatrics in the School of Medicine at the University's Health Sciences Center, will examine the effectiveness of reading curricula that focuses on reading readiness.

Dr. Whitehurst was subsequently appointed by President Bush to serve as Assistant Secretary of Education for Educational Research and Improvement; Dr. Fischel will direct activities in his absence.

"Reading problems are at epidemic levels," Whitehurst said. "Thirty-eight percent of fourth graders nationally cannot read at the basic level. Children with serious reading problems face the virtual certainty of academic failure, with all that implies for subsequent economic and life prospects."

Prior research shows that reading success in elementary school is strongly linked to pre-reading skills children possess when exiting Head Start programs, just before entry into kindergarten. The center will target these disadvantaged young children in an effort to improve literacy skills in Head Start that can be critical to future academic success.

For more information, contact Janet E. Fischel, (631) 444-2648, Janet.Fischel@sunysb.edu.

Researchers have discovered that reading success in elementary school is strongly linked to pre-reading skills children develop in Head Start programs prior to attending kindergarten.

Binghamton Researcher Looking for Ways to Make Bacteria More Susceptible to Antibiotics

David Davies, an assistant professor of biology at Binghamton University, is helping to improve the odds that humans, the youngest organisms on the planet, will be better able to hold their own against communities of what are thought to be the oldest organisms on the planet—bacteria.

Davies studies biofilms, ubiquitous bacterial communities that develop and persist at almost any interface between water and solid or solid and gas—from contact lenses to the hulls of ships. His work primarily focuses on Pseudomonas aeruginosa, a biofilm-forming microorganism that is arguably the most common organism on the planet.

By discovering ways that effectively leave the bacteria either "mute" or "deaf" to cell-to-cell communication, Davies hopes to block their ability to form stable communities and make them more susceptible to antibiotics and immune system functions. The principal inventor of a method to inhibit the development of biofilms in response to this chemical communication, he has a patent pending on this technology.

He is also working to isolate a factor that will cause existing biofilms to disperse, leaving individual bacteria easier prey to disinfectants, antibiotics and immune function. The market potential for a non-toxic, biofilm-dispersing agent is enormous and recent results in Davies' laboratory have shown that the agent under investigation is very effective even in mixed-culture biofilms.

For more information, contact Susan Barker, director of Research Communications, sbarker@binghamton.edu, http://research.binghamton.edu.

David Davies, assistant professor of biology at Binghamton University, researches the evolutionary adaptability of bacterial colonies known as biofilms. His work promises to help increase the efficacy of antibiotics and could save industry billions of dollars a year.

The venom of a Chilean tarantula may lead to the development of a new class of drugs that can be applied to cardiac pathology.

Venom from Chilean Tarantula May Prevent Potentially Deadly Arrhythmias

A specific protein isolated from the venom of a Chilean tarantula by University at Buffalo biophysicists shows promise as the basis for new drugs for preventing atrial fibrillation, the chaotic beating of the heart that is a major cause of death following a heart attack.

In a study published in *Nature*, Frederick Sachs, Ph.D., UB professor of physiology and biophysics, along with researchers from Georgetown University, report they were able to prevent atrial fibrillation in rabbit hearts by an infusion of a peptide isolated from tarantula venom. This is the first time that the physiological function of mechanosensitive ion channels has been demonstrated in the heart.

The work is an example of how basic research can lead to clinical payoffs, Sachs stated. "No one in their right mind would have sought to block atrial fibrillation with spider spit," he said. "We did it backwards. Since we had found venom worked on single molecules, we predicted it would also work on cells, tissues and organs. And it did."

This is a first step toward developing a new class of drugs that may be applied to cardiac pathology and to the pathology of other organs," Sachs said. "Despite the fact that all cells have mechanical sensitivity, there are no other pharmacological agents specific to biological mechanical transducers."

Sachs and postdoctoral researcher Tom Suchyna, Ph.D., at UB's Center for Single Molecule Biophysics, along with colleagues at the University of Virginia, Michigan State and NPS Pharmaceuticals, Inc., reported isolating the protein last May. At that time, they suggested that it might have many uses, based on its ability to block pores in cell membranes called stretch-activated channels. These channels, which derive their name from the fact that stretching the cell membrane causes them to open, are responsible for regulating the mechanical functioning of cells — a cellular sense of touch. Sachs and colleagues discovered these channels at UB in 1983 in skeletal muscle cells.

Stretch-activated channels have been implicated in functions as diverse as the senses of touch and hearing, blood pressure and volume regulation and coordination of the voluntary musculature, as well as the contraction of heart muscle. Composed of 10 billion excitable muscle cells, the heart cells must contract in synchrony in order to pump blood effectively. When heart tissue becomes stretched through disease such as congestive heart failure, trouble ensues. The chambers of the heart expand, stretching cells. Furthermore, as a result of poor blood perfusion, cells swell, stimulating stretch-activated channels to open and allowing an influx of positive ions. This influx is an excitatory stimulus to the heart that disrupts the electrical balance, causing the cells to fire erratically. The tarantula-derived peptide, known as GSMtx-4, blocks this process.

The next phase of Sachs' research involves producing large amounts of the peptide by recombinant DNA technology and chemical synthesis, studying the mechanism of action, identifying other potential biological actions on stretch-activated channels, and collaborating with a drug company in turning GsMtx-4 into a clinically useful drug.

The research was funded by grants from the National Institutes of Health, U.S. Army Research Office and NPS Pharmaceuticals, Inc.

For more information, contact Frederick Sachs, (716) 829-3289, *sachs@buffalo.edu. http://www.sachslab.buffalo.edu.*

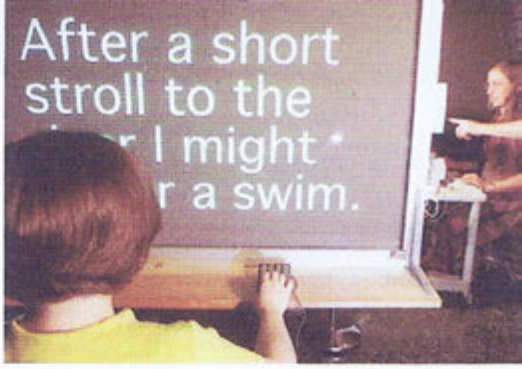
Investigators Evaluate Computerized Text Displays for Low Vision Reading

Researchers at the College of Optometry have been investigating different types of computerized text display for reading in order to make recommendations about methods that improve reading comfort and performance for persons with vision loss, particularly low vision patients with age-related macular degeneration.

Reading rates are measured for three different types of computerized text presentation. This includes RSVP (rapid serial visual presentation), one word is presented at a time; SCROLL, the sentence moves horizontally across the screen; and MNREAD, the entire sentence appears on the screen at once. Text is displayed with an LCD projector onto a 3-foot by 4-foot rear projection screen or onto a large screen television in order to simulate conditions that could be used in the patient's home.

Participants read aloud one sentence at a time. If a mistake is made the word duration of the next sentence is increased, if the sentence is read perfectly the word duration of the next sentence is decreased. This "staircase" procedure continues until there are four reversals in reading rate. The variables of size, font, presentation, and method will be compared to determine if there is a reading rate benefit for a particular combination.

For more information, contact Kathy Aquilante, D.O., M.S. and Dean Yager, Ph.D., (212) 780-5152, *aquilante@sunyopt.edu.*



Drs. Kathy Aquilante and Dean Yager at the SUNY College of Optometry have been investigating different types of computerized text display for reading comfort and performance.

Exploring the Links Between Pain Sensitivity and Narcotic Addiction

For the past 20 years, Alan R. Gintzler, Ph.D., professor of biochemistry at SUNY Downstate, has received funding from the National Institutes of Health to explore the related topics of pain sensitivity and narcotic addiction.

Dr. Gintzler, who is interested in gender-specific determinants of pain sensitivity and the effectiveness of drugs used to treat chronic pain syndromes, has been studying the influence of pregnancy and its hormonal simulation (altering blood levels of the ovarian sex steroids estrogen and progesterone) on pain thresholds. Recently, Dr. Gintzler demonstrated that at least part of the elevation in pain response thresholds during pregnancy and labor is caused by the disinhibition of spinal dynorphin neurons via the removal of its negative modulation. These observations could provide the basis for developing pain medications that have increased efficacy in women.

A second major objective is to identify the biochemical and molecular events that underlie the formation of analgesic tolerance to narcotics. Multiple cellular adaptations are known to be elicited by chronic exposure to opioids. Heretofore, tolerance has been viewed as the manifestation of a loss of opioid receptor functionality, commonly referred to as desensitization. Dr. Ginzler has found that tolerance also results from qualitative changes in opioid receptor signaling. These adaptations indicate the flexibility of opioid signal transduction mechanisms and the ability of chronic morphine use to augment/induce new signaling strategies. These findings may lead to the development of new pharmacotherapies for the treatment of chronic pain without tolerance formation.

For more information, contact Dr. Alan R. Gintzler, Professor, Department of Biochemistry, (718) 270-2129, *agintzler@downstate.edu.*

UCT Executive Director William Murabito, SUNY Morrisville College Council President Arnold Fisher, Congressman Sherwood Boehlert, and SUNY Morrisville president Dr. Ray Cross take part in the electronic ribbon cutting ceremony announcing a new online technical degree program. The event took simultaneously on all five UCT campuses via video conference technology. The Economic Development Initiative grants to expand the UCT distance learning capacity were secured by congressman Boehlert as part of a $12 million package for the 23rd Congressional District.

SUNY Morrisville Participates in New Distance Learning Initiative

On Friday, October 20, 2000 at noon, SUNY Morrisville participated in an electronic ribbon-cutting ceremony simultaneously with SUNY officials and members of the University Colleges of Technology in six other locations. The ceremony, held at the college's distance learning facility, signified the formal beginning of a collaborative effort by SUNY Morrisville and University Colleges of Technology (UCT) at Alfred, Canton, Cobleskill and Delhi to develop the first technological baccalaureate degree to be delivered via distance learning.

In 1996, SUNY Morrisville received funding to establish a distance learning network. Today, students from each of the five University Colleges of Technology (UCT) receive live instruction from professors at each of the campuses. Most recently, the Department of Housing and Urban Development awarded approximately $1 million in Economic Development Initiative grants to expand the UCT distance learning capacity. Its purpose is to help deliver technological degrees to students who are not able to attend classes during traditional college hours or are not able to travel to a campus.

The electronic ribbon-cutting event demonstrated the virtual classroom technology that now exists at SUNY. It also provided a platform for the UCT to announce distance learning expansion plans including the ability to deliver degree programs in-plant to corporate professional development programs.

For more information, contact Jessica DeCerce, Public Relations Officer, (315) 684-6041, decercja@morrisville.edu.

Students at the Higher Business School in Krasnoyarsk, Russia are shown here taking a SUNY course exam.

SUNY Oneonta Russian Exchange Program

The SUNY College at Oneonta began to develop a partnership with the Siberian Aerospace Academy and other institutions in Krasnoyarsk, Russia, in 1994. In 1999, a NISCUP grant from the United States Information Agency enabled the college to formalize the relationship.

To promote the expansion of cultural and economic relationships between the U.S. and Russia, the college and the academy have begun regular faculty exchanges. The intent is to develop Russian faculty members who can teach at the college and to create a means for faculty to continue to teach at each other's institutions on a self-sustaining basis.

The college and academy have also developed plans for Russian-American Centers in Oneonta and in Krasnoyarsk.

An exchange agreement and summer program have brought American students to Krasnoyarsk. With a dual-degree program now in place with the academy's Higher Business School Russian students have already begun studies at Oneonta. During the current academic year (the third year of the grant), exchanges between the institutions have expanded to include the Trade-Economic Institute and the Institute of Fine Arts, both in Krasnoyarsk. The visits by Russian faculty to Oneonta led to the creation of new courses. In addition to teaching new topics, these courses generated more interest in Russia and other cultures among students. Similarly, the visit by SUNY faculty to the Higher Business School exposed Russian students to American teaching methods.

For more information, contact Dr. Richard Insigna, Economics and Business Department, (607) 436-3709, INSINGRC@oneonta.edu http://www.oneonta.edu/faculty/insingrc.

ESF Projects Aim to Revitalize American Cities

European cities thrive for centuries, reinventing and rebuilding themselves as times and people change. In contrast, American cities grow, boom and often decline as people move out to the suburbs. In an effort to turn the tide and make U.S. communities as sustainable as their European counterparts, the SUNY College of Environmental Science and Forestry's Faculty of Landscape Architecture has embarked on a number of projects designed to preserve the American community.

The college's Council for Community Design Research (the research and public service arm of landscape architecture) in partnership with New York state, is assisting three Lake Ontario communities in designing and planning future development. Under the guidance of Associate Professor Cheryl S. Doble, the ESF team worked with the Towns of Sodus, Fair Haven, and Sandy Creek, taking interested community members and officials through the visioning process during a series of workshops.

Based on the ideas generated at these sessions, a summer design institute created plans for these towns to use in future development. In addition the Council is working with other SUNY institutions to develop a SUNY-wide network to help New York communities advance effective revitalization efforts. In related works, the Landscape Architecture faculty is involved in an ongoing study with the School of Forest Engineering at Polytechnic University of Madrid. By studying Vitoria, Spain, and Syracuse, N.Y., the researchers aim to determine what makes Vitoria a thriving city and what practices Syracuse can emulate to achieve the same success. "We're trying to find out what kind of things happen in sustainable cities that we can do here, and how can we gradually do more of them," said Emanuel J. Carter, Jr., associate professor of landscape architecture.

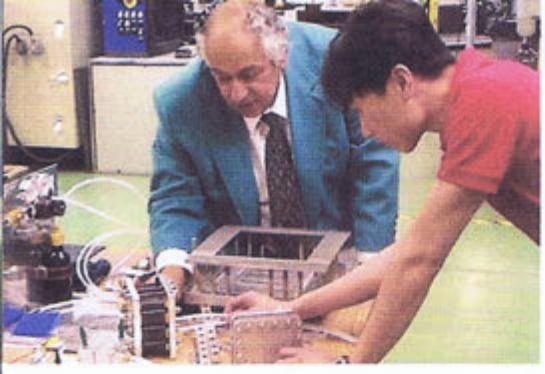
For example, cities need to restructure vacant space and some existing built space for developers that want to do environmentally sound development. They also need to treat each neighborhood as a series of villages that interlock instead of one large entity. By placing community facilities in the neighborhoods, goods and services become easily accessible eliminating the need to drive to the outlying areas. When people have easy access to services, they will stay in the area thereby ensuring the community's future.

While population density is a major contributor to sustainability, the study is examining how to maximize density without creating pollution problems. For mid-sized American cities, the importance of sustainability is growing as the national demographic trend shows more people retiring to cities. "The post-war work population was the first generation to commute their entire lives," said Carter. With the kids grown and out of the house, these people now want to live in areas where they can walk to various attractions. Of particular popularity are cities that house universities such as Syracuse. Now, Syracuse needs to develop the services people want to live near to attract this older population.

Because Syracuse is so typical of the American mid-sized city, the conclusions drawn can be applied across the country making not only Syracuse prosperous, but other mid-sized cities as well.

For more information, contact Emmanuel T. Carter, Jr., Associate Professor, Faculty of Landscape Architecture, (315) 470-6665, etcarter@esf.edu.

ESF faculty and students worked with residents and officials of three Lake Ontario communities to create plans for future development.



Dr. Hazem Tawfic (left) and Mr. Jeff Hung examine a fuel cell stack that will be used to power a hybrid electric cart.

Fuel Cells Research and Development at SUNY Farmingdale

Emerging fuel cell technologies show great promise for meeting the world's need for clean, inexpensive energy. A fuel cell is an environmentally friendly, renewable source of energy that produces electricity and heat energy directly from hydrogen and oxygen, which exist in abundance on earth.

The Fuel Cell Research and Development Center at SUNY Farmingdale was awarded a research contract by the Long Island Power Authority (LIPA) to design and fabricate cost effective metal bipolar plates for the Proton Exchange Membrane (PEM) fuel cell. This type of fuel cell is the most likely candidate for replacing the internal combustion engine as the means of powering vehicles. According to a recent publication by the Fuel Cell 2000 organization, US passenger vehicles consume six million barrels of oil per day – which is 85% of the nation's total oil imports. If 20% of all cars in the U.S. used fuel cells, oil imports could be cut by as much as 1.5 million barrels per day.

Dr. Hazem Tawfik, who is a distinguished professor and the director of the Fuel Cell Center at SUNY Farmingdale, explained that a fuel cell operates like a battery, but does not run down or require recharging. It consists of two electrodes made of carbon impregnated with platinum. Each electrode is firmly adhered to one side of a membrane that includes nafion and a selective electrolytic made of sulfonic acid or alkaline base and referred to as the Membrane Electrode Assembly or MEA. The MEA is typically sandwiched by bipolar plates made of graphite, metal or composite materials, which provide flow conduits for the reactants, support to the cell structure, and electron pathways to the load. A considerable amount of research and development work is still required to render commercially viable fuel cells within the next five years.

The main goal of the applied research currently in progress at SUNY Farmingdale's Fuel Cell Center is to develop mass fabrication methods that produce leak free oxygen and hydrogen chambers and highly conductive and non-corrosive bipolar plates. This will enhance fuel cell performance, improve power density and prolong its useful life. At the present time, most of the bi-polar plates are made of graphite, however graphite was found to be relatively expensive, porous, very brittle, hard to machine and has higher electric resistance than metals.

Early this year, Dr. Tawafik and graduate student Mr. Jeff Hung succeeded in producing electricity from a fuel cell with metal bipolar plates to the level of 0.6 Watt per in^2 of the active area. Despite their advantages over graphite in the areas of conductivity, rigidity, machinability and porosity, metals are very corrosive in the fuel cell acidic environment. This represents a considerable challenge for the research team of the Fuel Cell Center at SUNY Farmingdale who are working on promoting the current technology to bring fuel cells to the commercial level within the next few years.

For more information, contact Theodore C. Papas, Operations Manager, Research Foundation of SUNY at Farmingdale, (631) 420-2345, PapasTC@Farmingdale.edu.

Analyzing the London Smog a Half Century Later

Nearly 50 years ago, approximately 4,000 people died in what is now known as the great London Smog of 1952. Another 8,000 people died in the weeks that followed. Unusual weather patterns contributed to the dense smog which hovered over the city for five days.

Nearly half a century later, two SUNY Upstate pathologists, Andrew Hunt, Ph.D. and Jerrold Abraham, M.D. are analyzing lung tissues of the deceased saved by London hospitals. Their goal is to determine which pollutants caused the multitude of deaths.

Large aggregates of soot have been observable in the tissue samples for decades. But now, leading-edge technologies such as electron microscopy and x-ray microanalysis enable researchers at Upstate to take a more detailed look. Their findings will contribute to nationwide research efforts to determine which components of inhalable particles cause adverse health effects.

The interest in such research has grown since 1997 when the Environmental Protection Agency (EPA) set new air quality standards limiting the amount of inhalable particles in the air.

"It was unknown at that time what in the air was leading to increases in mortality and morbidity, so the EPA implemented new standards to reduce everything," reports Dr. Hunt. States have to come into compliance with these new standards, and the reduction in industry emissions is projected to cost many millions of dollars.

"If we can help identify a specific source as causing the adverse health effects, then someone may be justified in saying, do not set blanket national standards," explains Dr. Hunt.

The two-year project is funded by a grant from the American Lung Association of Central New York.

For more information, contact the Research Development Office, SUNY Upstate Medical University, (315) 464-4317.

Top. Photograph of the London smog from Peter Brimblecombe's book, *The Big Smoke* (Routledge, 1987).

Second from top. Tissue samples from victims of the 1952 London smog show large aggregates of toxic soot.

SUNY Canton USDA Learning Grant Funds Program for Health Care Professionals

The College of Technology at Canton was awarded a $122,565 grant from the US Department of Agriculture to kick-start its distance learning program for health care professionals.

The Rural Health Training Center (RHTC) will use the grant to develop a new project entitled "Accredited Continuing Education-Distance Learning Project for Health Care Professionals" (ACE for Health), which will expand RHTC's technical ability to import and export accredited continuing education programming for health care professionals in an eight country area of rural upstate New York. The RHTC also plans to create a new end user site at a rural hospital in Star Lake to connect to rural hospitals already on the Adirondack Area Network (AANet). With new equipment and technological capability, AANet can have a positive impact on the quality of health care, lessen the effects of communications problems in geographically isolated areas, and offer more frequent accredited continuing health care education.

For more information, contact Linda Moerschell, Director, Rural Health Training Center, (315) 386-7051, *RHTC@Canton.edu, http://www.canton.edu/RHTC.*

Quality of Mother-Teen Relationship Affects Adolescent Sexual Behavior

Distinguished Professor of Psychology James Jaccard's 15-plus years of researching parent-adolescent communication have revealed that "what parents say and do, and the kinds of relationships they have with their children, make a difference in their children's lives." And the results of his latest study are consistent with this view.

Jaccard and Patricia J. Dittus, Ph.D. published results from the National Longitudinal Study of Adolescent Health in the September 2000 *American Journal of Public Health.* The article notes that 10,000 students in grades 7 to 11 and their mothers were interviewed once, then again 12 months later. Teenaged participants responded to questions regarding their mothers' attitudes toward birth control and their own sexual activity, their perceptions of their own physical development, and their satisfaction with their relationships with their moms. Queries to mothers focused on the likelihood that their children were romantically involved with members of the opposite sex. Moms were also asked to articulate their views on contraception and adolescent sex.

Launched in the interest of better understanding of the dynamics of adolescent health, the study included students of all ethnic backgrounds throughout the continental United States.

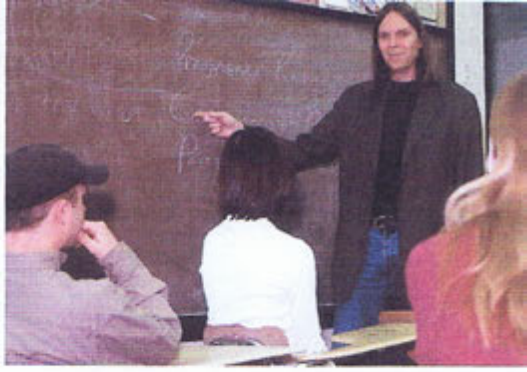
"The study results suggest that perceived parental approval of birth control may increase the probability of sexual activity in some adolescents," Jaccard and Dittus conclude in the journal article. "Safer sex messages must be conveyed by parents with thought and care... Relationship satisfaction between adolescents and their mothers had a consistent effect on all outcomes, such that higher-quality relationships were associated with a higher probability of using birth control and a lower probability of both engaging in sex and becoming pregnant."

Jaccard conceded that the issue of talking about birth control, and how best to do this, is a complex one. "Most parents try to discourage their child from having sex by emphasizing only the threats of unintended pregnancy and various sexually transmitted diseases they may contract — most notably AIDS," said Jaccard. My past research suggests that if parents effectively convey their disapproval of their child engaging in sex, and convey reasons for not having sex beyond simple pregnancy and disease issues, the chances that the child will do so are lessened. However, some children will think their parents are less disapproving of sexual activity if the parents also talk with them about birth control."

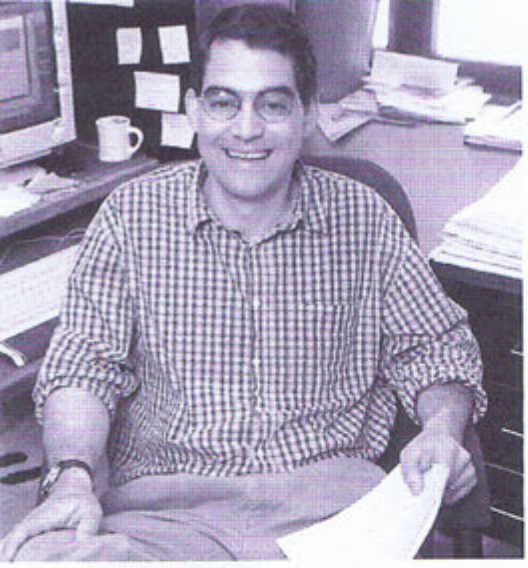
"Parents need to make certain that their children fully understand, in no ambiguous terms, how they feel about the children having sex. Parents who, for religious or moral reasons, do not want their children to use birth control need to understand that their adolescents may be at greater risk of experiencing an unintended pregnancy or contracting a sexually transmitted disease."

The NIH and other agencies that supported the study have committed additional funding so that the original participants, interviewed in 1995, can be interviewed again next year. "Our goal is to re-examine these adolescents and then trace the experiences that made a difference in how they turned out as young adults," said Jaccard, who is putting together an 80-page manual that offers helpful advice for parents on how to discuss such topics as sex and birth control with their children.

For more information, contact Dr. James J. Jaccard, Distinguished Professor of Psychology, *jjj20@cnsunix.albany.edu.*



Distinguished Professor James Jaccard is at the center of national studies that are showing the important role parents play in influencing the choices teenagers make.



Professor Brooks Gump was awarded a four-year grant to study how prenatal exposure to polychlorinated biphenyls (PCBs) affects the way children react to stress.

National Institute Grants Oswego State Professors $630,000 for Health Study

Hearts respond to stress. Dr. Brooks Gump of Oswego State and a team of researchers will explore how pre-natal exposure to certain chemical pollutants affects these stress reactions.

A four-year, $636,889 grant from the National Institute for Environmental Health Sciences, one of the National Institutes of Health, will fund the research. Gump and colleagues from Oswego State and two other institutions will study how the circulatory systems of children with prenatal exposure to polychlorinated biphenyls, or PCBs, react to stress.

"Looking at prior research findings, it looked like kids (exposed to PCBs) would be more reactive emotionally, get frustrated more easily," Gump says. "We want to see what effects prenatal PCB exposure has on children's cardiovascular and neuroendocrine reactions to mildly frustrating tasks." He and his co-principal investigators Dr. Paul Stewart, Dr. Thomas Darvill and Dr. Jacqueline Reihman of Oswego and consultants Dr. Karen A. Matthews of the University of Pittsburgh and Dr. Douglas A. Granger of Pennsylvania State University will study subjects from the Oswego Children's Study.

This ongoing longitudinal study follows 224 children born to women interviewed between 1991 and 1994 about their habits of eating Lake Ontario fish, which include pollutants like PCBs, mercury and Mirex, during pregnancy. In addition, PCB levels from the mother's placenta are provided by James Pagano of Oswego's Environmental Research Center. The children, to be tested at age 10, will perform mildly stressful tasks, like mirror drawing of a pattern on a computer screen. The researchers will monitor the children's levels of the stress hormone cortisol, their blood pressure and data from impedance cardiography, a non-invasive technique to measure blood flow and the resistance of vessels to the flow of blood.

"PCBs may affect one aspect of cardiovascular functioning and not another," Gump says.

If greater exposure to PCBs affects how the children's heart and circulatory system react to stress, it would be important, he says, because it is considered a risk factor for cardiovascular disease. Gump has expertise in cardiovascular behavioral medicine. His other work involves the effect of chronic, as opposed to one-shot, stress on cardiovascular reactivity in children as young as eight years old. He plans to study both kinds of stress in the children in the new study, evaluating the effects of chronic stress using information provided in their family history.

Oswego students will benefit from the grant, as well. Two honors students are already slated to use the impedance cardiography equipment for their honors projects, Gump says.

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