Deep-sea vents studied by scientist on the ocean floor

By TERRY STOCKTON

The feeling that you’re sinking in deep, dark, cold water hundreds of miles from dry land is not a pleasant one. Neither is the feeling of being confined, cold and wet, for over eight hours in a metal sphere the size of a bathtub. Yet this is the only playing field for scientists exploring deep-sea vents.

William H. Smith, Ph.D., professor of earth and planetary sciences in the School of Arts & Sciences, recently won a Mellon Minority Undergraduate Fellowship Program at the University and in Arts & Sciences, was instrumental in starting the program at the University and now serves as its faculty director. I am proud to be associated with the Mellon program,” Smith said. “The aim of the program is worthy and important. The students are wonderful to work with. We hope to continue to use the money to support the Mellon’s research expenses and to further their relationships with their faculty mentors.”

The renewal money will be used for a variety of programs. Part of it will go toward continuing the Mellon Undergraduate Seminar, a one-credit class that seeks minority students learning techniques and tools of scholarship research. Some of the funds will be directed toward continuing education for minority students. All minority students who enroll in a doctoral program at any university are eligible to have up to $10,000 of their loans repaid as part of the Mellon program.

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The Mellon Minority Undergraduate Fellowship Program recently awarded Washington University with a $300,000 funding renewal.

The program, initiated here in 1992, has enabled minority students to pursue independent study projects, engage in summer research at the University and in foreign countries, and upon graduation, enter advanced graduate programs. The $300,000 renewal will be spread out over the next four years, said Susan Bollins, assistant dean and academic coordinator in the School of Arts & Sciences.

Gerald L. Early, Ph.D., Merle Kling Professor of Modern Letters and professor of English and African in Afro-American Studies, both in Arts & Sciences, was instrumental in starting the program at the University and now serves as its faculty director. I am proud to be associated with the Mellon program,” Early said. “The aim of the program is worthy and important. The students are wonderful to work with. We hope to continue to use the money to support the Mellon’s research expenses and to further their relationships with their faculty mentors.”

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Biological “islands” study illustrates diversification, speciation

BY TREN T STOCKETT

Listed species on large Caribbean islands are more numerous than those on smaller islands because there is more evolution going on. The bigger the island, the faster species proliferate and diversify.

Jonathan B. Logos, Ph.D., associate professor of biology in the University’s School of Arts & Sciences, has proved this species-area relationship in a study of 143 Caribbean Anolis lizard species on 147 islands, focusing on the four largest islands — Cuba, Hispaniola, Jamaica and Puerto Rico — collectively known as Greater Antilles. — Logos showed that the diversity of island species is primarily a result of the ecological process of speciation rather than the ecological process of colonization and extinction.

Logos and co-author Dalcbl Schluter, Ph.D., professor of biology at the University of British Columbia, published these results in the Dec. 14 issue of Nature. The study’s importance and impact is highlighted by an extension of a 33-year-old theory of biological diversity. "If you focus on the large islands, the rate of speciation is a function of island area," Logos said. "A small island equals more speciation events. At some level this has never been demonstrated before because differences in the rate of speciation can only produce the species-area relationship." Schluter’s results complement the well-known "Equilibrium Theory of Island Biogeography," first proposed in 1969 by Robert MacArthur of Princeton University and E.O. Wilson of Harvard University. MacArthur and Wilson's ecological theory proposed that the number of species on any island reflects a balance between the rate at which new species colonize it and the rate at which populations of established species become extinct. "Colony" in this sense is not strictly an island in a stream, ocean or a forest, but a distinct genetic evolutionary family tree, a forest for example, surrounded by barriers. A major component of this is the rate at which species of species on large islands in more than 100 small islands, and if everything else is equal, then a relationship is observed between the area of an island and the number of species occurring on that island. But Logos and Schluter have shown that the theory of evolution is just as important as colonization and extinction in producing the species-area relationship. "MacArthur and Wilson were unable to address the role that evolution plays in producing the species-area relationship because the appropriate data were unavailable until recently. In order to address such questions, Logos and Schluter developed a different approach to calculating species-area relationships on the islands." Todd Jackman, Ph.D., assistant professor of biology at WUSTL, constructed the phylogeny with the assistance of postdoctoral fellow working in the research of Allan Larson, Ph.D., professor of biology in Arts & Sciences.

"The bigger the island, the faster species diversification occurs because the species can address this additional area, and the critical step was the assistance of Allan Larson's work in identifying the evolutionary relationships among these species." Given that a species-area relationship exists in the Caribbean, this could be used to provide an explanation for why large islands have more species. It is not due to genetic contact; they are not interconnected, but they do have groups diverge so that even the geographic barriers are removed and the isolation were removed, they are now separate species and cannot interbreed. An unexpected finding reported by Logos is that the existance of an island-area relationship exists, but for species groups diverge so that even the geographic barriers are removed and the isolation were removed, they are now separate species and cannot interbreed. An unexpected finding reported by Logos is that the existance of an island-area relationship exists, but for species groups diverge so that even the geographic barriers are removed and the isolation were removed, they are now separate species and cannot interbreed. An unexpected finding reported by Logos is that the existance of an island-area relationship exists, but for species groups diverge so that even the geographic barriers are removed and the isolation were removed, they are now separate species and cannot interbreed. An unexpected finding reported by Logos is that the existance of an island-area relationship exists, but for species groups diverge so that even the geographic barriers are removed and the isolation were removed, they are now separate species and cannot interbreed. An unexpected finding reported by Logos is that the existance of an island-area relationship exists, but for species groups diverge so that even the geographic barriers are removed and the isolation were removed, they are now separate species and cannot interbreed. An unexpected finding reported by Logos is that the existance of an island-area relationship exists, but for species groups diverge so that even the geographic barriers are removed and the isolation were removed, they are now separate species and cannot interbreed. An unexpected finding reported by Logos is that the existance of an island-area relationship exists, but for species groups diverge so that even the geographic barriers are removed and the isolation were removed, they are now separate species and cannot interbreed.

"The islands of Guadeloupe and Martinique are quite large and the species are many, but there is still less than a quarter of the diversity on large islands than on small islands, and if everything else is equal, then a relationship is observed between the area of an island and the number of species occurring on that island. But Logos and Schluter have shown that the theory of evolution is just as important as colonization and extinction in producing the species-area relationship. "MacArthur and Wilson were unable to address the role that evolution plays in producing the species-area relationship because the appropriate data were unavailable until recently. In order to address such questions, Logos and Schluter developed a different approach to calculating species-area relationships on the islands," Todd Jackman, Ph.D., assistant professor of biology at WUSTL, constructed the phylogeny with the assistance of postdoctoral fellow working in the research of Allan Larson, Ph.D., professor of biology in Arts & Sciences. Logos added. "It gives a fuller, richer understanding of biodiversity."
Medical School Update

Motivation to Move

New program encompasses many aspects of exercise

Type 1 diabetes genetic cause found by researchers

By Diana Davis

School of Medicine investigators have identified a novel gene that causes an inherited form of type 1 (insulin-dependent) diabetes and autoimmunity. Mutations in a single gene called JMD cause the disease, the researchers found. The mutations adversely affect the function of the protein the gene encodes. This finding might lead to therapies for type 1 diabetes.

"This is an example of a single gene defect causing a high incidence of type 1 diabetes in affected children," said Talal A. Chatila, M.D., associate professor of pediatrics, and Anne M. McClelland, M.D., professor of genetics, studied blood samples from two families affected by a rare disorder that affects only boys and causes type 1 diabetes and allergies. They found mutations in a gene located in a region of the X chromosome previously linked to type 1 diabetes.

"This is an example of a single gene defect causing a high incidence of type 1 diabetes in affected children," said Chatila, lead author of the study. "It provides us with an important tool for dissecting the genetics of type 1 diabetes and deciphering how the disease comes about in this particular family.

Results will be published today in the journal Nature.

Children with the disease, called X-linked autoimmunity-allergic diathesis syndrome (XLADS), show the classic signs of diabetes. They also develop from chronic diarrhea and eczema. Because XLADS causes severe wasting, it often kills babies during the first months of life.

Identification of the gene, Chatila said, supports the idea that a limited number of genes are critical for the development of diabetes and other autoimmune disorders.

"We now need to carefully investigate whether the pathway that involves this gene is mutated in other patients with type 1 diabetes and whether other genes collaborate with this gene in the disease," he said.

Between 500,000 to 1 million people in the United States have type 1 diabetes, which usually begins in children or young adults. It develops when immune system cells called T lymphocytes kill cells in the pancreas that produce insulin. Insulin "unlocks" the cells of the body, allowing glucose to enter and fuel them. When cells don't obtain enough fuel, they can't function.

The two families in the study had five affected males. All five suffered from type 1 diabetes, chronic diarrhea and eczema, and other allergic reactions. Other family members were not affected.

The researchers found mutations in JMD in all the affected males. This gene codes for a transcription factor—a gene that regulates the activity of other genes.

Chatila said his team has identified a model that defects in the JMD protein make T lymphocytes—the immune cells that mediate type 1 diabetes and abet the allergies—hypersensitive and likely to destroy insulin-producing cells.

"It's easy to activate and difficult to shut down," he said.

Understanding how JMD regulates gene expression and how defects in this protein cause diabetes will provide important insights into the development of the disease and into ways of preventing its onset, Chatila added.

Communication pathways in cells investigated

Kendall J. Blumer, Ph.D., associate professor of cell biology and physiology, has received a four-year $1.3 million grant from the National Institute of General Medical Sciences. The award will fund work on proteins that relay signals into cells.

Cells must constantly respond to outside stimuli. Messages arriving at the cell surface are detected, amplified and transmitted accurately to molecules inside the cell that can respond to the command.

With the new grant, Blumer's group will help determine how certain cellular surface receptors are activated and how they in turn activate the correct G proteins. These proteins transduce messages and pass them to appropriate signaling pathways, triggering characteristic responses of cells. Some G proteins are involved in vision, for example, whereas others contribute to our sense of taste or smell.

The researchers also are particularly interested in G proteins' roles in organizing the cellular skeleton, an arrangement of fibers that helps cells move and maintain their shape.

This work might lead to a better understanding of how immune system cells migrate to sites of inflammation to deal with invading pathogens. It also might help to understand why cancer cells can move through tissues as they metastasize.

Mutations in G proteins cause the symptoms of cholera and some inherited hormonal disorders. They also are involved in alcoholism, diabetes and other conditions.

We hope to discover new principles of G-protein signaling that will reveal new fundamental facts about how cells work and provide the foundation for understanding how the process goes wrong in many diseases," Blumer said.

Gerald Rubin delivers fourth annual Kipnis lecture Jan. 18

The fourth annual David M. Kipnis Distinguished Lecture, titled "Understanding the Genetic Basis of the Social Brain," will be held at 4 p.m., Jan. 18, in Cori Auditorium, 4565 Scott Avenue.

Gerald M. Rubin, Ph.D., director of the Drosophila Research Center at the University of California, and vice president for biomedical research at the Howard Hughes Medical Institute, will be the speaker.

Rubin's research focuses on trying to understand the Drosophila genome and its role in the development of the fruit fly Drosophila as a powerful modern tool for examining development of the nervous system.

The lecture is free and open to the public.

The annual Kipnis lecture was established by the Department of Molecular Biology and Pharmaceutical Chemistry to honor David M. Kipnis, M.D., Distinguished Professor of Medicine and chairman of the Department of Internal Medicine from 1972 to 1992.

Kipnis lecturers are researchers whose work on basic questions related to the control of cell growth, differentiation and communication has important implications for understanding the origins of human disease.

Dec. 15, 2000

BY NICOLE VINES

Do you habitually make a New Year's resolution to get back into shape only to end up frustrated and sedentary before Valentine's Day? The St. Louis Regional Sports Authority wants to help Washington University School of Medicine and the BJC Foundation, Inc., build a balanced, safe exercise regimen with a home program called MOVE.

MOVE is a 16-week exercise challenge designed for adults older seeking to improve health, fitness and function. The program is designed around the principles of flexibility, strength, endurance, balance and coordination.

"In order to improve overall fitness, it's important to encompass all five of these aspects," said Catherine A. Sienert, instructor in physical therapy, and Rebecca Kipnis, associate director of the Center for Health Promotion, 4444 Forest Park Ave., and from 2 to 3 p.m. Thursdays at the Clayton Community Center, 50 Gay Ave. The Foundation in Physical Therapy will lead each session. For information or to sign up once a week or $30 for twice a week.

Individual consultations also are available, as well as an eight-week program called On The Move. The Foundation in Physical Therapy and Washington University School of Medicine's Center for Health Promotion offer On The Move for overweight individuals experiencing health or fitness problems.

For more information, call Debbie Long at 286-1940.
Shapiro & Smith Dance brings their breathtaking blend of exuberant physicality, biting sarcasm and psychological insight to Edison Theatre Jan. 19-21.

Choreographers operate from a strong dance motivation and that "dancers take flying risks angelically." Shapiro & Smith Dance has performed at some of the world's most prestigious festivals and venues, including the Joyce Theater, Lincoln Center Out-of-Doors, Dance Theater Workshop, Danspace Project, the Milken Festival, FA:12 and Korean International Festival. Their work has been commissioned by such internationally renowned companies as the Phoenix Dance Company in London, England; the PACT Dance Company in Pretoria, South Africa; the Alvin Ailey Repertory Ensemble and the Alvin Ailey American Dance Theater, which recently premiered their piece called "Fathers and Sons."

Their honors and awards include fellowships from the National Endowment for the Arts and the New York Foundation for the Arts, an American Choreographer's Award from the National Corporate Fund; the Paul Taylor Fellowship from The Yard; and the Metropolitan Life Foundation's Emerging Artist Award.

Performances are made possible in part by the generous support of the Missouri Arts Council, a state agency, and the Regional Arts Commission, St. Louis. Shapiro & Smith Dance will help launch the spring semester with a trio of January performances co-sponsored by Dance St. Louis and the Edison Theatre Coalition. DONORS Series shows begin at 8 p.m., Jan. 19 and 20, and at 2 p.m., Jan. 21. For more information, call (314) 534-1111. Call for discounts. For more information, call (314) 953-6453.

**Violent Universe • Peptidomimetics • Racial Healing • Shapiro & Smith Dance**

**Lectures**

Friday, Dec. 15


Monday, Dec. 18

New on Campus Conference. "Ethical Challenges for the Astronomer" with Dr. Martin J. Rees. "Are We Alone in the Universe?" Spalding Auditorium. 935-6700.

Monday, Jan. 8


Wednesday, Dec. 20


Thursday, Dec. 21


Tuesday, Jan. 2


Thursday, Jan. 4


**University Events**

**Shapiro & Smith Light up Edison Theatre stage Jan. 19-21**

**By ILMA OTTEN**

Shapiro & Smith Dance has become a reputation for creating works that are at once intelligent and accessible, running the gamut from searingly provocative to absurdly hilarious. With their breathtaking athleticism, psychological acuity and acid wit, the troupe offers a trademark combination of no-holds-barred physicality and astonishing emotional depth.

The husband-and-wife team of Donald Shapiro and Inovne Smith established Shapiro and Smith in 1987. The couple, who met while dancing with Murray Louis and Alvin Nikolais and began collaborating in 1985 while on a Fulbright Lectureship grant in Helsinki, Finland.

Today, the troupe features seven performers — Shapiro, Smith, John Reiss III, Sean Bracken, Mathew Janczewski, Lillian Stiwell and Megan McClean — and a regular case of dance directors, writers and designers.

The New York Times praises Shapiro & Smith as "exuberant and surprisingly poignant," and Dance Magazine has called the "most splendid theatrical experience of the season ... substance and craft, diversion mingled with flashes of poetic revelation."

The Village Voice notes that the choreographers "operate from a strong dance motivation and that "dancers take flying risks angelically."

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**Sports**

Saturday, Dec. 16

6 p.m. Women's basketball vs. MacMurray College, Jacksonville, Ill. Athletic Complex. 935-5330.

8:30 p.m. Men's basketball vs. McMurry University, Jackson, Texas. Athletic Complex. 935-5330.

Friday, Dec. 29

6 p.m. Women's basketball vs. U. of the South, Sewanee, Tenn. Athletic Complex. 920-5220.

9 p.m. Basketball vs. Blackburn College, Carbondale, Ill. Athletic Complex. 935-5220.

Friday, Jan. 12

6 p.m. Women's basketball vs. U. of Chicago, Chicago Athletic Complex. 935-5220.

8:30 p.m. Men's basketball vs. U. of Chicago, Chicago Athletic Complex. 935-5220.

Friday, Jan. 19


**Worship**

Friday, Dec. 15

11:15 a.m. Catholic Mass. Catholic Student Center, 6352 Forsyth Blvd. 935-9191.

11 p.m. Muslim Friday prayer. Boarding school and prayer center, Lardent Lounge, Mallinckrodt Student Center.

Sunday, Dec. 17

11 a.m. Catholic Mass. Last Mass for semester. Catholic Student Center, 6352 Forsyth Blvd. 935-9191.

Saturday, Dec. 24

4:30 p.m. Christmas Eve Mass. Catholic Student Center, 6352 Forsyth Blvd. 935-9191.

Friday, Jan. 19

11:15 a.m. Muslim Mass. Catholic Student Center, 6352 Forsyth Blvd. 935-9191.

11 p.m. Muslim Friday prayer. Boarding school and prayer center, Lardent Lounge, Mallinckrodt Student Center.

And more...

Friday, Dec. 15

4 p.m. Memorial service for Prof. David Southeast. Sponsored by Dept. of Chemistry. Graham Chapel. 935-9191.

Tuesday, Jan. 9

7 p.m. Teaching Center workshop. "Mail Merge/Envelopes and Labels." 6352 Forsyth Blvd. 935-9191. To register, call 935-4252.

Wednesday, Jan. 10

10 a.m. Teaching Center workshop. "The 10-minute Cover Letter." Lynda Peterson, assoc. dir. for enrollment management, Teaching Center. 935-4252. To register, call 935-4252.

Thursday, Jan. 11

9 a.m. Teaching Center workshop. "The 20-As-Teaching Tool." Lynda Peterson, assoc. dir. for enrollment management, Teaching Center. Room 102. To register, call 935-4252.
Approximately 425 students attend the University. Arts & Sciences, director of the a common discipline, perfor-
group, students writing theses in astronomy group a Spanish housing could include an
transition between the classroom and the between academic and residen-
table life. The two buildings have
created by the two residential
facilities and two new fraternity
town houses at the Hilltop
The new campus community
be torn down in the next three
Davis said.
Phi Epsilon's current houses will
which groups to accept will be
Student groups wishing to
participate in the
small-group
housing plan will have the
opportunity to apply in early
February.

"Through this program we will be able to enrich intellectual life in the residential context and enrich the learning experience for students."

JAMES W. DAVIS

Sports Section

The streak rolls on

The Washington University women's basketball team continued to ride the high-

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Small-group housing is
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Betta Theta Pi, currently
residing in fraternity house 1, off-campus Tau Kappa Epsilon, Alpha Epsilon Pi and Sigma Phi Epsilon will reside in the new fraternity town houses. Alpha Epsilon Phi's and Sigma Phi Epsilon's current houses will be torn down in the next three years, according to Kurt Horstman, coordinator for Greek life.

An informational Web site on small-group housing is coming online in January. For more information contact Carroll at 935-5090 or Davis at 935-3543.

Manners, please! Students learn how to conduct themselves during a business dinner at the Olin School-sponsored Etiquette Dinner. They enjoyed a four-course meal while receiving tips on

Olin School-sponsored Etiquette Dinner. They enjoyed a four-course meal while receiving tips on

WASHINGTON UNIVERSITY IN ST. LOUIS

Dec. 15, 2000 5

Small-group housing to open in 2001

By NEIL SCHONHERR
A

approximately 425 students will move Aug. 19 into two new residential facilities and two new fraternity town houses at the Hilltop campus's northwest corner.

The new campus community created by the two residence facilities will be the center of small-group housing.

The buildings will also include special practice rooms and performance spaces, meeting rooms, common rooms, study areas and classrooms. There will be an on-site staff and a small budget to support special projects and programs for the residents.

Student groups wishing to participate in the small-group housing plan will have the opportunity to apply in early February.

"...which groups to accept will be made shortly thereafter...

Small-group housing is present at other universities, including Penn State and Northeastern.

"Through this program we will be able to enrich intellectual life in the residential context and the learning experience for students," Davis said.
Betta Theta Pi, currently residing in fraternity house 1, off-campus Tau Kappa Epsilon, Alpha Epsilon Pi and Sigma Phi Epsilon will reside in the new fraternity town houses. Alpha Epsilon Phi's and Sigma Phi Epsilon's current houses will be torn down in the next three years, according to Kurt Horstman, coordinator for Greek life.

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Bears senior forward Chris Alexander slams home two points.

Sophomore Nick Grunts scored a career-high 15 points and Ryan Patton dished a game-high eight

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Rhodes
Arts & Sciences seniors receive Rhodes Scholarships
from page 1

National Security Coaches of America/Adidas All-Midwest scholar-athlete second team recipient in 1999, was named a GTE Academic All-American and a Midwest Athletic Association (AA) selection and a three-time all- AA academic selection.

"The one accomplishment that I am very proud of here at Washington University is being named an academic All-American," Klaus said. "That balance between academics and athletics was something I felt was important and worked hard to achieve."

Johnson, a senior in Arts & Sciences majoring in economics, will use the $32,000-per-year stipend to further research in political science and economics at Oxford. Johnson is currently doing a double major in mathematics and environmental studies, with much course work also being in earth and planetary sciences department.

Research related to upcoming Mars missions has led to several scientific publications and presentations during the past three years. Johnson spent a year working at NASA's Jet Propulsion Laboratory as a co-investigator in a study analyzing biological systems while living in different parts of the rainforest. She is currently finishing honors thesis work involving microbes in the extreme environment at the summit of Mauna Kea, Hawaii, a

Deep-sea vents
Professor descends to ocean floor
from page 1

than 100 spectral bands, as opposed to the overlapping bands resolved by a typical color camera. The underwater hyperspectral data provide highly detailed information about objects and organisms that would otherwise remain indiscernible to the human eye.

Smith has used hyperspectral imaging technology with NASA and others in remote sensing of a variety of objects, including planets and moons, the Earth's atmosphere, agricultural crops, and to study geological and diverse geographical features. Several experiments with Smith was accompanied by an experienced pilot and mission biologist in addition to a host of monitors, switches, gauges, and other equipment, including an underwater hyperspectral imager. After the long, winding descent to the ocean floor, Smith and the others had five hours in total darkness to locate the vents and to conduct a variety of experiments, many of them for scientists anxiously waiting on the surface. Because the Deep-See-All has a dive depth of six to ten hours, Smith had only about an hour to conduct each experiment, which included obtaining spectra of the unique biological communities the vents host. The bacteria found at the vents are remarkable in that their main substance is hydrogen sulfide, a compound toxic to most living organisms and animals. The bacteria thrive in sulfur-rich water surrounding the vents - which range from 375 degrees C at the vent itself to about 300 degrees C just a few inches away. The bacteria are abundant sulfur into a usable energy source, a process that is unique on the sea floor. Other bacteria don't need solar energy, as they are nearly all other biological communities, which use the sun for energy.

There is some evidence of chlorophyll, the pigment used in photosynthesis by land plants in photosynthesis, in the vent bacteria. Smith suggests that another way to determine whether the chlorophyll from the surface or various vent organ-isms is incorporated into the biological material in a useful way is through the experiments to see how organ-isms are using a degassed hyperspectral material. He used the hyperspectral imager to record that the radiation of ambient light released from the thermal environment to see how much of this light is in the right wavelength band (500-700 nanometers). He then illuminated the area with this particular protein fluorescence characteristics and the bacteria in the organism. Finally, he illuminated the area with light and recorded spectral characteristics over a broad spectral band. Results of these experiments will be presented at a symposium titled "Bioology in Extreme Environments" at meetings of the American Chemical Society.

Further research involves very detailed investigations of deep-sea vents which are a challenging proposition because the views from the fine-scale observations that require more than the sib can remain on the sub for any significant period of time. Smith is developing better technology that could be placed directly on the sea floor near a vent and left for long-term observations, up to a year or even longer.

"These vents are very dynamic, geological features," Smith said. "We are looking over a period of time to see what is really going on.

As for coping with the confinement of Alvin, Smith said, "I'm not claustrophobic, so the tight quarters didn't bother me in the least," he said. "On your way down and back up you see incredible beauty, and once we got near the vents I was so busy conducting the experiments that it wasn't a long ride, I just wanted to get to the vents and get a bit of searic. I'm really looking forward to going on again."
Loewenstein receives Governor's Award for teaching

By Donna Kettleson

Joseph E. Loewenstein, Ph.D., associate professor of English and director of the Center for the Study of American Civilization, in the School of Arts & Sciences, received the Governor's Award for Excellence in Teaching at the Governor's Conference on Higher Education last week.

The award provides the state an opportunity to recognize and honor outstanding Missouri faculty and symbols the governor's appreciation of educators. Recipients are selected based on effective teaching, effective advising, service to their university community, commitment to high standards of excellence and success in their teaching. Loewenstein was named a member of the roundtable discussions on the Indications of Supracricoid Laryngectomies as well as a panelist at the symposium series.

Loewenstein, who spearheaded the event, was named as assistant professor in 1992, assistant professor of English in 1994, and associate professor of English in 1998.

The symposium, "Mobile Services," covering how financial services firms and their clients, and a focus on the relationship between use and architecture, first appeared.

"My purpose in writing this book is to help architectural designers who are not energy experts understand the energy consequences of their most basic design decisions and to give them information so that they can use energy resources for research and development as much as possible. I am not that energy importance in and of itself, but that the processes of making energy that depend on fossil fuels are damaging to the natural environment to which we are inextricably bound. In the long run, at least, environmental cost equals social cost; conversely, environmental benefit equals social benefit. It seems then that energy issues should be of professional concern to architects, whose goal is to improve the quality of life."

"If energy is the concern, we cannot only light and passive solar heating and cooling. Certainly energy use in architecture can and should be addressed more broadly than it is in this book. My reason for narrowing the focus is to concentrate on the relationship between architectural form and energy use. Therefore, some important energy issues that don't have major architectural form concern have been excluded. It also means that some architectural concerns have been addressed from an extremely narrow perspective, for example, which some say is the essence of architecture, is treated simply as a strategy for reducing electric lighting levels."

"It is because daylighting is of such broad concern in architecture that this narrow perspective is valuable; it lets the designer take the good and bad energy consequences of certain approaches to daylighting and shows how those changes should be made from building type and climate."
Sally A. Goldman, Ph.D., does so many things so well, one might wonder if there’s anything she can’t do. Goldman is an associate professor and assistant chair of the Department of Computer Science. More specifically, she’s a key adviser for the department, a challenging graduate and undergraduate teacher, an internationally known researcher in computational learning theory, and a leader in professional organizations.

She’s also a bona fide mom. Goldman and her husband, Kenneth J. Goldman, Ph.D., associate professor of computer science, participate in many activities with their children, from hiking and hiking to playing games and solving jigsaw puzzles. But Sally Goldman doesn’t just take 13-year-old Mark and 9-year-old Ben to their myriad sporting events. Goldman coaches them in soccer, basketball and football through the Clayton Parks and Recreation programs. Three-year-old Julie waifs in the wings. As a senior at Ladue Horton Watkins High School in St. Louis County, Goldman had her hands full with academics and sports. She was on the varsity basketball, softball and tennis teams, and tennis team, and also took a rigorous college-prep curriculum that included lots of mathematics. That school year, 1979-80, Goldman also got her first exposure to computing. Her school had computers tied to an off-campus mainframe, and during study halls Goldman began to experiment with a tool that was going to shape her future.

“I started programming in BASIC, and thought, ‘ Gee, this is a lot of fun,’” she said in her Iolley Hall office decorated with her children’s vivid artwork. ‘Though I’d be afraid to look back at my code, back then I made a program that played a pretty good game of Othello.’

Computer science’s Sally A. Goldman, Ph.D., is a superior teacher, adviser, administrator and researcher

BY TONY FITZPATRICK

Sally A. Goldman, Ph.D.

Education Brown University, Sc.B., 1984; Massachusetts Institute of Technology, master’s 1987, Ph. D. 1990

University position Associate professor and assistant chair of the Department of Computer Science

Family Husband, Kenneth J. Goldman; associate professor, Department of Computer Science; sons Mark, 13, Ben, 9; daughter, Julie, 3


School of Engineering and Applied Science Adviser of the Year, 1996-99

Sally and Ken Goldman both went to Massachusetts Institute of Technology in 1985 to pursue graduate work. Famed cryptographer Ronald Rivest, Ph.D., was Sally’s thesis advisor for her masters degree (1987) and dissertation, (1990), both in electrical engineering and computer science.

Goldman’s professional activities can be divided into four parts: teacher, researcher, administrator and professional organization mainstay. As a teacher, she has taught a vital array of courses, including courses in the formal foundations of computer science (CS 201), algorithms and data structures (CS 243), and advanced algorithms (CS 4417/347). This spring she’ll teach a new course in machine learning (CS 527A) that will be open to undergraduates and graduates.

She’s a very popular teacher. The students praise Goldman’s teaching and would keep them from children is just one possible example of an application using Goldman’s research.

In addition, Goldman and her group recently developed a general method of “co-training,” where two independent learning algorithms are originally trained on labeled data. Each learner, using statistical techniques, selects some unlabeled data to label for the other learner. Goldman’s results have been promising, for example, a number of their test data sets will aid in improving breast cancer diagnosis.

Similarly, she is investigating methods that may have been to the way to predict the shape of the disease-receptor molecules. Knowing the shape of such molecules could accelerate the discovery process for new drugs and thus reduce costs.

In 1984, Goldman married Ladue High School classmate Ken Goldman, and she graduated with honors from Brown University.

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