VANDERBILT UNIVERSITY COLLEGE OF ARTS & SCIENCE

A&S CORNERSTONE

Better Health Through Chemistry

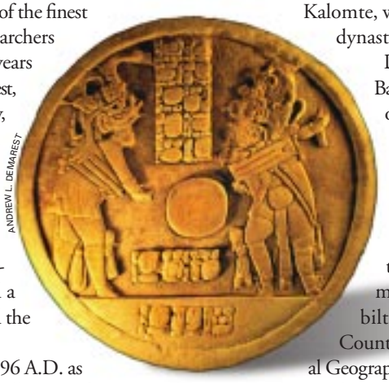
Vanderbilt Institute of Chemical Biology uses chemistry to solve biological, medical problems, *pages 8-9*

WINTER 2004

Raiders of the Lost Altar

Like a scene from an Indiana Jones movie, Vanderbilt archaeologist Arthur Demarest turned detective recently, helping Guatemalan police to rescue an elaborately carved, 1,200-year-old Maya altar from antiquities looters.

The 600-pound artifact is one of the finest Maya altars known and gives researchers vital information on the closing years of the Maya civilization, says Demarest, Ingram Professor of Anthropology, who helped recover the altar from the looters' hideout.


ANDREW L. DEMAREST

The altar was rescued through an unusual collaboration among Guatemalan undercover agents, local Maya villagers, and American archaeologists that included a six-month pursuit of the relic and the arrest of the ring of looters.

The great altar was placed in 796 A.D. as a marker at the end of the royal ball court of Cancuén, the site of one of the largest royal palaces ever found, where the ancient city's ruler would play the sacred Maya ball game against visiting kings. The role of the game was more ritual than sport. Location of ball courts in the ritual space within Maya cities, and the imagery that accompanies them, underscores their role as boundaries between the actual and supernatural worlds.

"They also used these royal ball games to celebrate state visits and to conclude royal alliances," Demarest says. "The carvings on the altar actually represent the two kings playing and, thus, record the state visit." The stone altar was set into the ball court floor and was used as a marker or goal post for later games, as well as a sacrificial altar.

The altar is one of two from Cancuén known to exist. The other, unearthed in 1915, is on display in Guatemala's National Museum of Archaeology and has long been considered one of that museum's greatest treasures.

"The newly discovered altar is a masterpiece of Maya art, even better than the one found in 1915, and its text gives a glimpse of the last years of the Cancuén kingdom," says Federico Fahsen, an adjunct faculty member and the Cancuén project epigrapher who is deciphering the glyphs.

The king pictured on the altar, Taj Chan Ahk Ah Kalomte, was the greatest of Cancuén's long dynasty of rulers.

Demarest, with co-director Tomás Barrientos, leads the Cancuén Archaeological Project, which is supported by Vanderbilt and the National Geographic Society. Discovery of the stone altar, however, did not come about through archaeology, but as the result of a sustainable tourism and indigenous development project conducted by Vanderbilt, the humanitarian organization Counterpart International, and National Geographic. The initiative, begun in 2001, is designed to train residents of the impoverished Q'eqchi' Maya villages near the Cancuén ruins to develop tourism. It also helps provide basic health services, water, solar power and legal support. While working on the project, Demarest and his colleagues developed the trust of local residents, who eventually came to him with news that the altar had been looted from the ground after it was exposed by a storm.

Demarest first learned of the altar's existence more than six months ago while working at the site. "One night four Maya elders showed up at my tent in the project camp," he recalled. "They told me that a woman had been brutally beaten by men in ski masks who were searching for a great altar that had been looted from Cancuén, one that I hadn't even known existed."

The nocturnal visit set in motion a secret investigation by Cancuén project members, Guatemala's Ministry of Culture, and the Ecological and the Cultural Patrimony Division of Guatemala's S.I.C. (Servícios de Investigación Criminal, that country's equivalent of the FBI) of looting in the region.

Guatemalan officials state that this may be the first time an entire network of looters and dealers of Maya artifacts has been exposed. "These arrests will set an example for the looters and dealers that Guatemala takes the defense of its ancient Maya heritage seriously," said Claudia Gonzales Herrera, Guatemala's assistant attorney general for national patrimony. Herrera will lead prosecution of the looters.

Demarest agrees that "the story of the altar's recovery is miraculous. Open to us now are clues to the end of the Cancuén kingdom that we never would have found without its recovery."

— David Salisbury


ANDREW L. DEMAREST

Aided by Maya villagers, Vanderbilt archaeologist Arthur Demarest, second from right, recently helped Guatemalan police rescue a priceless altar (top) from antiquities looters.

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Vanderbilt advances in U.S. News rankings

The latest rankings by *U.S. News & World Report* list Vanderbilt as 19th among the nation's best universities, in a tie with the University of Notre Dame.

For the second year, Vanderbilt's service learning effort was singled out as one of the academic "Programs to Look For." Service learning requires students to volunteer in the community as a course requirement. The service relates to what they are learning in the classroom, and vice versa.

The publication also recognized Vanderbilt for its undergraduate research/creative projects and its learning communities. In the latter program, students take two or more linked courses as a group, enabling them to get to know each other and their professors well.

New major established in Jewish Studies

Vanderbilt's unique strengths in religion, culture, history, literature and politics have provided a broad base for the launch of a new undergraduate major in Jewish Studies in the College of Arts and Science this fall.

"All cultures include aspects of religious expression, and faith communities often reflect the cultures in which they develop," says Richard McCarty, A&S dean. "This expanded commitment to Jewish Studies advances Vanderbilt's mission to equip our students with the tools they will need to appreciate the rich interrelationships among the religions, cultures and societies in which we live today."

Jack Sasson, Mary Jane Werthan Professor of Jewish Studies and Hebrew Bible at Vanderbilt Divinity School and professor of classics in the College of Arts and Science, serves as director of the program.

"It is not enough for people to know what they have in common; increasingly we must also know what makes us different, culturally and religiously," Sasson says. "In this way, we sharpen our capacity to empathize with our neighbors and we learn to celebrate the rich spiritual resources that are available to us."


DANIEL DUBOIS

Jack Sasson

Students can choose from courses in Hebrew and biblical studies, as well as classes taught by faculty from the law, divinity, education and music schools. They may also gain pre-professional experience by serving as volunteer community leaders or teachers in sectarian schools.

Martina Urban of the Hebrew University and of Berlin's Institute for Jewish Studies has been hired as assistant professor of religious studies and Jewish studies. The program is currently seeking to fill a tenured position to reside in the history department, with a final position to be filled during the 2004-2005 academic year. The program has inaugurated a master of art degree through the Graduate Department of Religion, and hopes to develop a master of education degree in Jewish Studies with Peabody College.

Chair of English Department Awarded NIH genetics grant

Two decades of dinner-table conversations between a husband and wife have resulted in a rare grant to an English professor from the National Institutes of Health.

Jay Clayton, the William R. Kenan Jr. Professor of English and chair of the department, was awarded the $100,000 grant in September by the National Human Genome Research Institute of the NIH. In collaboration with Professor Priscilla Wald of Duke University, he will lead a 12-member team to study and catalog the topic of genetics in literature, film and popular culture.

Jay Clayton

Studying how a scientific development like cloning is represented in serious novels and popular films like *Jurassic Park* or *Multiplicity* is important for the public debate, Clayton says.

"Common notions of science out of control are encapsulated and given their greatest power in *Frankenstein*," he says. "In Europe, they refer to 'Frankenfood' when they're speaking of genetically engineered food."

In the debate about cloning, Clayton says arguments are skewed by false assumptions that spring from pop culture.

"A film like *Jurassic Park* completely mangles the entire notion of cloning in very damaging ways, creating fears that are groundless," Clayton says. "There certainly are legitimate concerns about cloning. But the fears that you'll get a Xerox copy of an animal are utterly groundless. That's not how cloning works."

The research team will also look into ideas about genetics raised by serious novelists such as Richard Powers (*Gold Bug Variations*) and Jeffrey Eugenides (*Middlesex*).

Clayton was a fan of science fiction as a youth. His wife, Ellen Wright Clayton, is a physician and law professor at Vanderbilt who studies the ethical, social and legal implications of genetics advances.

"After 20 years of discussion around the dinner table, I realized that I had learned a lot about the social implications of advances in genetics," he says.

The research project will produce a book of essays designed to set the future course for scholars on the subject, a list of relevant books and films, and a Web site to serve as a central source of information.

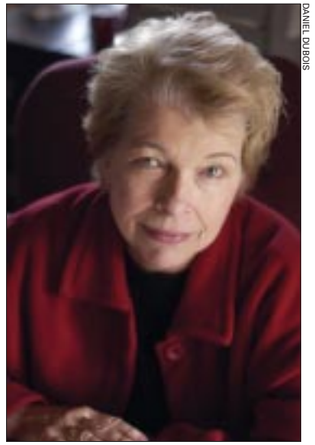
"We're going to get this important topic into the literature classroom," Clayton says. "Every student in high school in America takes English literature courses. This is a chance to raise these issues in classrooms where it's never appeared before."

— Jim Patterson, Vanderbilt Register

Tichi lauds new wave of muckraking journalists

In her new book, Cecelia Tichi, the William R. Kenan Jr. Professor of English, argues that a new wave of muckrakers is reviving a tradition that stretches back to the early part of the 20th century.

Novelists like Upton Sinclair exposed societal ills with groundbreaking and popular books that fueled public furor and led to reforms in the early 1900s.



DANIEL DUBOIS

Cecelia Tichi

Tichi's *Exposés and Excess: Muckraking in America 1900/2000*, published by the University of Pennsylvania Press, makes the case that authors like Barbara Ehrenreich (*Nickel and Dimed: On (Not) Getting By in America*) and Eric Schlosser (*Fast Food Nation*) are firmly in Sinclair's tradition.

"Individually, these books stir the minds and hearts of a nation in crisis," Tichi said. "Collectively, they issue a wake-up call, a reveille for America that is reminiscent of another group of writers."

Tichi also cites authors Naomi Klein, Joseph Hallinan and Laurie Garrett as part of the new muckraking corps. She believes the public is receptive of their efforts, based on the books by Schlosser and Ehrenreich becoming best sellers.

"Social change may proceed slower than wildfire," Tichi says, "but signs indicate the work of these modern muckrakers is beginning to make a difference."

World-class mathematician joins Vanderbilt faculty

Alain Connes, widely considered to be one of the three most influential living mathematicians, has accepted a position of distinguished professor at Vanderbilt, enabling the University to become a base for training new mathematicians to fill the ranks left vacant by a retiring generation of scholars.

Under the arrangement, Connes, who is a professor of mathematics at the College de France and holds the Motchane Chair at l'Institut des Hautes Études Scientifiques in France, will spend several weeks each spring in Nashville to collaborate with members of the Vanderbilt math department and participate in an annual workshop for young mathematicians.

"Connes has taken geometry to whole new level — one that is finding important applications in theoretical physics," explains Guoliang Yu, a Vanderbilt mathematics professor who works in the area.

New name, new chair

The former Department of Geology has a new focus, a new name and a new chair. In May 2003 — after 35 years of distinguished service and leadership — Professor and Chair Leonard P. Alberstadt retired. His successor, David J. Furbish, became chair in August 2003, and the department was renamed Earth and Environmental Sciences.

David J. Furbish

Professor Furbish came to Vanderbilt from Florida State University where he was a professor of geological sciences and director of the Center for Earth Surface Processes Research. He says the department's new name "reflects the growing breadth of topics covered in our field, and the fact that the geosciences play an increasingly important interdisciplinary role among the natural sciences — notably the Earth and life sciences — the social sciences and engineering."

Class of 2007 smartest, most diverse to date

This year's Arts & Science freshman class represents the smartest and most ethnically diverse in the 130-year history of the University, according to William Shain, dean of undergraduate admissions.

"We don't publish test scores, but I can tell you the average SATs are up several points from last year," he said. "And last year's scores were up 7 points from the year before."

Shain said the SAT scores — which are well above 1300 — are up a significant 20 points since 2000.

Also making the incoming A&S freshman class distinctive is the percentage of the students accepted into the University who actually enroll, the "yield." This year's A&S yield is 32.4 percent, up from 31 percent last year.

"It's amazing for your yield to go up as your class gets stronger," said Shain. "Academically stronger students get into more competitive universities, so it is typically harder to enroll them." Shain said this trend speaks well of the University.

DANIEL DUBOIS

"It's one thing to compete with a non-flagship public institution; it's another to compete with Yale," he said.

Students of color in the A&S Class of 2007 number 217, up from 198 last year. "That number has gone up in each of the last five years," said Shain.

Eighty-four of the 941 enrolled A&S freshmen are African Americans. The most in a previous year was 66, a record set in 2001 and 2002.

Fifty-four are of Latino descent, also a record high, surpassing 47 in 2002.

Students from Tennessee comprise 14.5 percent of the A&S freshman class, the largest population from any single state.

Learning How to Teach

The learning process never stops, even for professors. And no one encourages this fact more than the Center for Teaching (CFT), a resource for Vanderbilt faculty and teaching assistants (TAs) since 1986.

NEIL BRAKE

Allison Pingree

"The core mission is to support a culture of teaching excellence at Vanderbilt," says director Allison Pingree. "And to work with individuals and units across the University to sustain a culture that sees teaching and learning as vital forms of scholarship."

The Center for Teaching, located on the first floor of Calhoun Hall, promotes better teaching in several ways. A&S professors and teaching assistants use the center for individual consultations or for workshops that allow them to collaborate about teaching techniques with a small group of other faculty members. They also use the extensive resource library filled with videos and books about best teaching practices. International TAs also use the center to get support for adjusting to an American classroom and connecting to the students and culture they live in. All consultation services are private and confidential.

Alison Piepmeier, a senior lecturer in women's studies, participated in the CFT as a graduate teaching assistant in English and later worked as a Master Teaching Fellow, doing consultations and programs for other TAs. She says she's seen personal improvement in her teaching since working with the center.

"It's great to talk to people who have made it their life's work to consult and talk with professors and improve their teaching," she says. "Vanderbilt has made teaching a priority, and that's just essential."

Piepmeier says having her classes videotaped and critiqued by the center has proved especially helpful. She also credits the CFT with helping her to incorporate technology into the classroom and successfully to present emotionally charged material in her courses.

"I've gotten really excellent training, and I've changed a lot of what I do in the classroom," says Piepmeier, who has been recognized as an exceptional lecturer and administrator in women's studies since finishing her Ph.D. at Vanderbilt.

Associate Professor of History Michael Bess has been involved with the Center for Teaching for the 13 years he has been teaching at Vanderbilt. As a part of his Chair for Teaching Excellence Project, he created a two-hour workshop lecture series in the spring of 2003 called "The Art of Teaching." The series covered such core teaching issues as effective lecturing, plagiarism and cooperative learning. More than half of the participants in the workshop were A&S faculty.

"In its original design, the workshop was limited to 20 people per section, and there were six sections," Pingree says. "But there was so much interest we set up a whole separate series that was a replica of the first, and we had over 180 participants over the course of the semester. [It's] a great example of people being curious to get together with their colleagues to talk about teaching."

Bess commends the center for putting importance on teaching in a research environment. "At a research university like Vanderbilt, it's hard not to let the research and the publications take precedence over teaching," he says. "[The center] is a true statement about Vanderbilt's commitment to teaching."

Pingree agrees with Bess, but also views the issue from another perspective.

"In saying that teaching involves inquiry, experimentation and reflection, we are saying that teaching is very much like research," explains Pingree, who came to Vanderbilt from Harvard University to direct the CFT five years ago. "By calling it a vital form of scholarship, we're saying, 'let's approach our teaching as we do our research, where we design an experiment, with core questions or goals, and then try things out.' [Vanderbilt] understands that kind of scholarly approach well, and a teaching center with that approach will dovetail well with scholarly modes of thinking."

The Center for Teaching does research of its own by trying to assess the impact of its programs and services. They keep track of attendance and collect participant feedback.

"We not only find out in a qualitative way what they learned, but we're also getting people to tell us to what extent we achieved our goals for a particular event or program," Pingree says.

In addition, Pingree and her staff communicate with deans, department chairs and other administrators about their perspectives on teaching issues, in order to align the center's work with strategic developments across the University.

Pingree says she hopes the center will continue to improve its services to teachers in the future. But in doing so, she says, the center needs to focus even more on student learning.

"Teaching without learning is just talking," Pingree says, citing educational researchers Tom Angelo and Patricia Cross. "The real focus needs to be on helping students figure out what makes them learn best. If we can focus on their discovery and development, then the deepest kind of learning can happen."

— Kelly Nolan

NEIL BRAKE

In November renowned Harvard biologist Edward O. Wilson spoke on "The Future of Life" as part of a celebration of Vanderbilt's new Biological Sciences-Medical Research Building III. Pictured with Wilson, left, is Charles Singleton, chair of biological sciences.

A Woman in the White House?

Women aren't smarter, better or more capable than men, says Marie Wilson, A'62. They just deserve to be treated as equals.

"To be for women is to be for men," explains Wilson, who is president of the Ms. Foundation for Women, the leading philanthropic foundation in the United States promoting women's rights. "Men and women should be able to lead together. We have to normalize [the fact] that women are born leaders."

The Ms. Foundation supports programs that advocate women's economic, reproductive heath, and safety issues. They also sponsor programs that encourage young women to become future leaders.

And so far, those programs have been very successful. The Collaborative Fund for Women's Economic Development, which started in 1991 to help low-income women start their own community-based businesses, recently won a Presidential Award for Excellence in Micro-enterprise Development. Governors and mayors from across the nation have praised the Take Our Daughters and Sons to Work Day, which will take place on April 24 this year. The Collaborative Fund for Youth-Led Social Change promotes a future generation of young female leaders. And Wilson has a challenge for these new female leaders.

HENRY LEUTWYLER

Marie Wilson, A'62

"The young women I work with are amazing," proclaims Wilson, who has been a strong advocate of women's rights for more than 30 years and president of the Ms. Foundation for nearly 20. "But I find young women taking charge only of things that they can change personally like education or the environment."

These emerging leaders should take on new leadership roles, Wilson says, not just by demanding equal treatment in the work force. They should also become more active in politics and policy making. Women comprise only 14 percent of national government leaders in the U.S. House and Senate and only 20 percent at the state level, according to research from the White House Project, a national non-partisan organization co-founded by Wilson in 1998. The project strives to get women elected to political leadership roles, including the presidency of the United States.

To encourage women's political activism, the White House Project will cosponsor a large-scale women's political conference in Chicago in June 2004. Wilson says she hopes the event will draw about 22,000 women of all ages to become excited about the upcoming presidential campaign.

"This should be an initiative for young women to become involved," she says. "And to show them they have a place in politics."

Wilson says she became interested in women's rights during her time at Vanderbilt in the early 1960s. "I went to Vanderbilt during the time of sit-ins and peaceful demonstrations," says Wilson, who served on the student-appointed committee in the Jim Lawson case with Senator Lamar Alexander, (R-TN), who graduated from the College of Arts and Science in 1962. "It was amazing to be in Nashville at that time and see African-American students at other schools fighting for their freedoms."

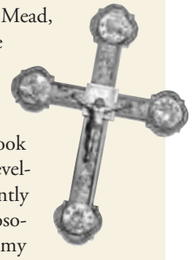
The movement for social justice not only inspired Wilson's passion for women's rights, but also led her to become involved in politics herself. She became the first woman elected to the Des Moines, Iowa, city council as member-at-large in 1983.

A year later, she resigned her council seat and became executive director of the Ms. Foundation, which has its headquarters in New York City.

— Kelly Nolan

My (Second) Most Memorable Professor

My most memorable professor is philosophy Professor John Lachs, who has been my mentor and long-time close friend. Nothing I can say would add to John's already legendary status at Vanderbilt.



I would like to pay tribute to Richard Mead, professor of religion. During my sophomore year (1968-1969), I took two courses from Dr. Mead — New Testament and Early Catholic Christianity — which were probably the two most interesting courses that I took at Vanderbilt. The historical study of the development of early Christianity has significantly influenced my religious thinking and philosophy. This alone might qualify Dr. Mead as my second most memorable professor, but what made him especially outstanding was that he taught these courses while he was dying from [a degenerative illness].

At the time I took these courses, Dr. Mead was still able to walk, but he had lost much of the use of his arms. I remember how, when he entered the classroom, he would have to swing his arms back and forth to get the books he was carrying up onto the lecture table.

Dr. Mead died in 1970 when I was a junior. He was a study in courage and a most memorable professor.

— Neal Manners, BA'71

NEIL BRAKE

Former cheerleaders Ellen Russell Sadler, BA'59, left, Mary Lawrence Allen, A'54, Betty Nelson, A'54, and Gloria Polk Nobles, BA'58, returned to campus in October for reunion/homecoming festivities during extraVUganza 2003, along with almost 4,000 other alumni and guests. More information and photos are available at www.vanderbilt.edu/alumni/reunion

VANDERBILT **Reunion & Homecoming**

NOVEMBER 5-6, 2004

Reminisce and make new memories!

Join fellow alumni, current students and Vanderbilt friends for the annual extraVUganza weekend, the largest alumni celebration on Vanderbilt's campus. Mark your calendar and join your friends for the fun. For details and hotel information, visit our Web site: *www.vanderbilt.edu/alumni/reunion* or call 615-322-6034.

NEIL BRAKE

Honor graduates Toby Asel, left, and Sarah Moreland, both BA'03, and Julia Pirrung, Peabody BS'03, are working at Lloyd's of London this year thanks to the Walter C. Wattles Fellowship. Wattles, BA'36, established the fellowship to give Vanderbilt women a chance to work at the British insurance marketplace.

New Ingram Chair to Promote Brain Research

What's the final frontier of science? It's not quantum physics or DNA; it's the mystery of the human mind.

How do we make choices about career or marriage or what to eat for breakfast? How do we recognize and correct our errors? How does the brain make us who we are?

Vanderbilt Psychology Professor Jeffrey D. Schall and his colleagues are unraveling these mysteries. His research looks at how the brain processes visual information, produces attention and awareness, controls actions, and knows when it makes a mistake. Someday his findings may help people with vision impairment, Attention Deficit Hyperactivity Disorder (ADHD), schizophrenia, and Alzheimer's disease.

Jeff Schall

In recognition of this promise, Vanderbilt University has named Schall the first E. Bronson Ingram Professor of Neuroscience. The chair was created through the generosity of Robin Ingram Patton and her husband, Richard, BS'84, in memory of Robin's father, E. Bronson Ingram. A Nashville corporate and civic leader, E. Bronson Ingram served as president of the Vanderbilt University Board of Trust from 1991–1995. Robin's mother, Martha Rivers Ingram, is currently chairman of the board.

"The Pattons' generosity comes during a time of rapid exploration and discovery in brain research," said Richard McCarty, dean of the College of Arts and Science. "Jeff Schall is exploring some of the most complex questions in brain sciences today."

Schall, 43, came to Vanderbilt in 1989. He is director of the Center for Integrative & Cognitive Neuroscience (CICN), one of Vanderbilt's interdisciplinary institutes focusing on areas of inquiry that cross boundaries of disciplines, departments, and even schools. Schall is also director of the Vanderbilt Vision Research Center and a senior investigator with the John F. Kennedy Center for Research on Human Development.

He has received an Alfred P. Sloan Research Fellowship, a McKnight Endowment Investigator Award, and the 1998 National Academy of Sciences Troland Research Award, the most prestigious award given to an experimental psychologist under age 40.

Endowed chairs are vital to research, Schall explained. "A gift like the Pattons' provides extra funds to support activities that grants can't. We can take advantage of breakthroughs we might not be able to otherwise."

The Pattons endowed the E. Bronson Ingram Chair through Vanderbilt's $1.25-billion Shape the Future Campaign. "My father believed it was important to recognize and support genuine achievement, and that is what endowed chairs do," said Robin Patton. "Jeff Schall has already proven himself to be an outstanding scholar, and Richard and I believe his research will have great impact."

Schall also emphasized the influence of his family on his work. "My mother taught me to wonder, my father taught me to serve, and my children help me to see tomorrow," he said.

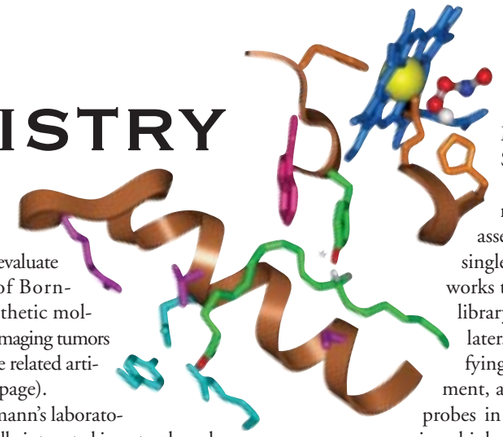
For Schall, that tomorrow will include collaboration with Sohee Park, associate professor of psychology; Gordon Logan, Centennial Professor of Psychology; and Herbert Meltzer, Bixler/Johnson/Mays Professor of Psychiatry and professor of pharmacology. The quartet will test how anti-schizophrenia drugs like clozapine work. Schall — who loves to teach — said his undergraduate students would have the opportunity to assist with the study.

— Lynne Hutchison

Vanderbilt Brain Institute

Once again, the Vanderbilt Brain Institute will present Brain Awareness Month in March. For more information about the exciting month-long series of programs about the brain, go to *http://braininstitute.vanderbilt.edu/*

Better Health Through Chemistry



Cruising past the first-year anniversary of the Vanderbilt Institute of Chemical Biology (VICB), Larry Marnett and Ned Porter are all smiles when talking about its progress. They have reason to feel satisfied. Faculty recruitments have exceeded expectations, core facilities are expanding to accommodate supporting technologies, a new group of fellowship-supported students has begun classes, and a weekly interdisciplinary seminar series is building community.

Ned Porter

"It's been a good year," says Marnett, director of the VICB, Mary Geddes Stahlman Professor of Cancer Research, professor of biochemistry and chemistry, and director of the A.B. Hancock Jr. Memorial Laboratory for Cancer Research. "We've put a lot of resources and tools in place. Everybody has given us such terrific support, beginning with Chancellor Gee. We are grateful for the opportunities that the Academic Venture Capital Fund (AVCF) has afforded us."

The Vanderbilt Institute of Chemical Biology is one of 11 initiatives funded by the AVCF, an internal grant program designed to boost areas of trans-institutional research judged by campus leaders to have the potential to evolve into programs of national stature.

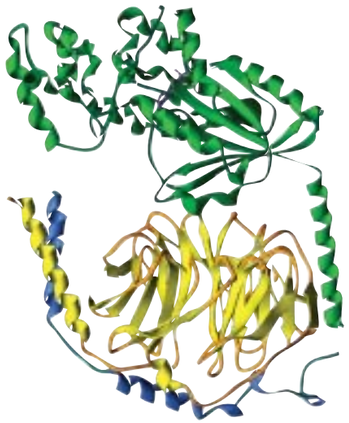
A joint enterprise between the College of Arts and Science and the School of Medicine, the VICB's mission is to promote research and education in the application of chemistry to biological problems. Now that the human genome has been sequenced, Marnett says, this approach becomes essential as the focus of attention shifts from what the players in the cell are to how they work.

"You're talking about structure, function, analysis — these are the tools of chemistry," he says. "We are heading into an era where chemistry will assume a dominant role in the way that people ask biological questions. The VICB is perfectly positioned to build the strengths Vanderbilt needs to be a major force in the post-genomic world."

Marnett sees the disease-based centers on campus, such as the Diabetes Center and the Cancer Center, as natural places to apply chemical approaches to discovery of novel treatments, diagnostic tools, or preventive measures.

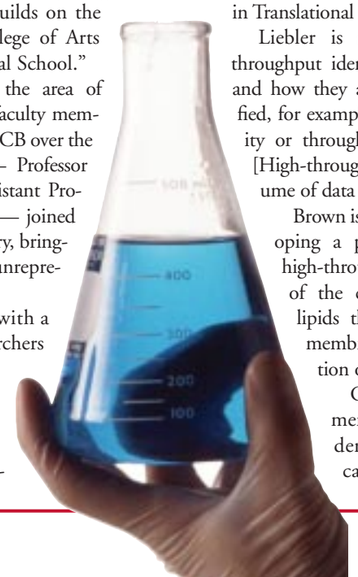
As a trans-institutional entity, the VICB relies on cooperation among all partners, and nowhere is a close working relationship more essential than between medicine and chemistry. With the recent announcement naming Porter chair of the chemistry department, the relationship stands to grow even stronger. Porter, Stevenson Professor of Chemistry and professor of biochemistry, is also associate director of the VICB.

"Vanderbilt has an unusual strength in chemistry in the School of Medicine," Porter says. "The institute provides a unique opportunity to build an interdisciplinary program in chemical biology that builds on the strengths in both the College of Arts and Science and the Medical School."



To bolster strength in the area of chemical biology, five new faculty members were recruited by the VICB over the past year. Two of them — Professor Darryl J. Bornhop and Assistant Professor Brian O. Bachmann — joined the Department of Chemistry, bringing expertise previously unrepresented at Vanderbilt.

Already a collaborator with a number of Vanderbilt researchers before his arrival, Bornhop is focused on the synthesis of imaging agents for use in both fluorescence and magnetic resonance imaging. Clinical trials are in the works to evaluate the use of Bornhop's synthetic molecules in imaging tumors (please see related article, next page).



Bachmann's laboratory is broadly interested in natural product biosynthesis, which is a branch of chemical biology that attempts to understand how molecules such as penicillin, erythromycin, and other natural products are assembled by the organisms that produce them, atom by atom.

"The VICB is incredibly important in recruiting outstanding faculty to the chemistry department," Porter says. "The institute provides resources to establish first-rate laboratories for these scientists, and it also emphasizes Vanderbilt's recognition of this important new area of research. We can attract the best and provide an environment in which they can succeed."

The other three new faculty members were jointly recruited with various departments in the School of Medicine: Daniel C. Liebler, professor of biochemistry and director of proteomics [the study of proteins]; H. Alex Brown, Ingram Associate Professor of Cancer Research and associate professor of pharmacology; and P. Jeffrey Conn, professor of pharmacology and director of the Program in Translational Neuropharmacology.

Liebler is an expert in high-throughput identification of proteins and how they are biologically modified, for example, as a result of toxicity or through signaling pathways. [High-throughput refers to the volume of data or material handled.]

Brown is well known for developing a powerful method for high-throughput determination of the changes in phospholipids that occur at the cell membrane following initiation of cell signaling.

Conn has been instrumental in helping Vanderbilt develop the capability for high-throughput screening of small molecules, now a service of the Molecular Recognition and Screening core facility.

The VICB invested in a robotic screening unit capable of assessing 384,000 compounds in a single biological assay. A plan is in the works to purchase a 150,000 compound library now, and add more as needed later. The compounds help in identifying lead molecules for drug development, and can be used as small molecule probes in testing the role of proteins in a given biological response.

Cooperation between the Center for Structural Biology and the chemistry department has made possible a second resource for researchers: an analytical NMR facility. "We haven't had the kind of small molecule analytical NMR facility that a place like Vanderbilt should have," Porter says. "It will be a major strength."

Such powerful tools can be useful in defining how molecules work with each other to effect biological responses. With that knowledge, chemists can design other molecules that inhibit or stimulate those responses, leading to new drugs that prevent or treat disease.

The VICB contributed to the recruitment of six pre-doctoral students this fall, several supported by institute fellowships. And the departments of chemistry, biochemistry, and pharmacology are co-sponsoring a weekly seminar series that has been, according to Marnett, "very successful at bringing both [the medical and non-medical] sides of the campus together."

DEAN DIXON

Larry Marnett

"Vanderbilt is unusual in the very strong scientific interactions between individual faculty members," says Porter, who moved from Duke University in 1998. "It makes sense to use those ties to further develop science at this interface of chemistry and biology and medicine."

Marnett and Porter intend to build on current momentum as the VICB moves into its second year. "The next year is a very important one for us," Marnett says. "We've made a good start. Now is the time to consolidate those gains and focus on making an impact here at Vanderbilt and around the country."

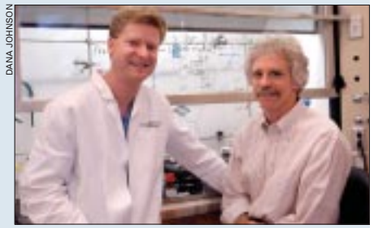
— Mary Beth Gardiner

Glowing tag lights up tumor cells

The National Science Foundation has thrown its support behind an innovative interdisciplinary collaboration at Vanderbilt to develop a fluorescent "tag" that can light up stray brain cancer cells so they can be better seen and removed during surgery.

Chemist Darryl J. Bornhop and neurosurgeon Reid Thompson hope their project will lead to improved cure rates for brain cancer patients because the ability to cure is directly related to how thoroughly tumor cells can be removed during surgery.

The NSF grant will provide $600,000 over three years.



DANA JOHNSON

Chemist Darryl Bornhop, right, and neurosurgeon Reid Thompson have received a grant from the National Science Foundation.

"Despite aggressive treatment, the median survival for patients with malignant glioma is less than a year," says Thompson, associate professor of neurological surgery and director of the Vanderbilt Brain Tumor Center. "Our current imaging techniques do not allow us to see all of the tumor cells infiltrating the normal brain tissue. The fewer tumor cells we leave behind, the better the cure for these patients, but we have to be able to see them. With this tag, these cells light up like a light bulb. It's really amazing."

The researchers have developed a brain tumor specific imaging method by hooking a molecule called a lanthanide chelate — which fluoresces in a wavelength that can be seen with the naked eye — to a molecule that selectively attaches to a receptor expressed in brain cancer cells. They also have added a Gadolinium molecule so that the cells can also be seen with magnetic resonance imaging.

The lanthanide chelate has an extending arm, or hook, to which other molecules can be attached. It also could be attached to molecules that bind to other types of cancer cells, so the implication for this work extends beyond brain tumors.

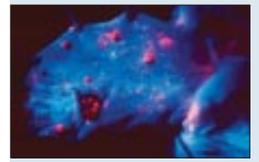
Plans for clinical trials are underway.

Bornhop notes that with brain surgery in particular, being able to precisely distinguish between tumor and normal cells is critical.

"What really impressed me about brain cancer is how infiltrating the disease can be, and how precise the surgery to remove those infiltrating cells needs to be," says Bornhop, professor of chemistry. "It's one thing to remove a bit more colon than you need just to be safe; it's quite another to remove a bit more brain than necessary."

An additional advantage to the fluorescent tag is that it might help distinguish between tumor cells and normal cells that are dying as a result of radiation therapy, Thompson said. With current imaging techniques, both look the same, but a patient with necrotic tissue does not necessarily have to undergo additional surgery.

Thompson and Bornhop began their collaboration a couple of years ago, while Bornhop was at Texas Tech University and Thompson was at Cedars-Sinai Medical Center. They continued their work together after Thompson joined the Vanderbilt-Ingram Cancer Center last year, but then the opportunity arose last summer to bring Bornhop here as part of the Department of Chemistry and the Vanderbilt Institute of Chemical Biology.



The proximity will enable them to move the work forward much more quickly, they say.

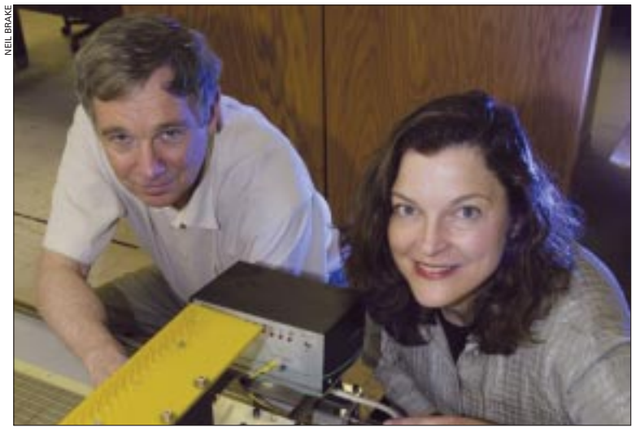
"The only way to make these things happen is to transcend departmental boundaries to develop new ways to treat disease," Bornhop says. "This collaboration is really starting to show promise."

— Cynthia Floyd Manley

Hammering gold into primordial energy-matter soup

Vicki Greene has had a lot of good news lately. The soft-spoken associate professor of physics is a member of an elite cadre of physicists who are trying to create and characterize an exotic state of matter called the quark-gluon plasma. The entire universe may have existed in this state 14 billion years ago, a few millionths of a second after the Big Bang, and it may be recreated briefly in the hearts of exploding stars.

NEIL BRAKE



Physicists Charles Maguire, left, and Victoria Greene

Greene and her fellow scientists are not ready to proclaim that the $600 million atom smasher, called the Relativistic Heavy Ion Collider (RHIC), has succeeded in reproducing this primordial plasma in the fiery microexplosions that it creates. But the results of their last two series of experiments make it highly likely that this is the case.

"In these kinds of experiments, there are always other explanations so we are being very, very cautious about the claims that we make," Greene stresses.

Professor of Physics Charles Maguire, who is also a member of the RHIC team, adds that "there are about three chances in four that the plasma is there, but scientists don't like to claim something until they are 95 percent certain."

RHIC is located at Brookhaven National Laboratory on Long Island. It operates by accelerating two beams of heavy ions, such as the nuclei of gold atoms, to nearly the speed of light in opposite directions around a ring 2.4 miles in circumference. At four different places around the collider's path the two beams are brought together so that the ions will crash into one another. At each of these "interaction points" different teams of scientists have designed and built elaborate detectors that track the showers of subatomic particles that are produced in these collisions.

Greene and Maguire both work on PHENIX, the largest of the four instruments. It weighs 3,000 tons, is 40 feet wide and four stories tall. By analyzing the information produced by PHENIX, the Vanderbilt physicists and their colleagues are attempting to reconstruct events that take place at a scale that is almost unimaginably small and in times that are fantastically brief.

At the interaction points where the two beams collide, a small percentage of the gold nuclei flying past each other collide head on, creating microscopic fireballs that last less than a trillionth of a nanosecond and produce showers of subatomic particles that the scientists can track and identify.

The gold-gold collisions at RHIC bring nearly 400 protons and neutrons into collision at 99.995 percent the speed of light. When two nuclei hit head-on, temperatures spike to more than 300 million times that of the solar surface. At these temperatures, scientists predict that individual protons and neutrons inside the merged gold nuclei should melt, leaving free-roaming quarks and gluons. At lower temperatures, quarks and gluons are never seen alone but always stick together in pairs and trios to form a wide array of subatomic particles.

At the nanoscale level, this recreates conditions that scientists think existed when the universe was created. For a brief period, the universe consisted of blazing plasma made of a mixture of quarks and gluons. As the universe expanded and cooled, quarks and gluons were organized into various combinations to create protons, neutrons and a host of other less stable particles. In this fashion, the familiar atomic structure of matter came into being.

— David F. Salisbury

For more information about cutting-edge research, visit Vanderbilt's online research journal, Exploration, *at http://exploration.vanderbilt.edu*

Did you know?

About half of all A&S undergraduates receive some type of financial aid in order to attend the University.

RESEARCH BRIEFS

Bigger not always better • A study by a team of Vanderbilt psychologists sheds new light on one of the most sophisticated processes performed by the brain: identifying and tracking moving objects. "The bigger an object, the easier it is to see. But it is actually harder for people to determine the motion of objects larger than a tennis ball held at arms length than it is to gauge the motion of smaller objects," says graduate student Duje Tadin, who coauthored a paper in a July 2003 issue of *Nature* with postdoctoral fellow Lee A. Gilroy and Professors Joseph S. Lappin and Randolph Blake.

Genetic engineering • One of the first studies of what actually occurs when transgenes move from genetically altered plants to wild vegetation indicates that such transfers need not have a major environmental impact. The field study by John Burke, assistant professor of biological sciences, and researchers at Indiana University found that a transgene which protects commercial sunflowers against white mold disease is unlikely to spread through wild sunflower populations. Their findings were published in May 2003 in *Science.*

Southern discomfort • Only Republicans, political conservatives, and the affluent have bucked a 10-year decline in the rates of people living in the South who identify themselves as "Southerners," according to an article by sociology Professor Larry Griffin and graduate student Ashley Thompson in the fall 2003 edition of *Southern Culture.* Polls conducted from 1991-2001 indicate that about 70 percent of people living in the South consider themselves Southerners today, versus 78 percent a decade ago.

External funding for research increases dramatically

The amount of external funding that Vanderbilt University researchers received last year from peer-reviewed contracts and grants jumped by a dramatic 19 percent to reach an all-time high of $339.4 million.

In fiscal year 2003, extramural funding in the College of Arts and Science increased by 16 percent to a record $28.2 million. Among the highlights for the year was the meteoritic rise of funding in psychology. It has nearly doubled from $3.1 million in FY 1999 to $6.1 million last year.

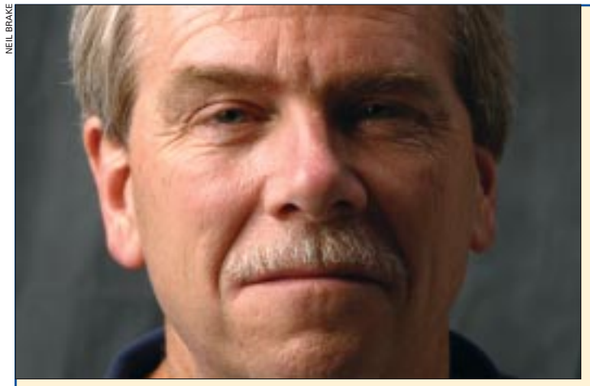
Although external support of research at Vanderbilt has grown steadily in recent years, it had been doing so at significantly lower annual rates ranging from 2 percent to 9 percent.

"It was a very exciting year," summed up John Childress, the acting director of the Division of Sponsored Research.

The dollar value of contracts and grants for A&S was $11 million in FY 1991. It grew to about $21.3 million in FY 1999. Then, for the last four years, it has risen steadily to last year's total of $28.2 million.

The increase in competitive research awards "is very impressive, but not unexpected," Childress said. "It is the result of the efforts of exceptional new faculty hires complementing the activity of the highly productive group of existing researchers."

NEIL BRAKE



Steve Hollon

Ask the Faculty

Professor of Psychology Steven D. Hollon's primary research interests lie in the causes and treatment of depression in adults. He is particularly interested in the relative contribution of cognitive and biological processes to depression and the comparative effectiveness of psychosocial interventions versus medication in treating depression.

Q: Could you talk in general about depression?

A: Depression is a very common disorder. It probably affects at least 15 percent of all people in this country. It is about twice as frequent in women as in men. The more common type is unipolar depression, which means the person gets depressed only. A less common, but usually more severe version, is bipolar disorder, where a person might have depressant episodes and manic episodes; the manic episodes define it as bipolar. It is much less common, affecting about one to two people in 100. Bipolar disorder has a very strong biological basis, and medications, like lithium or the anticonvulsants, tend to be the core of treatment.

For unipolar depression, a couple of things are helpful. Medications are generally effective. There are a number of different families of antidepressant medications, and they'll produce response — meaning a person will clearly get better — in about two-thirds of the individuals. The anti-depressant medications like specific serotonin reuptake inhibitors, which are the latest version of things like Prozac or Paxil or Zoloft, appear to be pretty effective and don't typically have problematic side effects and are certainly not addictive.

Medications, however, don't do anything for you after you stop taking them. Cognitive therapy seems to be about as effective as medication for most depressions and seems to have a long-term, enduring effect which, in a recurring disorder like depression, is very important. Interpersonal psychotherapy, in which you focus on the patient's current relationships with his or her family, spouse, etc., has done pretty well in the half dozen or so trials where it's been tested.

Most depressions go untreated, which is really sad, despite the fact that few disorders are as readily treatable.

Q: What is the role of heredity in depression?

A: There is no question that genes and heredity play a role in depressions. Again, bipolar disorders are among the more highly hereditable disorders that we know of. For unipolar disorder where people get depressed only, which is far more common, the hereditability coefficients go down considerably. The best guess is that about 25 percent is accounted for by genes, usually in individuals with severe depressions. For milder, less severe depressions, the hereditability coefficients are generally much lower.

Life events also appear to play an important role in which a pre-existent vulnerability in some individuals is triggered by negative life events. Genetic factors may be one example of those kinds of pre-existent vulnerabilities, but not the only one. They could also be acquired in other ways. There is pretty good evidence, for example, that children who get distressed — have major life events in pre-adolescence such as parents going through divorce and that kind of thing — will tend to get a bit depressed for a period of time. One of the things that happens is that they will tend to learn things about themselves — like "bad things happen to me" or I can't do anything right." Over time they get over the depressions but that way of thinking and looking at themselves tends to be more stable and lasts.

Geology professor studies origin of mammals in Antarctica

For 26 years, Molly Miller has been a professor of geology at Vanderbilt. Every four or five years, she sheds her lab coat to don multiple layers of fleece and fabric in order to collect rock samples in the ultimate geologic laboratory: Antarctica. In this frozen landscape she looks for, and finds, evidence that an abundant animal community flourished there more than 200 million years ago. The evidence that she studies is the burrows and tracks that these ancient animals left behind in the rock. Miller uses these "trace fossils" to reconstruct the environment, ecosystem and climate that existed in those ancient times. She is convinced that this forbidding land contains important clues about long-term climate change and the origin and evolution of mammals.

Miller's fascination with the earth and its history was sparked at the age of nine when she discovered a 350-million year old fossil while on a camping trip. Although her interest had been piqued, she didn't begin her study of the earth sciences until her freshman year in college. After majoring in geology, she went on to earn a master's degree at George Washington University, where she met and married her husband, Calvin Miller.

Researchers went through climbing exercises using ropes and pulleys.

When the couple was ready to enter academia, they faced a new challenge. "It was very difficult, especially at that time, to have two academic jobs and have any kind of normal family life," says Molly Miller. "So we decided very early on that the way to do this was essentially to share one job and have both parents involved in bringing up the children." Their emphasis on family brought them to Vanderbilt in 1977, where they were the first couple hired under the university's "full status, partial role" program. They each had an academic appointment but with only half the teaching responsibilities. Today, they are both full-time faculty members.

"Vanderbilt was very progressive. The advantage to the small geology department was getting two people with very different specialties," says Molly Miller.

One of her specialties is determining the origin of sedimentary rocks using diverse types of data, including the activity of animals that lived in the sediment before it was compacted and cemented into rock. Even though the animals themselves are not preserved, their movements and dwellings are. These behavioral patterns, referred to as trace fossils or bioturbation, allow geologists like Miller to determine the environment in which the rocks were deposited. This ability made her a prime candidate for work in Antarctica.

Molly Miller

In 1985, a group of Ohio State University scientists and collaborators traveled to Antarctica as part of the National Science Foundation's Polar Research Program to better understand the geologic history of the continent. By determining how various rock layers were deposited, their goal was to distinguish geographical features such as rivers, swamps and mountains. Of particular interest was a widespread rock unit consisting of shale with interspersed beds of coarser-grained sandstone. Geologists who had previously studied the rock were unable to determine whether this unit was deposited under marine or freshwater conditions, whether a large lake or the ocean had covered the area. In order to answer this question, the scientists invited Miller to come along on their next expedition.

Once she arrived in Antarctica and saw the rocks, Miller quickly determined that the strata had been deposited in fresh water. She observed that the trace fossils it contained closely resembled marks made by modern insects, the dominant bottom-dwelling animals in modern lakes and streams. Miller documented the existence of huge lakes that would have tempered the climate and created a suitable environment for plants and advanced animals such as reptiles.

Miller found the expedition so exhilarating and the geologic problems so intriguing that she returned to the Antarctic in 1995 to conduct in-depth research on how animals developed differently in fresh and salt-water environments.

Although it is believed that animals had spread throughout the bottom of the world's oceans about 500 million years ago, far less is known about the initial colonization of lakes and rivers. Freshwater deposits are rare in the geological record because they are deposited above sea level where they are subject to erosion. The four-kilometer thick sequence of rock in the Transantarctic Mountains that Miller identified has turned out to be the best-preserved freshwater deposits in the world.

Now one of the oldest women doing fieldwork in Antarctica, Miller has just spent what could be her last visit to the polar continent, continuing her research with the aid of Vanderbilt graduate student Nichole Knepprath.

"I'm getting a little old for it so I probably won't be able to do too many more," admits Miller. "It is physically challenging and that is my concern. I would keep going forever except that I don't want to slow down my coworkers."

The physical challenge includes surviving in extreme situations. Miller's closest call occurred several years ago when a large storm hit the Transantarctic Mountains where she was working. She and her colleagues had just set up camp when it began snowing.

"The winds were about 50 miles an hour and snowing hard," she says. "We were dug in for four days. That was pretty sobering."

Miller views Antarctica as a both a scientific and character building experience. "When you have experiences that put yourself in the perspective of a larger place, I think those are the most meaningful types of experiences," Miller says. "When you are in Antarctica you see yourself as part of the entire system. You are a little more vulnerable and thus more a part of it."

MOLLY MILLER

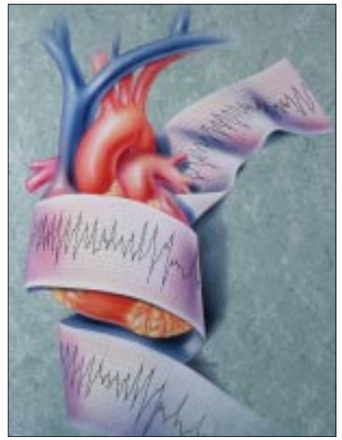
Mt. Erebus, an active volcano, looms over McMurdo Sound in Antarctica.

Little-studied waves in the heart may be cause of defibrillation failure

Vanderbilt researchers believe a slow electrochemical wave, known as a damped wave, may be one of the reasons that low-voltage defibrillation shocks fail to halt fibrillation in cardiac patients.

The findings by researchers John Wikswo, Veniamin Sidorov, Rubin Aliev, Marcella Woods, Franz Baudenbacher and Petra Baudenbacher were published in the Nov. 14 issue of *Physical Review Letters*.

Fibrillation is a series of rapid, disorganized contractions in the heart caused by multiple uncoordinated, self-generated electrochemical waves that prevent the heart from pumping blood, quickly causing death.



"In normal conditions, an electrochemical wave moves smoothly across the heart, like expanding ripples in a lake when you toss in a stone. This wave then triggers a smooth and orderly contraction of the muscle," said Wikswo, the Gordon A. Cain University Professor, professor of physics, and director of the Vanderbilt Institute for Integrative Biosystems Research and Education.

"In fibrillation, it is as if someone continually throws in lots of rocks at different spots in the lake. In the resulting confusion, no blood gets pumped."

The application of a strong electrical shock, either with paddles on the chest or with an implantable defibrillator, is the best way to stop fibrillation. Ideally, a defibrillation shock would stop all waves in the heart and prevent new waves from arising spontaneously.

"You want to use as low a voltage shock as possible to minimize tissue damage and, for implantable defibrillators, to save your batteries," Wikswo continued. "However, if the voltage is too low, fibrillation returns immediately and you have to try again. The puzzle is why."

Wikswo's study explores the possibility that some waves might not be fully extinguished by a low voltage defibrillation shock, or new waves might be created by the shock, causing defibrillation to fail. If these remaining or new waves were the difficult-to-detect damped propagating waves, they could propagate slowly within the heart wall, rather than slowly dying out as previously expected. This might cause the heart to return to fibrillation or another cardiac arrhythmia.

"Damped propagating waves are not generally well understood, largely because they are difficult to view and to study," Wikswo said. "It turns out cardiac tissue provides a beautiful example of these waves."

Although cardiac graded responses have been considered for some time, recent advances in high-speed imaging, data processing and numerical modeling are just now allowing their quantitative analysis as damped, propagating waves.

To study the damped waves, Wikswo's team initiated a wave with a strong stimulus that moved smoothly across the heart. They then created a damped wave with a weaker stimulus and sent it in the wake of the first.

"If you timed it just right you could find that the second wave would hesitate and then split in two," Wikswo continued. "One half would get smaller and slowly die, while the other half would sharply increase and eventually become a self-continuing wave on its own. This second, self-continuing wave could be a cause of defibrillation failure. What surprised us is the ease with which we could create damped waves that hung around for 50 milliseconds, which is a long time when you are defibrillating the heart."

The research, conducted by studying the rabbit heart, lays the foundation for future studies to determine if the waves created under experimental conditions also occur spontaneously following defibrillation.

Future studies based on this research will be conducted to better understand how to manage these waves, the effect of anti-arrhythmic drugs on them, and whether these findings could be used to improve the efficiency of cardiac defibrillators.

—Melanie Catania

Vanderbilt and Fisk Universities win $2.9 million to study nanotechnology

Vanderbilt and Fisk Universities professors will conduct joint research and train doctoral students from both institutions in the rapidly growing interdisciplinary field of nanoscience and nanoengineering as a result of winning a highly competitive, $2.9 million national grant.

While the five-year grant from the National Science Foundation will fund research leading to the creation and application of nanoscience materials, it will also enhance collaboration between the two schools and advance the recruitment of underrepresented minorities to the field.

The grant will fund the Vanderbilt-Fisk Interdisciplinary Program for Research and Education in the Nanosciences with the goal of creating nanoscale materials for basic science and a variety of applications ranging from medicine to microelectronics. It was awarded through NSF's Integrative Graduate Education and Research Traineeships (IGERT) program. "This program will give students a complete background in the interdisciplinary materials sciences, which provide the underpinnings of nanoscience and nanoengineering," Stevenson Professor of Physics Leonard Feldman, director of the Vanderbilt-Fisk program, said. "It integrates graduate education with research and enhances collaboration within and between Vanderbilt and Fisk, creating unprecedented opportunities for discovery and education."

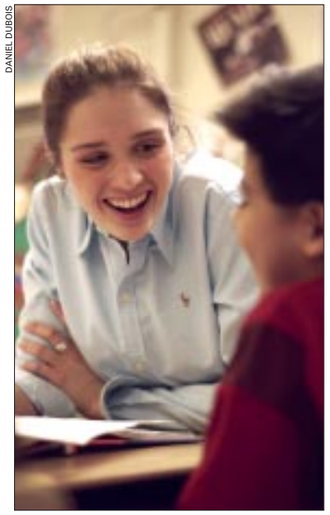
"Nanoscale" describes objects that measure approximately a millionth of a millimeter, or roughly 1/100,000th of a human hair. Nanotechnology is based on understanding the behavior of materials at the nanoscale level and how they can be used to accomplish goals such as the continued miniaturization of computer components and genetic engineering.

The Vanderbilt-Fisk program will involve more than 30 professors from the Vanderbilt departments of chemistry, physics, biomedical engineering, chemical engineering, civil engineering, electrical engineering, and mechanical engineering, and the Fisk departments of physics and chemistry.

¿Habla usted español?

When students sign up for Ellen Olazagasti-Segovia's Spanish 202 class, they no longer have to worry about completing Web-based assignments or engaging in chat rooms to perfect their language skills. Instead, those tasks, which were once a required part of the course, have been replaced by a more meaningful and rewarding method of learning: volunteering.

DANIEL DUBOIS



A&S student Michelle Weil helps a young Hispanic student with English as part of the Spanish department service learning project.

During the past two years Olazagasti-Segovia has helped the Spanish department integrate service learning into the curriculum. Devoting their time and efforts to the Nashville Hispanic community, Vanderbilt students not only are able to improve their language proficiency, but they also forge strong bonds with the individuals they help.

The need for volunteers within the Nashville Hispanic community has risen with the growth of the Spanish-speaking population over the past eight years. Today, there are approximately 100,000 Hispanics living in Nashville. More often than not, the language barrier creates significant problems for these immigrants. That is where Vanderbilt students come into the picture. Whether translating prison rules for Hispanic inmates or reading a book to a first-grade class, the students' help is eagerly welcomed.

"They were all very appreciative," says junior Sumeet Vaikunth, who taught English to Hispanic immigrants at St. Ann's Catholic Church last year. "Sometimes the task would be as small as helping to make a telephone call to pay a bill, but to them it was very important."

Perhaps one of the most popular places to volunteer is Haywood Elementary School. Here Vanderbilt students interact with many Hispanic children who are the first in their families to be born in America. Often the children face culture clashes between their Spanish-speaking families and their own desire to fit in with their peers.

"My students will be mentors to those kids, to help them sort through all those problems," explains Olazagasti-Segovia, a senior lecturer in Spanish. "Having a role model from the dominant culture is very important for these children. If you feel like you are 'the other,' that you are completely alienated, but then you find this very nice young person who is attending Vanderbilt and is interested in helping you out, that means a lot. It does make a big difference."

Sheila Hamilton, a teacher from Haywood Elementary School, agrees. "It is really a two-way street. They help us as much as we help them. We are very grateful to Vanderbilt for recognizing how important service learning is for our community."

Required for both majors and minors, Spanish 202 obliges the students to take on the serious commitment of immersing themselves in the Hispanic community. They are asked to sign two contracts, one to their professor and one to the agency they help, agreeing to give at least two hours a week to the program. Such a commitment requires students to put in more hours in this class than they do in other language courses, but the payoff is much greater for both the students and those they help.

Responses have been overwhelmingly positive according to Olazagasti-Segovia. "I could tell of the program's success from the very beginning. Class participation increased tremendously," she said. "Students feel more confident because now they know what it is like to talk to native speakers."

The bonds formed do not end simply because the semester does. The Vanderbilt students have been invited to birthdays, weddings and other family gatherings as a sign of gratitude by those whose lives they have touched. Relationships are kept strong and the learning process never stops.

"Even though the students started volunteering because it was a course requirement, some became so involved that they decided to continue on their own with their projects," Olazagasti-Segovia says. "That for me has been amazing and unexpected and, of course, I am very proud of that outcome."

Inspired by this success, Olazagasti-Segovia has designed a new service-learning course, "Latino Immigration Experience through Literature, Film and Community Service," in which students come face-to-face with real-life stories of immigration.

— Keely Fox

DANIEL DUBOIS

Vanderbilt students volunteer with the Nashville Hispanic community in many different localities. Patrick Reilly is working with children at Haywood Elementary School.

Kudos

Lewis Baldwin, professor of religious studies, will be inducted into the Martin Luther King Jr. Collegium of Scholars at Morehouse College in Atlanta in April. He serves on the advisory board of the African American Churches Project, which is based at Morehouse and involves a survey of nearly 2,000 black churches in the U.S. In connection with this project, Baldwin has contributed the lead chapter in volume one of a projected three-volume work, *New Day Begun: African American Churches and Civic Culture in Post-Civil Rights America.*

William J. Collins, associate professor of economics, has been named Model-Okun visiting Fellow in Economic Studies at the Brookings Institution in Washington, D.C., for 2003-04.

Isabel Gauthier, assistant professor of psychology and Kennedy Center investigator, has received the 2003 American Psychological Association (APA) Distinguished Scientific Award for Early Career Contribution to Psychology in the area of behavioral/cognitive neuroscience. According to the APA, "This award…is an outstanding accolade for scientific achievement."

Lenn E. Goodman, professor of philosophy, has been named Andrew W. Mellon Professor in the Humanities.

Timothy McNamara, professor and chair of psychology, has been named associate provost for faculty. He is responsible for faculty reappointments, tenure and promotions, as well as fostering interdisciplinary initiatives between the faculties of Vanderbilt's 10 schools.

Two more A&S faculty members have been elected Fellows of the prestigious American Association for the Advancement of Science: **Sokrates T. Pantelides,** the William A. and Nancy F. McMinn Professor of Physics, and **Ned A. Porter**, Stevenson Professor of Chemistry and chair of the department.

The following faculty members received A&S awards recently: **David A. Weintraub**, associate professor of astronomy, the Jeffrey Nordhaus and Katherine Stumb Nordhaus Award for Excellence in Undergraduate Teaching; **Peggy A. Thoits**, professor of sociology, Award for Outstanding Graduate Teaching; **Roger Moore**, senior lecturer in English, the Harriet S. Gilliam Award for Excellence in Teaching by a Lecturer or Senior Lecturer; **Michael Bess**, associate professor of history, the Ernest A. Jones Faculty Adviser Award; **Kate Daniels**, associate professor of English, the Alumni Outstanding Freshman Advising Award.

DANIEL DUBOIS

Francille Bergquist, second from right, associate dean of Arts and Science and a professor of Spanish, received the 2003 Chancellor's Cup during Homecoming Weekend in October. Established by the Nashville Vanderbilt Club in 1963, the award is given annually to a faculty member for "the greatest contribution outside the classroom to undergraduate student-faculty relationships."

Where Are They Now?

At 82, Professor Emeritus James R. "Bob" Wesson is still teaching. Having retired from Vanderbilt in 1990, Wesson now limits his tutelage to a Sunday school class at Crievewood United Methodist Church, where he and Jan, his bride of 60 years, also sing in the choir.

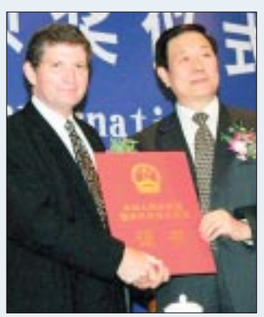
The Wessons also attend fitness classes at the YMCA, in part to keep up with their 10 grandchildren and two great-grandchildren. "Some are in Nashville, others are in other parts of the country," says Wesson. "A great deal of our time is spent with them. We've enjoyed them a lot."

During his tenure as professor of mathematics, Wesson won the Thomas Jefferson Award and the Laura Gregg Ingalls Award for Excellence in Teaching. "I do try to follow some of the happenings in academia, and mathematics particularly," he says.

A longtime season-ticket holder to V.U. football and basketball games, Wesson regularly reads Vanderbilt alumni magazines and occasionally hears from former students.

"My wife and I use a computer," says the amiable Wesson, quickly adding, "and *she's* an expert at it. So that helps us communicate with our family and friends." Friends and former students can reach Wesson at *wessonjr@ctrvax.vanderbilt.edu.*

— Shelton Clark



Joseph C. Hamilton, the Landon C. Garland Distinguished Professor of Physics, has received the highest award that the Chinese government bestows on foreign scientists, the National Prize of International Scientific and Technological Collaborations of China. Hamilton, left, accepts the award from Jinpei Cheng, right, China's Minister of Science and Technology, during a recent ceremony in Beijing.

Vanderbilt Observatories: 100 + Years of History

Last year, Vanderbilt's Dyer Observatory celebrated its 50th birthday, but the history of observatories at the University goes back much further. During the late 19th century, Chancellor Landon C. Garland, who was also a professor of physics and astronomy, oversaw the design and construction of Vanderbilt's original observatory. Located on the site now occupied by Rand Hall, it was named for Edward Emerson Barnard, one of America's most famous astronomers and one of Vanderbilt's earliest students.

At the age of 26 Barnard joined the University as an assistant in the new observatory and as a special student. During his four years at Vanderbilt, he was the first to make numerous astronomical discoveries, including 15 comets and many nebulae. He went on to national acclaim as a member of the Lick and Yerkes Observatories, where he discovered Jupiter's fifth moon and became the first to photograph the Milky Way. Vanderbilt's Barnard Hall is named in his honor.

In 1952, the Barnard Observatory was razed to make room for Rand Hall. At that time, Vanderbilt Astronomer Carl Seyfert convinced Arthur J. Dyer, BA1891, president of the Nashville Bridge Company, and Jack DeWitt, E'28, vice president of WSM radio and television, to help raise funds for what became Dyer Observatory.

More information on Dyer's outreach programs can be obtained by contacting its outreach coordinator at *nancy.dywer@vanderbilt.edu*

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DANIEL DUBOIS E

A *Dyer Observatory, which recently underwent an extensive facelift, serves as a science education and communications center.* **B** *Vanderbilt Astronomer Carl Seyfert with the Dyer Observatory telescope that bears his name.* **C** *Chancellor Landon C. Garland oversaw the construction of Vanderbilt's first observatory, which was named for the famed astronomer E.E. Barnard.* **D** *Barnard attained national fame as the first person to photograph the Milky Way.* **E** *A&S senior Keely Fox sits near the Rand Terrace sundial. The bricks in the base of the sundial came from Vanderbilt's first observatory, which stood on that spot.*

HISTORIC PHOTOS COURTESY OF DYER OBSERVATORY AND VANDERBILT PHOTOGRAPHIC ARCHIVES.

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