To the outside world, you might not look like a paragon of industry just now, zoned out on the couch or lingering over your morning coffee. Inside your head, however, there’s no shortage of work being done and decisions being made: Do you read this article word for word, or skim it to see if anything catches your eye? Do you look at the illustrations, or turn the page? Do you set the Cornerstone aside and read it later, recycle it—or toss it in the trash? How do you decide?

And how much of what you read right now will you retain in a week, a day or an hour?

While your brain is busy making up its mind and processing information, it’s also directing plenty of other subtle activities: How do your two eyes coordinate their movements to read these words? How do the fingers get the message to grasp the pages, and then to turn them?

For students like Sarah Harper, a senior from Indiana, such questions are more than mere matters for idle musings. Harper is one of more than 100 College of Arts and Science undergraduate students majoring in neuroscience. Now only four years old, the neuroscience major is attracting more students each year.

“Understanding how the brain works is endlessly fascinating, in part because it is so intricate,” says Harper. “Almost everything else I study somehow touches on the brain and its workings.”

“Students are drawn to the neuroscience major by outstanding instructors and an intrinsically interesting subject,” says Terry Page, who directs the Neuroscience Studies Program. Page is professor of biological sciences, professor of biology and chair of the department. “The program appeals to students because it’s interdisciplinary. They can take advantage of courses and faculty in several different departments and schools at Vanderbilt.”

A great place for neuroscience
Harper and other neuroscience majors have chosen a great time and place to study neuroscience. The new A&S dean, Richard McCarty, is a respected authority in the closely aligned field of psychology. Completion of the human genome mapping has accelerated the rate at which new knowledge of the brain is unfolding. Researchers are uncovering essential clues to understanding disorders which have profoundly affected millions of lives and defied understanding—autism and Alzheimer’s disease, schizophrenia and addiction.

Mental disorders, according to the U.S. Surgeon General’s Report on Mental Health issued in 1999, collectively account for more of the overall burden of disease than do all forms of cancer.

Concepts such as awareness, intention, desire

(please turn to page 4)
Walter Sullivan retires after 50 years at Vanderbilt

Walter Sullivan, professor of English, emeritus, ended his 51-year career at Vanderbilt last December by leaving from the active faculty in December 2000 at age 77.

Sullivan graduated from the College of Arts and Science in 1947. He joined the faculty in 1949 after serving a stint in the U.S. Marine Corps and earning a MFA from the University of Iowa.

A prolific writer, he has penned three novels and 12 short stories, edited two books, wrote more than 50 essays and countless reviews during his distinguished career. He has won the O. Henry Award and received the Heilman Short Stories Award for book reviewing in the Southern Review last year.

Sullivan says he was inspired to become a writer by a Vanderbilt professor, Fugitive, a Georgian poet Donald Davidson. Sullivan, in turn, has inspired many other young writers. For example, James Patterson, M.A.70, writer of the popular thriller Kiss the Girls and Along Came a Spider, credits Sullivan with encouraging him to pursue his dream of writing books during graduate school at Vanderbilt.

"I took a writing course from Walter," Patterson recalls. "He was very kind and stimulating. But don't blame my over-the-top thrillers on him."

Sullivan also forged another connection at Vanderbilt, one that proved to be life-long. It was here that he met his wife, Jane Harrison Sullivan, BA'45, MA'50, in a freshman English class. The couple will spend their retirement dividing their time between Nashville and their beach house in Florida.

Though he may have ended his scholarly commitments at Vanderbilt, Sullivan continues to serve the academic community as chancellor of the Fellowship of Southern Writers. He ... short stories during retirement, continuing a career that has been very rewarding both professionally and personally.

Ol'shanskii received an MS degree in 1968, a PhD in mathematics in 1971, and a Doctor of Science in Mathematics in 1979, all from Moscow State University. He has received many international awards and has spoken to mathematical conferences all over the world.

With the opportunity to join many of the world’s great universities, Ol’shanskii said he chose Vanderbilt because of the math department's strength in topology and algebra, as well as the opportunity to work with Professor Mark Sapir, who left Russia about 10 years ago.

"For the past two years, Ol’shanskii has taught graduate students at Vanderbilt during the fall semester and at Moscow State University in the spring. Two Russian graduate students accompanied him to Nashville, and he hopes one or two more will join him next year."

"In addition to the financial aid, receiving the scholarship was a big encouragement," she continues. "It meant a lot to me." She adds that she and her husband felt Ol’shanskii had the capability to become a biologist.

Roberson hopes to teach high school physics and math before pursuing a graduate degree. "Although I am excited about graduation," she says, "my four years at Vanderbilt have been a wonderful lesson in life as well as in physics and math, and I think my experiences will help me connect to the students that I will be teaching in the next few years."

—Rebecca Folmar

Walter Sullivan

From Mars to Earth?

Scientists from Vanderbilt and the California Institute of Technology (Caltech) have used a powerful new microscope designed and built by scientists in Vanderbilt’s Living State Physics Laboratory to establish that Martian meteorites could carry microbial life from Mars to Earth without being heat sterilized.

Joseph L. Kirschvink, professor of geology at Cal-tech, collaborated with Vanderbilt scientist Franz Bauer- denbach, research assistant professor of physics, and John P. Wikko, the A.B. Learned Professor of Living State Physics, to study samples of the famous Martian meteorite ALH84001 that Kirschvink had been examining.

Their work resulted in an article published in the Oct. 27, 2000, issue of the journal Science. While the scientists do not claim that microbial life actually traveled from Mars to Earth, they do conclude that the famous meteorite’s interior remained cool enough to allow such a thing to happen.

The instrument that made this study possible is called an Ultra-high Resolution Scanning SQUID Microscope. Developed by Baudenbacher, it is the only instrument in the world capable of measuring the extremely weak magnetic fields within the meteorite with the precision required by this study.

The Vanderbilt instrument is a stunning advance with profound applications in the earth and planetary sciences,” says Kirschvink. “There’s no other instrument in the world like it,” says Baudenbacher. “We designed it to study the magnetic fields generated by living tissue, like the heart, brain, and even some plants. But it is also ideally suited to measuring the weak fields found in meteorites.”

Other scheduled experiments with the microscope include measuring the magnetic fields of algae, developmental currents in embryos, and injury currents produced by ischemic cardiac tissue, all of which are difficult to detect with more conventional approaches. In addition, the scientists are lining up microscope time to study more Martian meteorites, lunar samples and some of the oldest rocks on Earth.

Franz Baudenbacher, research assistant professor of physics, designed and built the Ultra-high Resolution Scanning SQUID Microscope. He is holding a sample of a meteorite blasted from Mars 15 million years ago and crash-landed on the Antarctica ice about 11,000 years ago. He has been fortunate to be able to do what I’ve wanted to do: I’ve studied everything. I’ve been very, very lucky.”

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Though he may have ended his scholarly commitments at Vanderbilt, Sullivan continues to serve the academic community as chancellor of the Fellowship of Southern Writers. He expects to continue writing short stories during retirement, continuing a career that has been very rewarding both professionally and personally.

"I’ve been fortunate to be able to do what I’ve wanted since childhood,” he says, “I’ve been very, very lucky.”

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"I’ve been fortunate to be able to do what I’ve wanted to do: I’ve studied everything. I’ve been very, very lucky.”
What goes on in your brain to signal that you’ve made a mistake? Vanderbilt neuroscience scholars have shown that a set of neurons in a specific region of the brain reacts when you realize you have made an error.

The finding, reported in the December 14 issue of the journal *Nature*, was made by post-doctoral fellows Veit Stuphorn and Tracy T. Taylor—now an assistant professor at Dalhousie University—and Professor of Psychology Jeffrey Schall.

The researchers proposed that this region is part of an “executive system” that has evolved within the brain in order to control its own activity as it makes decisions, corrects errors, and overrides habitual responses. Although cognitive psychologists generally agree that such a supervisory system must exist, this is one of the first studies to reveal its working at a fundamental level.

“It is very important because it shows the cellular basis of self-control,” says Sohee Park, associate professor of psychology at Vanderbilt. “It addresses basic questions of psychology and philosophy like the origin of thought and free will.” It also has important implications for understanding schizophrenia, obsessive-compulsive disorder and psychopathic behavior, she adds.

Schall’s group specializes in the study of the brain’s control of eye movement. They studied the simple task of deciding whether or not to shift one’s gaze by using macaque monkeys in front of a computer screen. The monkeys were rewarded with juice for performing simple visual tasks.

Researchers monitored activity in a part of the macaque brain called the supplementary eye field, and found three distinct types of neurons in the area. One type acts when the monkey realizes that it has made a mistake and will not receive a reward. The third type responds when the brain has received conflicting instructions.

The work is of particular interest to Park, who studies schizophrenia. In eye-tracking experiments, she has found that 80 percent of schizophrenia patients and about half of their healthy, first-degree relatives have difficulties in the control of eye movements.

Park and Schall now plan to collaborate with Gordon Logan, Centennial Professor of Psychology, who developed the paradigm that provided the basis for the “Oops” study, and Herbert Meltzer, professor of psychiatry and pharmacology at Vanderbilt University Medical Center and an expert on the treatment of schizophrenia.

They will conduct a series of parallel studies with monkeys and human subjects to test the efficacy of anti-schizophrenia drugs like clozapine.

Shedding light on brain disorders

A more recent contributor to Vanderbilt’s brain research efforts is Gordon Logan, Centennial Professor of Psychology, who came to Vanderbilt in the late 1970s. Logan’s work studies decision making (acting spontaneously or unconsciously), impulsivity, and how we control our actions are particularly important in understanding schizophrenia and Attention Deficit and Hyperactivity Disorder (ADHD). He works in close collaboration with researchers at Vanderbilt’s John F. Kennedy Institute.

The ability to work closely with colleagues at Peabody College and the Kennedy Center, Vanderbilt University Medical Center has increased over the years. School of Engineering are no small part of the attraction for researchers like Logan.

“Neuroscience is by nature interdisciplinary,” observes Jeffrey Schall, professor of psychology. “When I was recruited to Vanderbilt, Jon Kaas invited me to his house and said, ‘We want the kind of colleagues that make us look forward to going to work.’ The infrastructure on the campus is outstanding—just like each other.”

Vanderbilt Brain Institute

Two recently formed alliances at Vanderbilt have greatly increased opportunities for collaboration. Last year, the provost, with the support of the donors of the College of Arts and Science, the School of Engineering, and Peabody College, launched a Center for Integrative and Cognitive Neuroscience (CICN). Directed by Schall, the CICN will increase the visibility of neuroscience related to brain research at Vanderbilt. Two years ago, the Vanderbilt Brain Institute was created to promote the discovery efforts of neuroscientists, training of undergraduate and graduate students, and coordination of public education and outreach in brain sciences.

The Vanderbilt Brain Institute fosters work in such diverse areas as nerve communications, learning and memory, behavioral and cognitive neuroscience, neurogenetics (genetic basis of nerve tissues), neural development, money sciences and clinical neuroscience related to neurological and mental disorders.

“Stays present of our genes are expressed only in the brain, which means the greatest amount of new knowledge will be related to the brain,” says Lee Limbird. Limbird, associate vice chancellor for Health Affairs and director of the School of Pharmacology and professor of pharmacology at Vanderbilt University Medical Center, led a group of Vanderbilt planners that first proposed formation of a brain institute.

“At least two-thirds of the money granted by the National Institutes of Health relates to brain research,” says Limbird, according to experience. “Vanderbilt has invested $250 million to be at the leading edge of neuroscience research and clinical care.”

Researchers in the College of Arts and Scientists, Peabody, the School of Medicine and the Kennedy Center are working together to understand how brain cells, circuits and systems change during development, through learning, and in response to injury.

Another area, which has fostered a great deal of collaboration, is the Vanderbilt Vision Research Center, also directed by Schall. It draws on expertise in low vision rehabilitation at Peabody, sophisticated vision testing and functional brain imaging in Arts and Science, computational procedures and devices developed in the School of Engineering, and abundant clinical populations available through the School of Medicine.

Until a few years ago, scientists’ abilities to examine and study human brain functions were limited to autopsy. Magnetic resonance imaging and PET scans have revolutionized research—but animal research still plays a critical role in scientific understanding of how the brain works. Vanderbilt researchers rely on a wide variety of species, from cockroaches and fruit flies to mice and monkeys. Animal research has been crucial to any number of breakthroughs in understanding the brain,” says Schall, who frequently gives students tours of the research labs he and his colleagues rely on to conduct their research. “We try to educate people as to why it’s necessary, and we’re always happy to show them how we conduct it. Its highly regulated by the government for the animals’ benefit, and people who tour our labs are usually surprised by the level of care we provide.”

Since 1997, Vanderbilt has increased its public understanding of the brain, issues surrounding the brain, and the latest scientific findings by partnering with the Dana Alliance for Brain Initiatives to present a highly successful Brain Awareness program. Throughout the month of March, Vanderbilt invites world-renowned experts on neuroscience and the brain to come to Nashville and share their discoveries. Vanderbilt also sponsors programs for children and the brain bee, an electronic statewide competition in which high school students test their knowledge of neuroscience.

Some of those high school students will not find their way to Vanderbilt and its neuroscience program after graduation, and contribute to our rapidly expanding knowledge of the brain.

“The brain is the last scientific frontier,” says Schall. “The most fundamental discoveries about how the human brain functions to produce perception, thought, memory and emotion—our very consciousness—are yet to come. The answers will come only through collaborative efforts at places like Vanderbilt.”

Gaynelle Doll

Professor of psychology Jeffrey Schall, left, is director of the Vanderbilt Vision Research Center and the newly formed Center for Integrative and Cognitive Neuroscience. This image at the bottom of this page represents the link between the brain and behavior.
Heidi Ueberrloth, NBA Standout

A n all-American girl with a global perspective—that’s Heidi Ueberrloth, BA’87. Ueberrloth is executive vice president of Global Media Properties and Marketing, NBA Entertainment—the mar- keting and media arm of the National Basketball Associ- ation. That makes her the highest-ranking female executive of the four major professional sports leagues.

Her responsibilities are divided between overseeing the marketing partnerships (with sponsors such as Coca-Cola, Yahoo and American Express) and worldwide television distribution for the NBA and the WNBA (the five-year- old women’s professional basketball league). Vanderbilt alumni playing in those leagues include Dan Langhi, BS’00, with the Houston Rockets; Will Perdue, BA’88, the Portland Trail- blazers; and Sherri Sam, BS’96, the Miami Sol.

Her position with the sports orga- nization combines two of Ueberrloth’s main interests—television and interna- tional business. Her love of fast-flying climes dates back to her formative years, when her parents were involved in the travel industry. They gave their middle daughter a vision of the world as marketplace. Her interest in sports also comes naturally, as her father, Peter Ueberrloth, once served as commissioner of major league baseball and head of the 1984 Olympic Games in Los Angeles.

After graduating from Vanderbilt with a degree in Eng- lish, Heidi Ueberrloth began scanning the career horizon. “I saw that television was poised for tremendous growth,” she says. “I took a job in Paris, marketing the men’s professional tennis tour for Ohlimyer Communica- tions. In 1993, ESPN/Capital Cities bought that compa- ny, and the following year she was drafted by the NBA as director of international media programs.

Although she never donned a basketball jersey for Van- derbilt, she fits and focused California native knows her way around the sport and around the globe. “Professor Susan Wilchinc once told me that everyone should travel around the world before age 25,” she says. “Tell her I’m taking me a little longer, but I’m getting there.” And indeed she is—from Hong Kong to Sidney to Paris.

With a television presence in more than 200 countries, and offices in 15, the NBA is deluged with requests to enter more countries. “We’re seizing the opportunities as fast as we can,” says Ueberrloth. In fact, the number of tele- vision networks carrying NBA games and special features has doubled since she came on board in 1994.

“There’s nowhere Ueberrloth can go anymore without bumping into the NBA. She remembers a vacation trip several years ago to the beautiful city of Guilin, China. A young guide there welcomed her to the “sister city to Orlando, home of the Orlando Magic and Shaquille O’Neal.”

—Judith DeMoue Campbell

Board of Trust approves ambitious fund-raising campaign

L ast fall the Board of Trust voted to launch a comprehensive fund-raising campaign for Vanderbilt, with a test goal of $1 billion.

Vanderbilt trustee Monroe J. Card Jr., BS’59, chairman of Central Parking Systems, chairs the campaign, which is expected to kick off officially in the spring of 2002. It is now in its silent phase, in which the University will raise enough money to determine whether the $1 billion goal is feasible.

The College of Arts and Science hopes to raise funds for endowed scholarships and other priorities, such as faculty chairs, new and improved facilities, expanded research and acad- emic programs, and improvements in student life. Proposed initiatives include establish- ing residential colleges for undergraduates and a creative arts program that includes theater, creative writing, studio arts and music.

This campaign is the most ambitious in the University’s history. Vanderbilt’s last compre- hensive campaign, the Campaign for Vanderbilt that ended in 1995, brought in $560 million in gifts, pledges and planned bequests.

A&S CORNERSTONE RECEIVES CASE AWARDS

The A&S Cornerstone received two awards in a recent communications contest among col- leges and universities in the Southeast, spon- sored by the Council for the Advancement and Support of Education (CASE). The Cornerstone, which goes to about 34,000 alumni, faculty and other friends of the College of Arts and Science, received a grand award in the exter- nal newsletters category and a special merit award in the newsletter publishing improvement category. Several other Vanderbilt media initiatives and alumni publications also won awards.

Gee announces major administrative changes

Chancellor Gordon Gee has announced major administrative changes to alumni and development, strategic planning and student services.

A national search is underway for Vanderbilt’s first vice chancellor for student affairs and campus life. This position will report directly to the chancellor.

Professor Nicholas Zeppos has been appointed to the new position of vice chancellor of institutional planning and advancement, which incorporates strategic planning, alumni relations and development. A professor of law for the past 14 years, Zeppos has served as associate provost for academic affairs for the last two years.

Beverly Bond, MBA’92, formerly vice chancellor for alumni and development, is directing the comprehensive capital campaign. John S. Beaudry II, vice chancellor for alumni and development, emeritus, will be counselor to the chancellor and help foster relations between the University and key alumni constituencies.

In announcing the changes, Professor Zeppos said: “Fund raising and alumni relations must be far more closely linked with our academic mission and planning.” He called Zeppos “one of the brightest, most energetic and creative people at Vanderbilt.”

A graduate of the University of Wisconsin law school, Zeppos joined the Van- derbilt faculty in 1987 after serving as an attorney in the U.S. Department of Justice. From 1998 to 1999, he served as associate dean of the Vanderbilt Law School.

Kudos

Simon Collier, professor of history, has been honored by the government of Chile, which appointed him a Consul- dador in the Order of Bernardo O’Hig- gens. The order is reserved for foreigners who have made a significant contri- bution to the life of the Chilean nation. Bernardo O’Higgins was the liber- tor who led Chile to independence in 1818. Collier, who came to Van- derbilt in 1991, has specialized in the field of Chilean history and also has written extensively on the Argentine Tango, an association from his days of living in South America.

Dan Cornel Field, professor and chair of sociology, received an Excellence in Education Award for outstanding teaching in the academic area of sociology. The award was given for the first time this year by the Industrial Relations Research Asso- ciation, a 50-year-old interdisciplinary professional associ- ation for industrial relations scholars.

Jonathan D. Farley, assistant professor of mathematics, has received a Fulbright Distinguished Scholar Award, which he will use to conduct research at the University of Oxford. Farley also was named one of 50 “Leaders of the Future” in the January 2001 issue of Ebony mag- azine. He received his all degree summa cum laude from Harvard in 1991 and won a Marshall Scholarship to pursue a doctorate in mathematics at Oxford, which he earned in 1995. After com- pleting a postdoctoral research fellow- ship at the Mathematical Sciences Research Institute in Berkeley, Cali- fornia, he joined the Vanderbilt faculty in 1996.

Joseph H. Hamilton, Landon C. Garland Distinguished Professor of Philosophy, received the first Francis G. Slack Medal for Distinguished Service in Physics from the Southeast- ern Section of the American Physical Society. The citation reads in part: “For outstanding contributions to the devel- opment of academic excellence in nuclear science in the Southeast and throughout the nation.”

C. Elon Hindmarch, professor of economics, emeritus, has been asked to serve on the Social Sciences Panel of the National Research Council. The panel evaluates applications for the Ford Foundation predoctoral Fellowships for Minorities Program, which has awarded more than 50 fellow- ships a year since 1986.

John M. Sheep, associate professor of communication studies, has been award- ed the R. Aubrey Fisher Article of the Year Award by the Western States Com- munication Association for his essay, “Disciplining the Transgendered: Bun- don Teena, Public Representation, and Normativity.”
Among alumni and student art exhibited at A&S Day were these stoneware “Blushed Bowls and Vermillion Vase” (above) by Jenny Gill, winner of the 2000 Margaret Stonewall Wooldridge Hamblet Award. Right: “With the recent mapping of the human genome, a multitude of articles have appeared in the media about genetics,” said Professor of English Jay Clayton. “Many perpetuate the error of genetic determinism, that you are your genes.”

Bill and Cathy Turner enjoyed talking to freshman John Ross Stringham of Nashville, the first recipient of the honor scholarship that they have established.

Photos by Peyton Hoge

About 200 alumni, parents and other friends of the college experienced a potpourri of stimulating scholarship and social activities during A&S Day in February. Distinguished faculty members shared up-to-the-minute research findings in special presentations and regular A&S classes. They included Jeffrey Schall, professor of psychology and director of the Center for Integrative and Cognitive Neuroscience; Arthur Demarest, Ingram Professor of Anthropology; Carol Swain, professor of political science and professor of law; and Professor of English Jay Clayton.

“This was the first A&S Day that my wife, Nina, and I have attended,” said William A. Bugg, Jr., BA’59, of Atlanta, Georgia. “We came away believing that Vanderbilt is on the leading edge in many areas, such as archeology, brain research, genetics, and even religion and politics.”

Professor Carol Swain discussed the charitable choice provision that provides federal funding to faith-based social welfare programs. “It’s not as good as it seems,” she noted.