

IT'S A DAUNTING TASK—SOME WOULD ARGUE FOOL-hardy—to select from the myriad contributions Vanderbilt has made to the world, and offer up a handful as representative of the University's influence. In its 120-year history, Vanderbilt's faculty, students, alumni and staff have been engaged in work that has literally shaped the way we perceive ourselves and the world around us. Their work has changed the way we treat disease. It has created some of the programs developed to help those in our society who need assistance. And it has offered new twists on some very old traditions.

We've chosen 20 "gifts" to highlight here. You may be amazed at what we have featured; you may be amazed at what we've left out. We're certain you'll find some surprises.



ANNE RAYNER

20 *gifts* VANDERBILT GAVE THE



Fetal Surgery 1

■ Pediatric surgeons have long been frustrated that medical science can identify birth defects in a fetus long before its mother delivers. But corrective surgery had to wait until birth, and by then the defect often had worsened and caused even more damage to the child.

Drs. Joseph Bruner and Noel Tulipan were determined to find a way to do surgery sooner when the baby had a better chance of recov-

ery, even survival. They found it in 1997. Bruner, who directs Vanderbilt's fetal diagnosis and therapy program, and Tulipan, director of pediatric neurosurgery, developed a dramatic new technique to operate on a stricken child while still in its mother's womb. Spina bifida was the disease they set their sights on to conquer, or at least tame.

The two surgeons knew they couldn't reverse the damage of spina bifida, but they

hoped to halt it before it got worse. Their solution was to get into the uterus via an incision, expose the fetus, and repair the opening in its spine. They began operating at 28 weeks, but on occasion have done so as early as 21 weeks. Since the first surgery in 1997, they have performed more than 200 with good results. Along the way, they pioneered a similar surgery to treat hydrocephaly.

Today the fetal surgery pioneers are studying long-term benefits of the surgery along with teams at Children's Hospital of Philadelphia and University of California at San Francisco. Bruner and Tulipan are confident of the outcomes, and they already are studying other possibilities for treating other malformations and troubles—heart defects, metabolic disorders, blood and tissue transplantation—in babies long before they begin their lives in the outside world.

WORLD

2 *Alternative Spring Break*



NET PHOTOGRAPH BY VICKI VALENDI, PHILADELPHIA INQUIRER

■ If you've ever woken in a cold sweat from nightmares about your kid turning up in one of those Geraldo-style television news specials featuring college students cavorting naked and inebriated on some Florida beach during spring break, then this will be your favorite Vanderbilt gift to the world.

In 1986, after Vanderbilt students told Susan Ford Wiltshire they needed more exposure to the world beyond the Vanderbubble, the classics professor suggested they form a spring break program that would place students, faculty and administrators in different cultures and environments to confront social issues through community service.

Fast-forward 17 years. Thousands of students at Vanderbilt and dozens of other colleges and universities have spent their spring breaks working for social change in hundreds of cities in the U.S. and around the world. Vanderbilt's Alternative Spring Break has been emulated at institutions across the country.

Last March some 300 Vanderbilt students participated at 25 sites across the United States, Mexico and Canada. Students confronted

issues as diverse as youth homelessness in Nashville, cultural clashes within Texas Hispanic communities, and wetlands protection in Florida.

In 1991 two Vanderbilt students, Michael Magevney, BA'91, MBA'98, and Laura Mann, BA'91, JD'97, formed Break Away as a clearinghouse for volunteer spring break activities. Now called Break Away: The Alternative Break Connection, the national nonprofit organization provides training and information to universities and other organizations interested in creating lifelong volunteerism through intensive service-learning programs.

3 *Corrections Corporation of America*

■ In 1983, Tom Beasley, JD'73, started Corrections Corporation of America, the nation's first and now the largest private provider of correction facilities. It houses 53,000 inmates and employs 14,000 people in 61 facilities around the United States.

CCA officials maintain that privatization reduces overcrowding and achieves economies in both construction and operating costs. Recidivism, they add, is lower at private prison facilities and its facilities have an escape ratio of less than two-thirds the national average.

The company grew out of a cocktail-party brainstorm. Someone remarked that privatization was the only way to fix Tennessee's prison system and, a short while later, Beasley had rustled up management and financing.

A graduate of West Point, Beasley served in the U.S. Army in Vietnam, where he received the Silver Star and two Bronze Stars for valor. "My law degree gave me willingness to roll the dice every day," Beasley says. "I'd been in the army and Vietnam, I had a law degree from Vanderbilt, and I thought, 'If I go broke tomorrow, I can do it again.'"





Chick Embryo Technique for Culturing Viruses

■ The next time you or your child is about to receive an immunization and your health-care provider asks if you're allergic to eggs, remember Dr. Ernest W. Goodpasture and his contribution to fighting viral disease.

In 1931 the professor of pathology developed the first practical method for cultivating large quantities of a virus in the laboratory—by growing it in the exposed membrane of a chick embryo.

“It revolutionized the study of viruses and viral diseases,” says Dr. Robert D. Collins, the John L. Shapiro Professor of Pathology, who was one of Goodpasture's students. “Scientists from all over the world came here to learn the technique.”

The method opened the door for research that probed the nature of viruses and led to the development of vaccines to protect against viral diseases.

Goodpasture graduated from Vanderbilt in 1907, was on the Vanderbilt School of Medicine faculty from 1924 to 1960, and was its dean during the World War II and post-war era.

He was most proud of his discovery of the cause of mumps, which had eluded investigators since ancient times. In a series of experiments using monkeys, he proved the viral nature of the disease.



The Fugitives

■ “Down [South],” wrote H.L. Mencken in 1920, “a poet is now almost as rare as an oboe player, a dry-point etcher, or a metaphysician. ... [It] is almost as sterile, artistically, intellectually, culturally, as The Sahara Desert.” Two years later a group of poets at Vanderbilt began publishing a literary magazine called *The Fugitive*. Though it lasted less than four years and published just 19 issues, many consider it the spark that ignited what came to be called the Southern Literary Renaissance.

Four of the most prominent members included John Crowe Ransom, Donald G. Davidson, Allen Tate and Robert Penn Warren. Among them they account for three Guggenheim Fellowships, two Rhodes Scholarships, more than 20 honorary degrees, three Pulitzer Prizes for poetry and fiction, two National Medals for Literature, two National Book Awards, two Endowment for the Arts Awards, and one Presidential Medal of Freedom.

Left to right: Allen Tate, Merrill Moore, Robert Penn Warren, John Crowe Ransom, Donald Davidson



Grantland Rice, center, wearing hat

■ Let's say you're a guy who agrees to take part in a clinical trial testing an enzyme for possible use as a blood pressure drug, and what happens? Ummm ... You can't help but notice that suddenly your ability to sustain an erection is dramatically enhanced. Imagine telling *that* to the research assistant.

Fortunately, for millions suffering from erectile dysfunction, one research subject did report the serendipitous side effect to his physician, who recognized its significance. Researchers began questioning other men in the study who reported the same phenomenon.

Forget blood pressure, Pfizer said. The company quickly arranged a new clinical trial with the goal of producing a male impotence drug. The result was Viagra, which earned the highest revenue of any drug in history during its first year of release.

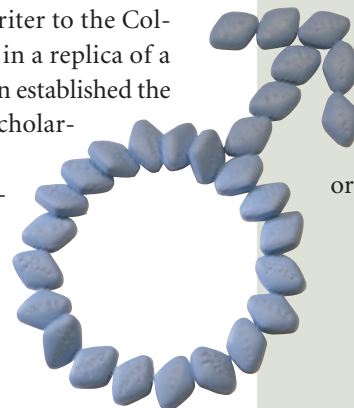
Most of the basic science research done to identify and clone the enzyme PD-5, which is responsible for Viagra's effect, was conducted at Vanderbilt by Jackie D. Corbin, professor of molecular physiology and biophysics, and Sharron Francis, research professor in molecular physiology.

Viagra, also known as sildenafil, works by inhibiting PDE-5, which is responsible for preventing or stopping a man's erection by destroying the protein cyclic GMP. Although cyclic GMP and PDE-5 are present in all blood vessels, sildenafil only works on cells in the penis.

Corbin earned his Ph.D. from Vanderbilt in 1968 and did post-doctoral work for three years at the University of California, then returned to Vanderbilt where he has spent much of his time working on cyclic GMP, a molecule that is key to regu-

lating a number of vital smooth-muscle functions, including blood pressure and penile erection.

In 1984 he and Francis merged their labs and have been collaborating ever since.



Viagra



6 Grantland Rice, BA 1901

■ Quite arguably the greatest sports writer ever to grace the halls of Vanderbilt, Grantland Rice conveyed the drama of sports with a turn of phrase bordering on poetry. Notre Dame fans certainly remember his 1924 report of Notre Dame's football victory over Army: "Outlined against a blue-gray October sky, the Four Horsemen rode again."

Accolades and honors followed Rice throughout his career. In 1948, the Philip Morris Company established the Grantland Rice Trophy at Vanderbilt, a permanent award in honor of students who best combine scholarship and athletic ability. On the national level, the Grantland Rice Trophy remains the most coveted of awards. It has been awarded to college football's national champion since the 1954 season (the year Rice died) by the Football Writers Association of America. In 1978, Vanderbilt loaned Rice's vintage Underwood typewriter to the College Football Hall of Fame in Canton, Ohio, housed in a replica of a 1930s press box. The Thoroughbred Racing Association established the Grantland Rice Scholarship in 1956, an all-expense scholarship for prospective sportswriters.

Of all of Rice's writings, perhaps the most often quoted—and most often misquoted—is this: "When the One Great Scorer comes to write against your name / He marks—not that you won or lost—but how you played the game."

Neonatal Intensive Care

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■ In 1961 there was no such thing as neonatal intensive care. Babies born prematurely with underdeveloped lungs died.

A research project led by Mildred Stahlman, BA'43, MD'46—and funded by the National Institutes of Health—was under way at the time to try and determine what physiological changes occurred in babies as they develop from intrauterine life to the world outside. The NIH grant resulted in the addition of a laboratory adjacent to the nursery at Vanderbilt Hospital. At the same time, Dr. Stahlman obtained a prototype of a respirator that was the same type used for polio patients, but it had been scaled down for premature baby size. In October of that year, the ongoing research project came face to face with life-or-death human need.

A baby girl had been born with severe hyaline membrane disease. Everyone agreed that unless something was done, she would die. With her parents' permission, a bold experiment began.

Using the equipment, technology and human knowledge on hand, a medical breakthrough occurred. For the first time in the history of medicine, a premature baby was helped to breathe by the use of a respirator. For five days, the fragile baby girl had her blood gases monitored and the pressures in her blood vessels and respiratory system checked, along with EKG readings. This ability to monitor vital signs was a daily challenge to the researchers, who had to use modified equipment that was never meant for such a tiny body. That first patient now leads a productive life and works for IBM.

The pioneering work of Mildred Stahlman, who continues today as a professor of pediatrics and pathology at Vanderbilt, led her to put into place the first modern neonatal intensive care unit in the world.



9 *Astronomical Bodies*

■ Edward Emerson Barnard, a professor of astronomy at Vanderbilt in the late 1800s, was the first to witness and document numerous astronomical discoveries of his day. The only person ever to receive an honorary academic degree from Vanderbilt, he discovered 16 comets, more than 23 nebulae, and Jupiter's fifth moon. He was the first person to photograph the Milky Way.

At the age of 9, Barnard went to work in a photography gallery where he was placed in charge of the solar enlarger, a device that tracked the sun to make photographic prints.

The experience helped develop his interests in photography and astronomy. Eventually, he saved enough to buy a telescope with multiple eyepieces. In 1881 he was the first person to spot a comet that later became known as 1881 VI. A New York foundation was awarding \$200 for every new comet discovered. Barnard used the money as a down payment on a small house near Kirkland Hall and set about enthusiastically looking for more new comets. He would later joke that "the house was built entirely from comets."

At the age of 26, Barnard was persuad-

ed to enter Vanderbilt as an assistant in its new observatory on the main campus and as a special student. He remained at Vanderbilt four years. In 1887 he became one of the initial staff members of the newly formed Lick Observatory at the University of California, and in 1895 joined the Yerkes Observatory at the University of Chicago.

The six-inch refractor he used at Vanderbilt is today located in the Vanderbilt Observatory in the Stevenson Center.

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Vanderbilt Voice Center

■ If you're a country music singer who's prone to fraying your vocal cords after belting out one too many of your hit ballads at one too many state fairs, then you've probably got this center on your speed dial.

The list of patients who have sought treatment at the Vanderbilt Voice Center reads like a Who's Who of Country Music. (Because country singers often lack formal training, they are particularly vulnerable to straining their voices.) In one recent year, nearly one-fourth of the singers nominated for Country Music Association Awards had been patients.

Of course, you'd have to visit the Center yourself and peruse the autographed photos lining the walls to figure out which performers have been treated there. "In an industry where perception is everything, even a hint that you've had trouble with your voice can make or break a record deal," says speech pathologist Melissa Kirby, who coordinates the Center's Preventative Care Program. "We're very protective of our patients."

Not all patients are singers. Bill Clinton sought the Center's research when he was a presidential candidate.

Patients who use their voices professionally—ministers, lawyers, broadcasters and teachers, as well as performers—may be treated with voice therapy, medication or even surgery at the Center. In 1999 doctors at the Vanderbilt Voice Center were the first in the United States to fit a patient with a laryngeal pacemaker called an Implantable Pulse Generator (IPG), allowing a Missouri woman with paralyzed vocal folds to breathe and speak normally.

Care at the Voice Center, which is housed in the Vanderbilt Bill Wilkerson Center, includes a combination of diagnosis and intervention by three teams: physicians, speech-language pathologists and singing specialists.

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Banking for the Poor

■ When banks in his native Bangladesh refused to loan impoverished women the tiny amounts of money they would need to become independent business owners—an average of 62 cents—economist Muhammad Yunus, PhD'71, took matters into his own hands, lending 42 people in one village a grand total of 27 dollars.

Women used the money to buy supplies for small enterprises like bamboo stool making. Though every single borrower paid Yunus back with interest, the bank was unmoved: The poor, they said, were not credit-worthy.

Village by village, district by district, Yunus proved conventional bank lenders wrong. Twenty-seven years later, his pioneering approach to micro-lending has spawned nothing short of a credit revolution.



Yunus

TIM CAMPBELL

His Grameen Bank (what other financial institution has as its slogan "banking for the poor"?) has disbursed roughly \$3 billion to more than 2 million borrowers in Bangladesh alone, allowing many thousands to lift themselves up from the most abject poverty. Grameen Bank's approach has been imitated by more than 7,000 micro-finance organizations worldwide, including some in inner-city America.

"I see a world in which poverty is absolutely unnecessary and unacceptable, even for a single person," says Yunus, who earned a doctorate in economics from Vanderbilt.

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HCA and Managed Health Care



CHRISTA KIEFFER/THE IMAGE BANK

■ Love it or hate it, managed health care is here to stay. One of its chief architects is Tommy Frist Jr., BA'61. Frist is the retired chairman, president and C.E.O. of HCA, the nation's first and now its largest for-profit, investor-generated hospital management company. In 1968 he founded the company in partnership with his father, Thomas Frist Sr., MD'33, and businessman Jack Massey.

From the beginning, the idea of for-profit health care was controversial. Within two years Hospital Corporation of America was listed on the New York Stock Exchange. In less than 10 years, HCA reached \$1 billion in sales. By 1982 the company expanded to more than 350 hospitals in 41 states and five foreign countries. By the late 1980s, however,

it was plagued by sluggish earnings and Frist rolled 100 percent of his net worth into a leveraged buy-out of HCA to take it private, purchasing it for \$5.1 billion, then returned it to a profitable publicly traded company a few years later. After a merger with Columbia Healthcare, Frist went into semi-retirement, but the new management was eventually charged with Medicare fraud. Frist stepped back in as C.E.O., drawing a salary of \$1 a year, and HCA paid more than \$1 billion in fines to settle claims by the federal government.

Last year, confident that HCA was back on track, Frist again stepped aside and into the role of chairman, officially retiring in January 2002.

De-Stigmatizing Homosexuality

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■ In 1952 the American Psychiatric Association added homosexuality to an official list of mental illnesses in its Diagnostic and Statistical Manual.

The label remained for 20 years, until John E. Fryer, MD'62, broke the silence about his profession's tacit discrimination and forced his fellow psychiatrists to confront the classification by appearing at a 1972 American Psychiatric Association convention as "Dr. Anonymous." Wearing a baggy suit, a mask and a huge wig, and using a microphone that distorted his voice, Fryer riveted fellow therapists when he announced, "I am a homosexual. I am a psychiatrist."

"As psychiatrists who are homosexual, we must know our place and what we must do to be successful. If our goal is academic

appointment, a level of earning capacity equal to our fellows, or admission to a psychoanalytic institute, we must make certain that no one in a position of power is aware of our sexual orientation or gender identity," Fryer told the audience.

The disguise was no mere publicity stunt for Fryer, then an untenured faculty member at Temple University. "I had been thrown out of a residency because I was gay," he recalled in 1985. "I lost a job because I was gay. It had to be said. But I couldn't do it as me."

The following year the APA's board of trustees removed homosexuality from its Diagnostic and Statistical Manual, a result of Fryer's speech and years of activism. It was considered a major victory for gay and lesbian civil rights.



ALBERTO RUGGIER/THE IMAGE BANK

■ When biochemist **Stanley Cohen** injected salivary gland extract into newborn mice, he noticed a strange acceleration of development: Their eyes opened and teeth erupted earlier than usual. This observation led Cohen, then a researcher at Washington University, to discover the substance epidermal growth factor (EGF), so named because it stimulated the growth of epithelial cells in the cornea and skin.

Cohen had previously, with Italian developmental biologist Rita Levi-Montalcini, isolated a nerve growth factor (NGF) that Levi-Montalcini had discovered in certain mouse tumors. The two shared the 1986 Nobel Prize in Physiology or Medicine for their “discoveries of growth factors.”

Cohen’s isolation of EGF and determination of its amino acid sequence provided scientists for the first time with a factor that allowed studies of the cell growth process. His work laid the foundation for the study of growth factors and the mechanisms regulating growth and survival of cells—of critical importance to cancer research.

Cohen has been on the Vanderbilt faculty since 1959 and is now distinguished professor of biochemistry, emeritus.

■ **Earl Sutherland** opened the black box that concealed the secrets of hormone action. The Vanderbilt professor of physiology (1963–73) won the 1971 Nobel Prize in Physiology or Medicine for “his discoveries concerning the mechanisms of the action of hormones.”

In studying how adrenaline causes liver cells to convert glycogen to glucose, Sutherland discovered a previously unknown substance—cyclic AMP—a metabolic regulating compound. He proposed a general scheme for hormone action in which hormones interact with receptors on the cell surface. These receptors, he contended, then pass the signal along to an enzyme that manufactures cyclic AMP intracellularly where it activates or inhibits various metabolic processes.

Sutherland called cyclic AMP the “second messenger” (the hormone was the first messenger). The second messenger-signaling mechanism he described is now one of the basic stepping stones of cutting-edge research

and laid the groundwork for much current work in intracellular signaling at Vanderbilt.

Sutherland died just three years after receiving the Nobel Prize.

■ **Stanford Moore, BA’35**, won the 1972 Nobel Prize in Chemistry with Christian Anfinsen of the National Institutes of Health and William Stein of Rockefeller University. The award recognized their fundamental contributions to enzyme chemistry through their work with the enzyme ribonuclease. Their studies illu-

■ Born into an academic family in Berlin in 1906, **Max Delbrück** trained as a theoretical physicist but later switched to the study of biology. In the 1930s he began working with bacteriophages, viruses that infect and destroy bacteria. In 1937 he fled Nazi Germany for America, working first at the California Institute of Technology and at Vanderbilt during the war years from 1940 to 1947.

He was one of the first to link quantum physics and other fields of science, including biology. In 1969 he and Salvador Luria and

Nobel Laureates

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minated some of the most important principles involving the relation between the chemical structure and catalytic activity of an enzyme.

Moore grew up in Nashville, where his father was a member of the Vanderbilt Law School faculty. As a Vanderbilt student he was interested in both aeronautical engineering and chemistry, but organic chemistry professor Arthur Ingersoll helped spark his interest in the study of molecular architecture. Much of his research was conducted at the Rockefeller Institute. In 1968 Moore was a visiting professor of health sciences at Vanderbilt University School of Medicine. He died in 1982.

Alfred Hershey won the Nobel Prize in Physiology or Medicine for their discovery of the replication mechanism for viruses and the genetic structure of viruses. Delbrück discovered that the genetic material of different kinds of viruses can combine to create new types of viruses, a process previously believed limited to higher forms of life.

He died in 1981. The Max Delbrück Center in Berlin-Buch, one of 15 German national research laboratories, bears his name.



Project Head Start

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■ In the mid-1960s, President Lyndon Johnson launched his “War on Poverty” at the same time education researchers were studying the effectiveness of early intervention programs on low-income children. Leading much of this research was child psychologist Susan Gray, MA’39, PhD’41, a professor of psychology at Peabody College and a founder of what is now Vanderbilt’s John F. Kennedy Center for Research on Human Development.

In 1959 Gray and colleague Rupert Klaus designed the Early Training Project (ETP), a preschool educational intervention program. ETP investigations revealed significant, positive effects of intellectually and culturally enriching experiences upon the cognitive, social and emotional development—and subsequent school achievement—of children from low-income families.

With passage of the Economic Opportunity Act in 1964, a mechanism was created to develop initiatives aimed at ending poverty. The next year, Susan Gray’s Early Train-

ing Project became the inspiration and model for one of these national initiatives—Project Head Start.

Head Start was designed to help break the poverty cycle by providing preschool children of low-income families with a comprehensive program to meet their emotional, social, health, nutritional and psychological needs. Since 1965, Head Start has enrolled more than 21.2 million children and currently has a \$6.5 billion annual budget. Administered by the U.S. Department of Health and Human Services’ Administration for Children and Families, it is the world’s largest government-supported social program for children.

Susan Gray died in 1992 and is today considered among the 20th century’s greatest child psychologists. Peabody College honors her legacy through the Susan Gray School for Children, an inclusive early childhood education program serving young children with and without disabilities.

Maker's Mark Bourbon Whisky

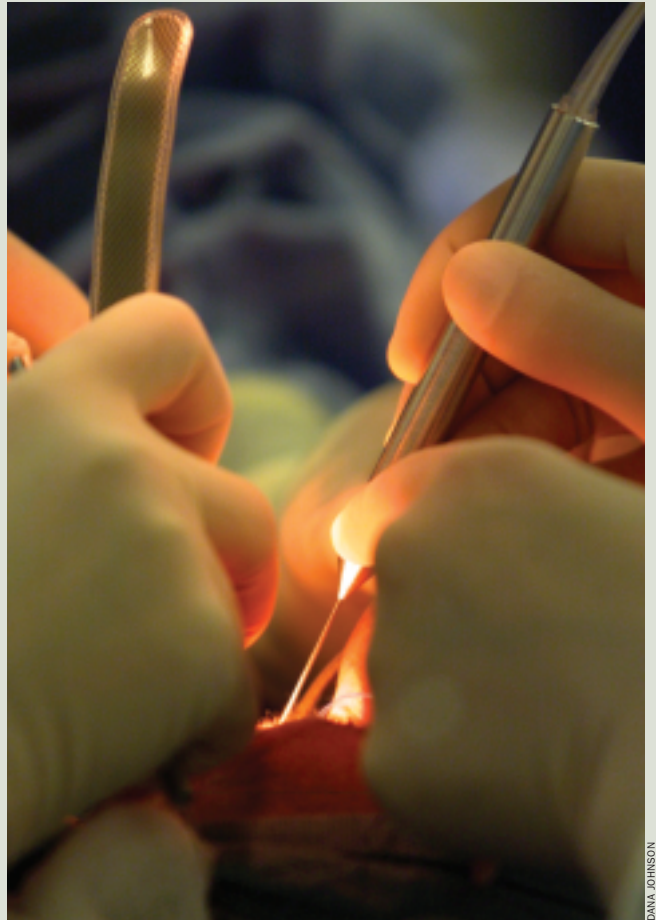
■ Nestled between the rolling hills near Loretto, Ky., is the world's oldest bourbon whisky distillery. Its president, Bill Samuels Jr., JD'67, comes from a long line of whisky distillers, dating all the way back to the 1780s, when Bill Jr.'s great-great-great-great-great-grandfather moved from Pennsylvania to Kentucky to take advantage of corn laws that required settlers to grow native grain.

"We were of the fortunate few who knew what to do with all that grain because we were Scottish," Samuels says. In 1953 his father, Bill Sr., burned the whisky recipe that had been passed down through the family for generations and set out to make a better bourbon. He created the blend of corn, barley malt, and soft winter wheat that sets Maker's Mark apart from other bourbons, which use rye instead of wheat. The result: a mellow, sweet bourbon that holds a 60 percent share of the "boutique" bourbon market and is one of this country's top small businesses.

Bill Jr. has been the brains behind marketing Maker's Mark, which advertises nationally and receives glowing coverage in such publications as the *Wall Street Journal*, *Esquire* and *GQ*. "We still make Maker's in 19-barrel batches, which is the smallest batch size in the industry," says Samuels.



17



DANA JOHNSON

The Keck Free-Electron Laser Center

■ "Star Trek" doctor Leonard McCoy would approve of this one: Researchers and surgeons at Vanderbilt's W.W. Keck Foundation Free-Electron Laser Center are laying the groundwork for eventually replacing the scalpel with laser light in both brain and eye surgery.

Visible light spans only a tiny sliver of the entire electromagnetic spectrum. The lower end of the spectrum ranges from radio waves that are hundreds of meters long, through millimeter-sized microwaves, to infrared radiation associated with radiant heat. The upper end proceeds from the ultraviolet rays that cause sunburn, through X-rays, up to gamma rays with wavelengths less than the diameter of an atom and energies three trillion times greater than typical waves. Each color, or wavelength, interacts with matter in a different way.

The W.W. Keck Foundation Free-Electron Laser (FEL) Center at Vanderbilt is one of four university FEL centers in the United States and one of only nine such centers worldwide where scientific research is conducted. Vanderbilt has the only FEL in the world licensed to use this powerful beam for surgical operations on human patients.

The first human surgery using a free-electronic laser beam was performed successfully on Dec. 17, 1999, when the beam was used to destroy part of a brain tumor. This feat was repeated the following September with a second patient. Two weeks later the FEL was used for eye surgery to cut the sheath surrounding the optical nerve of a patient whose eye was being removed. Subsequent surgeries have demonstrated the laser's superiority as an instrument in the operating room.

Laser surgery, monochromatic X-rays and protein characterization are three areas where research at the Vanderbilt FEL Center is showing particularly promising results.

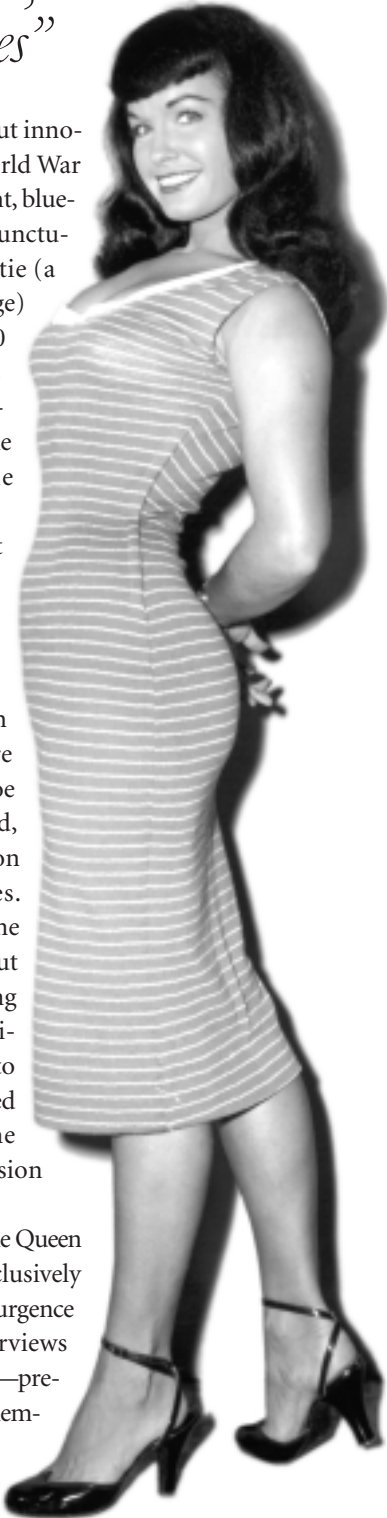
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Bettie Page, BA'44, "Queen of Curves"

■ Shapely and sassy, wanton but innocent, Bettie Page took post-World War II America by storm. With bright, blue-gray eyes and long black hair punctuated by trademark bangs, Bettie (a 1944 alumna of Peabody College) was a pinup sensation from 1950 to 1957, appearing in hundreds of magazines and several burlesque films. In 1955 she won the title "Miss Pinup Girl of the World."

Then, for reasons she has yet to explain fully, Bettie abandoned New York and her career in 1957. Today she is a bona-fide pop-culture icon. Bettie merchandise rakes in millions each year. She has appeared in more magazines than Marilyn Monroe and Cindy Crawford combined, and she is currently featured on more than 100,000 Web sites. Numerous books and magazine articles have been written about her through the years, including at least four biographies. Musicians have composed tributes to her, fashion designers have copied her look, and she has been the subject of several recent television documentaries.

Meanwhile, at 80 years old, "the Queen of Curves" lives quietly and reclusively in California, amused by her resurgence of fame. She rarely grants interviews and refuses to be photographed—preferring, she says, always to be remembered as she was.



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Heart Transplantation

■ In November 1967 pioneer heart surgeon Norman Shumway, MD'49, held a press conference at Stanford University announcing that he and a surgical team were ready to perform what would be the world's first human heart transplant as soon as a suitable donor and recipient were found.

Within a few days, however, surgeon Christiaan Barnard bested the Shumway team by performing the first human heart transplant in South Africa, making headlines around the world. Shumway had known Barnard at the University of Minnesota; it was a technique Shumway perfected in his animal lab that Barnard applied to that first heart transplant.

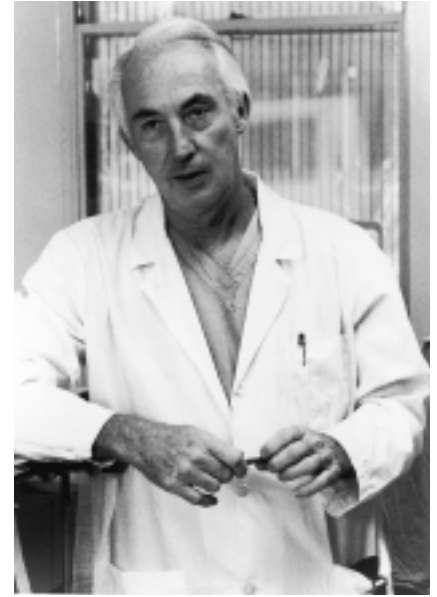
A month after Barnard performed his surgery, Shumway and a team at Stanford performed the first adult human heart transplant in the United States. "The fact that the focus was on Barnard was a blessing," Shumway told *Vanderbilt Magazine* in 1998. "It allowed us to continue our work without much folderol."

But patient deaths soon overshadowed these surgical triumphs. By 1971, 146 of 170 heart-transplant recipients were dead of infection or rejection. Most American surgeons abandoned the procedure.

Shumway persevered. He and colleagues spent the next decade tackling the complex challenge of tissue rejection. In the late 1970s they obtained a supply of cyclosporine, a drug originally intended for chemotherapy but found not to be effective and therefore discontinued. Cyclosporin dramatically boosted the survival rate of transplant patients.

In 1981 a team headed by Shumway performed the world's first heart/lung transplant.

The son of a Michigan creamery owner, Shumway wound up at Vanderbilt by chance in the 1940s when World War II helped create a demand for surgeons. Within a decade of his Vanderbilt graduation, he was already making news with a heart-bypass surgery technique for correcting "blue baby" birth defects.



20 *Mainstreaming*

■ Just three decades ago, most parents of children with intellectual, physical or behavioral disabilities believed they had no choice but to “institutionalize” or “segregate” their children—to place them in a facility or classroom where they would receive specialized instruction, apart from typically developing children and often with very negative results.

The educational environment of 2003 is quite different, thanks in large part to the research of two former investigators at Van-

derbilt’s John F. Kennedy Center for Research on Human Development. In the early 1970s, Peabody College professors William Bricker and Diane Bricker, PhD’70, led the Toddler Research and Intervention Project in the Kennedy Center’s Experimental School (now called the Susan Gray School for Children). Through the project, and for the first time, an equal number of children with and without disabilities learned together in the same preschool classroom. Eventually, the term “mainstreaming” and, later, “inclusion” was applied to this approach.

Research has continued to prove that, in most cases, all children—those with and without disabilities—benefit academically and socially from an appropriate inclusive classroom environment. Children with disabilities are stimulated by experiences that promote typical child development, and children without disabilities learn to accept and value the differences in their classmates. All learn firsthand that everyone has different needs and different strengths.

Although the model of inclusion is debated and sometimes hotly opposed, inclusive education is today considered the recommended practice among educators—and by legislators. The Individuals with Disabilities Education Act (IDEA), first passed by Congress in 1975 and amended in 1997, requires that children with disabilities be educated in regular classrooms “to the maximum extent appropriate,” unless “the nature and severity of the disability is such that education in regular classes with the use of supplementary aids and services cannot be achieved satisfactorily.”

Because research has shown inclusion’s benefits, general and special educators now work more closely together than ever before to ensure that each individual child’s needs are met, whenever possible in an inclusive setting.

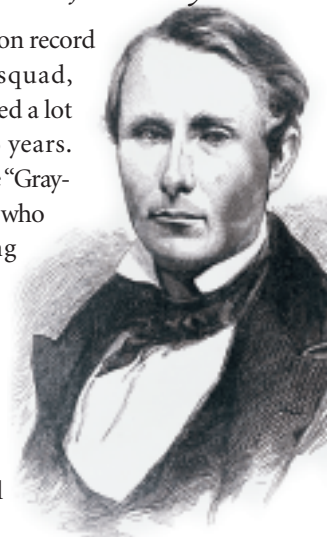


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Dubious Distinction:

William Walker, “Gray-Eyed Man of Destiny”

■ The only alumnus on record as dying by firing squad, William Walker packed a lot of living into his 36 years. Hailed in his day as the “Gray-Eyed Man of Destiny” who would lead a young expansionist-minded nation in efforts to extend its boundaries southward, Walker was the model for one of dime novelist Bret Harte’s fictional characters.



Born in Nashville in 1824, Walker was a child prodigy who enrolled at Peabody College’s forerunner, the University of Nashville. He graduated at age 14, then studied at various European universities.

Back in America he practiced briefly as a surgeon, studied law in New Orleans, and gained admittance to the Louisiana bar, but abandoned law for journalism. By 1852 he was editing the *San Francisco Herald*. The following year he led an armed invasion of Mexico, proclaiming himself president of the new independent republic of Sonora and Baja California, but was forced to surrender.

Walker viewed establishment of a new slaveholding territory in Central America as a solution to slavery disputes in the United States, and in 1854 he led an invasion of Nicaragua, bankrolled by Cornelius Vanderbilt. Walker set himself up as president of Nicaragua and began building a Central American empire. When he quarreled with Vanderbilt and appropriated Vanderbilt’s transit company, however, the Commodore financed Walker’s overthrow.

Walker returned briefly to widespread acclaim in the United States before launching several attempts to recapture Nicaragua. Instead *he* was captured and marched before a firing squad in the village square. One florid account of the day reported that it took three soldiers firing at 20 feet and, finally, a sergeant with a pistol standing over Walker to kill him. ▼