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Laws That Touch People

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MO'VING FORWARD WITH SMU RESEARCH

We believe that SMU Research, now in its sixth year of publication, has found a niche for itself among the University’s presentations to the global community.

In the past six years, the University has undergone many changes in personnel and programs. Several researchers have been added to the faculty roster, and several young researchers have matured into leading scholars. After going through a transitional stage in leadership, the institution is being led by a team of leaders who want to see it flourish in scholarship.

The Campaign for SMU: A Time to Lead is entering its third year with many of its goals achieved. Even though it will take several years to realize the full benefits of the Campaign, optimism is the key word in every sphere of the University’s activities. Under these circumstances, reporting about our achievements is a pleasant task indeed!

This issue of the magazine continues the tradition of highlighting faculty research achievements and adds a new section on SMU research that has been featured in articles by the news media.

In addition to recurring elements such as selected publications, faculty recognition, and significant sponsored research success, this volume profiles 16 faculty members, among them Provost Ross C. Murfin, who is completing his third year at SMU. In addition to serving as an administrator, he is an English scholar and teacher, and editor of Bedford Case Studies in Contemporary Criticism for St. Martin’s Press. Another article features Professor Lewis Binford, who has made groundbreaking contributions to archaeology and who is known to young scholars as the father of “New Archaeology.”

Southern Methodist University has about 500 faculty among its six schools. Even though the types of creative scholarship established by these faculty are diverse, they are uniformly of high quality and are worth celebrating. That is what we are doing in the following pages of this magazine.

We are grateful to receive your encouragement and support, and we look forward to your continued interest.

Thank you.

U. Narayan Bhat
Dean of Research and Graduate Studies
A Consorted Effort

SMU and three other North Texas universities have formed the Metroplex Research Consortium for Electronic Devices and Materials, which supports the advancement and study of electronic devices and materials. The consortium also is expected to fortify academic and research programs in the North Texas area by creating synergy among the schools, while emphasizing the strengths of each university’s programs. Last fall Texas Instruments gave SMU, the University of North Texas, the University of Texas at Arlington, and the University of Texas at Dallas research equipment originally worth more than $6 million. Much of the research conducted with the equipment will complement TI’s research and development of digital signal processing solutions. The School of Engineering and Applied Science will receive optical and electronic equipment to expand teaching and research in the fields of micro- and optoelectronics. “The new equipment will enable SMU engineering faculty to perform experiments that they were previously not able to do for lack of the right equipment,” says Zeynep Celik-Butler, associate professor of electrical engineering and assistant dean of graduate studies and research.

Among The Elite

Associate Professor of Electrical Engineering Geoffrey Orsak is one of 15 young American scholars selected for the 1998-99 Defense Science Study Group (DSSG). The program, directed by the Institute for Defense Analysis in Washington, D.C., and sponsored by the Department of Defense, exposes young researchers to national security issues and the military personnel and operations involved. For two years, Orsak and the other scholars will learn as much as they can about the U.S. defense community through visits to military bases and other government organizations and meetings with four-star generals, military scientists, and enlisted soldiers. Already Orsak has watched as Air Force crews refueled a stealth bomber in midair, met with the chairman of the Joint Chiefs of Staff, toured the inside of a Trident submarine, landed in a Navy helicopter on an aircraft carrier, and fired a 50-caliber machine gun in a simulated battlefield. Eventually one member of the DSSG will conduct a research project for the government in an area that interests them. Orsak, who conducts research on communication theory, probably will investigate more direct ways for the Pentagon to talk to soldiers in the field.

Improving Night Vision

Two electrical engineering professors, Donald Butler and Zeynep Celik-Butler, have developed a breakthrough technology that will significantly lower the cost of infrared (IR) detectors, paving the way for plentiful commercial uses for the heat-seeking and night-vision technology. The Department of Defense uses infrared cameras for night-vision systems, but they cost as much as $100,000 or more. SMU’s technology has the potential to make the imaging systems easier to manufacture by using silicon chips and would lower costs by tens of thousands of dollars. The new materials were designed to be more compatible with silicon signal processing circuitry, opening up infrared technology to a wider range of commercial electronics. With the invention, infrared systems could be manufactured for home security products, police cars, robotics, fire detection, radiometry, biomedical imaging, among others. The National Science Foundation and the Army Research Office supported the research. Their invention, which was patented by SMU, has been licensed to MSI Inc. through Research Corporation Technologies.

Early Warning: This Is War!

War is as predictable as the economy, says an SMU political scientist. All it takes is listening to a country’s mass media. W. Ben Hunt, associate professor of political science in Dedman College and associate director of the John G. Tower Center for Political Studies at SMU, is developing an early-warning network capable of anticipating conflict between nations. The network is
based on Hunt's research for his latest book, Gettysburg to War, which shows how to examine systematically any nation's media for war propaganda. For his research, which will focus on the People's Republic of China, Hunt has been selected the first recipient of the Tyler Center's Colin Powell Global Orde and Foreign Policy Fellowship.

'Project Of The Year'
A project based on the work of a Dedman College math professor has been named "one of the nine best digital projects on the planet" by NewMedia Magazine.

Lawrence F. Shampine, the Clements Professor of Applied Mathematics, wrote the computer software that created the computation engine for ODE Architect, a multimedia project consisting of a computer CD and companion workbook. Ordinary differential equations, or ODEs, help engineers and scientists understand how things evolve over time, such as the motion of satellites and change in population. Shampine's project teaches students how to solve ordinary differential equations (ODEs) numerically. Published by John Wiley & Sons Inc., ODE Architect was listed among other excellence award winners, including the X-Files, Droid Work Mercedes Benz, and The Apple Store NewMedia Magazine also named ODE Architect the best higher education product of the year and featured it on the cover of the December 1998 issue.

A Tougher, Stronger Penicillin
Next, highly potent compounds that effectively treat penicillin-resistant infections have been developed by John Buynak, associate professor of chemistry in Dedman College. Penicillin, developed as a therapeutic drug in 1940, is one of the most widely used antibiotics in the world because it kills many of the common bacteria that infect humans. In recent years, however, penicillin-resistant bacteria have begun to evolve, making it more difficult to treat many illnesses, including streptococcal infections, syphilis, diphtheria, and anthrax.

Buynak has developed four new classes of compounds, called beta-lactamase inhibitors, that can defeat resistant bacteria's protective defenses without resulting in harmful side effects to humans. The compounds are given with an antibiotic to kill the resistant strains. These inhibitors deactivate the bacterial enzyme beta-lactamase that destroys penicillins and cephalosporins. Three of the compounds have been patented and a fourth has a patent pending. Buynak's research has been supported by the National Institutes of Health, Lederlee Laboratories, Petroleum Research Fund, and Robert A. Welch Foundation. Research Corporation Technologies is finding commercial outlets for his compounds.

Ancient Discovery
The world's oldest and most primitive duckbill dinosaur, dating back more than 95.5 million years, has been identified by paleontologist Jason Head of the Department of Geological Sciences in Dedman College.

Discovery of the specimen near Flower Mound in North Central Texas will require that researchers rethink the long-held notion that duckbill dinosaurs originated in eastern Asia more than 90 million years ago, predicted Head, whose findings were published in the January 1999 issue of the Journal of Vertebrate Paleontology. The dinosaur, named Protocadros byrdi, belongs to a family of plant-eaters known as hadrosaurs that lasted for about 30 million years before becoming extinct 65 million years ago at the end of the Cretaceous Period. The skull, ribs, and feet of Head's specimen were found in 1994 by a Dallas Paleontological Society member as he was examining a road cut in Flower Mound.

Head, who received a Master of Science degree in geology from SMU in 1997 and is working on his Ph.D. today, did the analysis of the remains excavated by a team from SMU. The specimen is thought to have been almost fully grown and was about 15 to 20 feet long and 6 feet high at the shoulder. It is thought to have walked on both four and two legs and had a complex way of chewing its food. At the time the Protocadros was alive, a shallow seaway existed through the middle of North America, and North Texas was a wooded marsh, similar to present-day southern Louisiana.

The Last Dig
For the last time, SMU anthropologist Fred Wendorf led the international Combined Prehistoric Expedition to Egypt's Sahara Desert on its search for artifacts that would shed light on prehistoric humans and the domestication of such grains as sorghum.

Wendorf has been leading archaeological digs in Egypt for 37 years as director of the expedition, an interdisciplinary research team whose finds have established the prehistoric record of Egypt's Nile Valley and the Sahara. The expedition returned to the Nabiya Playa in southern Egypt, where it has made such significant finds as a prehistoric calendar made by aligning rocks, the ceremonial burial of cattle, and the precursors to agriculture in Africa. This year's expedition was Wendorf's last year as director, although he will continue to be involved in an advisory role. He is SMU's Henderson Morrison Professor of Anthropology in Dedman College and a member of the National Academy of Sciences; SMU, the Geological Survey of Egypt, and the Polish Academy of Sciences jointly sponsor the expedition's research.
Three years ago Professor of Chemistry Ed Biehl sought funding from the American Chemical Society to support his research on new compounds he was developing. One of the reviewers said his proposed research was “absolutely impossible” and didn’t have a chance of succeeding. But he received the grant anyway, and the results have proved not only possible, but also promising.

Biehl’s latest research uses benzene reactions to synthesize a variety of new compounds that have inexpensive, potential uses, from fighting cancer to making grains more resistant to harmful fungi. His efforts have resulted in the publication of more than 10 papers in the past year and invitations to present seminars nationwide.

Biehl and his students modify about 250 natural and synthetic compounds a year in his lab in Fondren Science Building. Alanco Dow, DuPont, and American Cyanamid have contracted to buy the compounds for further testing. He estimates that in the past 10 years he has made $50,000 to support his research by selling the compounds to these corporations for testing. The National Cancer Institute also expressed an interest in testing some of the compounds. In other research, Biehl is trying to modify antipsychotic drugs such as Thorazine so that they have fewer side effects.

Chair of the Department of Chemistry in Dedman College since 1981, Biehl has received long-standing financial support from the Welch Foundation of Houston and the Petroleum Research Fund of the American Chemical Society. His research earned him the 1992 W.T. Doherty Award from the Dallas-Fort Worth section of the American Chemical Society.

Biehl also collaborates with colleagues from other departments. He has used gas chromatography to help Anthropology Professor Fred Wendorf determine if 8,000-year-old charred sorghum seeds uncovered at a site in Egypt are domesticated. The findings may prove that farming came to Egypt 2,000 years earlier than previously believed. In addition, Biehl and Biological Sciences Professor Raj Sohal are studying the relationship between pentane gas and the aging process. He will begin collaboration this spring with Biological Sciences Professor Larry Ruben on the development of dyes that could track drugs as they enter the body for certain medical treatments.

Biehl, who joined SMU in 1962, earned his Bachelor’s degree and Ph.D. from the University of Pittsburgh.
In the high-speed world of computing and communications, flawless data transmission and storage are critical. Sukumaran Nair, associate professor of computer science and engineering and the J. Lindsay Embrey Trustee Professor in the School of Engineering and Applied Science, is attempting to create fail-safe methods that ensure a seamless transition of data from site to site. Nair directs the University’s Reliable Computing and Communication Research Group, which includes Ph.D. students who support him on such research projects as hardware and software failure detection and recovery, error control in high-speed networks, and reliability and performance evaluation of complex communications systems.

Nair has developed a proactive procedure to recover link failures in high-speed telecommunications networks. Networks fail for a variety of reasons, such as a backhoe cutting through an underground fiber-optic line. Most of the time, Nair says, this physical gap goes unnoticed because the network compensates by using spare capacity. (Networks have both working capacity, assigned lines that work all the time, and spare capacity, lines that sit idle unless the system fails elsewhere.) This protocol design distributes restoration throughout the network rather than at a centralized node. As regular traffic moves along the network, information also is alerting the network about possible alternate routes in the form of paths or subpaths, building in automatic spare capacity in case of an emergency. “Even when the failure hasn’t happened, the network is building up databases of potential alternate routes, so that when the failure does occur, the nodes know immediately which routes the traffic can take,” Nair says. For this research area, he has received $60,000 from Alcatel Network Systems and a $300,000 Advance Technology Program grant from the Texas Higher Education Coordinating Board.

In other research, Nair and his students have developed codes that recover real-time data in high-quality video transmission, optical networks, and RAID (Redundant Array of Inexpensive Disks) systems. As the data are being transmitted, Nair’s application temporarily stores them in a buffer. If the data are not complete because of other transmission losses, a set of linear codes will reconstruct the lost data. The effect is seamless, uninterrupted communication.

“We think our linear codes for data recovery will have wide-ranging application for industry, especially ATM networks, which can carry voice, data, and images, and where losses come in the form of great bursts of errors,” Nair says. He is seeking a patent for this application.

Nair received his Bachelor of Engineering degree from the University of Kerala in India and his Master’s and doctorate in electrical and computer engineering from the University of Illinois at Urbana. He has written more than 50 technical papers on the area of reliable computing and communication.
The building of the Erie Canal in New York and the emergence of Chicago as a major economic center are not as unrelated as they may seem at first glance, says Hideo Konishi, associate professor of economics in Dedman College. Konishi believes that economics can help explain the historical development of U.S. cities. For example, he says, low-cost transportation is a significant factor that spurs urban development. "The differences in transportation costs can explain why one area grows faster than another."

Konishi is conducting research on how an economic center like Chicago was formed. Chicago, located on the shores of Lake Michigan, had a population of only 800 in 1820. However, by 1890 its population had swelled to a million. The opening of the Erie Canal in 1825 was the catalyst for Chicago's growth, he says. Before the canal opened, traveling and shipping goods to Chicago was difficult and expensive. Traveling to Chicago meant going to New Orleans and sailing up the Mississippi. A land route was not even considered because roads, even if they existed, were poor," Konishi says.

The Erie Canal, which connected the Hudson River at Albany, New York, to Lake Erie at Buffalo, opened up the northeast region of the United States to travel and trade interregionally. As a result, the Midwest, an area of fertile land and abundant natural resources, and the East Coast (with a comparative advantage in producing manufactured goods) were connected by an inexpensive waterway. Chicago quickly developed and prospered as the gateway city of the Midwest.

Konishi first became interested in the economic impact of the Erie Canal while he was a student at the University of Rochester, where he earned an M.A. and a Ph.D in economics. He also earned an M.A. in economics from Osaka University and a B.A. from Kyoto University. He has co-authored several articles with his SMU colleagues, including "Endogenous Trade Policy under FDI" for the Journal of International Economics and "Equilibrium in a Finite Local Public Goods Economy" for the Journal of Economic Theory.
The miniaturization of electronics has yielded semiconductors that house millions of electrical components on chips no bigger than a fingernail and has helped make personal computers and cellular phones staples of daily life. Yet the speed and complexity of these circuits also cause them to generate more heat and increase the likelihood of premature burnout — what engineers call "therm stressing." Without a way to predict these effects in the smallest reaches of integrated circuits, new products become less reliable and manufacturers risk losing their competitive edge.

The answer, says Mechanical Engineering Professor Peter Raad, is to simulate the thermal effects along with the electrical effects during the design stage. Raad and a team of researchers have developed a software model that can run simultaneously with computer-aided design tools. The goal is to reduce the design-cycle time.

The model is unique because it operates on a regular PC or workstation and is 200 times faster than existing state-of-the-art software, which typically requires weeks of run time for complex thermal simulations on a supercomputer. As a design tool, the model can help remove the thermal roadblock to the development of advanced technologies, such as digital-signal processing chips for better communication; low-cost, uncooled infrared detectors for night-vision devices and high-frequency microwave chips for commercial telecommunications systems.

Raad's research also measures the thermal properties of various thin-film semiconductor and dielectric materials to extract data required for the software models. The properties of thin-film materials that make up integrated circuits must be measured in a thin-film state because they differ dramatically from the properties of bulk material, Raad says. Because thin-film materials are layered, researchers need to understand the ways in which they interact or interfere with one another.

The properties are measured by a sophisticated probing station composed of a microscope, accurate to the submicron range, attached to a series of fiber-optic lasers. Wafers composed of different materials are heated by a laser pulsed for a few nanoseconds. Another laser probes the surface of the material to capture the process by which the material dissipates heat. The thermal properties then can be deduced through an inverse mathematical process.

To ensure the validity of their simulation model, researchers take a real electronic design and measure the temperature field where the heat is generated in an integrated circuit, while simultaneously measuring the electrical performance of the device. The area being probed is 10 times smaller than the diameter of a human hair.

Raad and his collaborators have assembled a "virtual team" of university and industry experts in optics design, laser and microwave performance measurements, and thin-film materials. The National Science Foundation has awarded Raad more than $300,000 in grants for the acquisition of measurement equipment and for research staff support. Plans are to establish an industry-university collaborative research center at SMU that will support electro-thermo-mechanical characterizations of integrated circuit technologies. Semiconductor companies would participate in the center's research and benefit from its findings. Support has come from Raytheon, Texas Instruments, and TriQuint Semiconductor Inc.

Numerical analyst George Reddien is using mathematics to create better robots. Reddien, professor of mathematics in Dedman College, specializes in bifurcation theory — the development of algorithms that explain what happens when two lines intersect and split ("bifurcate") a field in two. The point at which the split occurs is called a bifurcation point; equations are very sensitive near such points.

Bifurcation theory, which has been applied to the fields of engineering and physics for about 20 years, is being used to develop robotics devices.

"To determine the controllability and flexibility of a device, you have to do a lot of mathematical computing on equations that describe the motion to understand where it gets stuck, how flexible it is, and what it can reach," Reddien says. "These tend to be difficult computational problems, and there is a need for efficient algorithms."

Reddien and Andreas Griewank, a former SMU faculty member who now teaches at the Technical University of Dresden in Germany, are collaborating on a robotics project developing mechanical devices to make gears. They previously collaborated on research developing algorithms for characterizing and computing bifurcation points, which are now used by numerous engineers and computer software writers.

Reddien hopes others will pick up on his latest ideas. "I think I have some ways to do these things that are better than what people are currently doing."

Reddien, who joined the faculty in 1979, earned Bachelor's, Master's, and Ph.D. degrees in mathematics from Georgia Tech. He chaired SMU's Mathematics Department from 1980 to 1986 and 1994 to 1997 and served as dean of research and graduate studies from 1989 to 1992.
Breeding Success

What makes a veterinarian successful? If a vet's four-legged patients could talk, they probably would mention the ability to make them feel better. Today's market, however, demands not only a healing touch from veterinarians, but also a deftness in financial matters.

In his current research, John Slocum of the Edwin L. Cox School of Business is identifying the managerial knowledge that a new veterinarian needs to achieve financial success. In a survey of 15,000 veterinarians, the O. Paul Corley Distinguished Professor of Organizational Behavior and Business Policy is analyzing what successful vets have in common. The survey covers a variety of issues—from how veterinarians market themselves to their office organization and accounting methods.

The American Veterinary Medical Association, which last spring asked Slocum and Professor of Marketing William Cron to develop the survey, had noticed in recent years that veterinary schools receive 700 applications for every available slot. Yet, many new veterinary graduates have not generated sufficient income in their practices to repay educational expenses and to make a living. "The field has become highly competitive, especially with the entry of large HMO-type providers and because of increased market segmentation," Slocum says.

Preliminary analysis indicates that veterinary schools can better prepare their students by providing more training in the financial management aspects of a small business. The information the researchers learn could lead to changes in the curricula at veterinary schools. "We want to identify what the successful practices have going for them to teach the students how to become better veterinarians," Slocum says.

For more than 20 years, corporate leaders have turned to Slocum seeking practical solutions to everyday organizational problems. Such giants as IBM, the Associates, and other Fortune 500 companies seek Slocum's advice because he speaks their language and helps them understand behavior and systems within their corporate ranks. Slocum also has written more than 100 articles and 20 books on how businesses can improve, including The Smarter Organization (John Wiley & Sons, 1994), co-written with former Cox School colleague Michael McGill.

For his achievements, Slocum received the first Carl Sewell Distinguished Service to the Community Award, which was established last year to recognize a faculty member whose work has directly impacted the business community. Before joining SMU in 1979, Slocum taught at Penn State and Ohio State. He earned a Ph.D. in organizational behavior from the University of Washington, an M.B.A. from Kent State University, and a B.B.A. from Westminster College.
DETERMINING MARKET VALUES

At one time, obtaining an estimate of the market value of a house could take weeks. Today, however, a statistical estimate of residential property value can be obtained in a few minutes via the Internet. Statistical estimates are used for underwriting and for mortgage risk management by major financial institutions such as Fannie Mae and Freddie Mac. Tom Thibodeau, professor of real estate in the Cox School of Business, is conducting research designed to improve the accuracy of these statistical estimates.

Thibodeau uses two statistical approaches to estimate the market value of a house. One relates the market value of a property to its size (square feet of living area, number of rooms) and to other physical and location attributes. The second estimates property value using an index of property appreciation rates computed from houses that have sold at least twice.

He is developing techniques that segment metropolitan housing markets into their relevant submarkets, identifying housing submarket boundaries in the key of obtaining accurate statistical estimates of market value,” Thibodeau says. “A house in Lake Highlands cannot be compared with a house in University Park (in Dallas), even if they are similar in size and age. These two areas are distinct housing submarkets within metropolitan Dallas because their properties receive public services from different school districts and municipalities.”

In addition to sharing local public services, neighborhood properties often have similar structural characteristics such as dwelling size, vintage, and interior and exterior design features. House price models that incorporate spatial relationships, such as the distance between properties, can improve their prediction accuracy. Thibodeau has identified the circumstances in which incorporating spatial relationships in house price models significantly improves the accuracy of market value predictions.

“House price index research is used by Fannie Mae, as well as other financial institutions, to mark residential property values to market on a continuous basis at a fraction of the cost of a traditional appraisal,” he says. “Less expensive appraisals reduce the transaction costs associated with buying and refinancing owner-occupied housing. In addition, timely information on house prices enables lenders to better manage the risk and consequently reduce the cost associated with financing homeownership.”

Thibodeau joined SMU in 1983 after conducting housing market research for four years at The Urban Institute in Washington, D.C. He received a Ph.D. in economics and an M.S. in statistics from the State University of New York at Stony Brook in 1979. He is on leave from SMU teaching real estate at the University of Pennsylvania’s Wharton School of Business. He also serves as a visiting scholar at the Federal Reserve Bank of Philadelphia. He recently co-wrote several articles, including “Housing Market Segmentation” for the Journal of Housing Economics and “Analysis of Spatial Autocorrelation in House Prices” for the Journal of Real Estate Finance and Economics. He is a fellow of the Homer Hoyt Institute for Advanced Studies.

SEEING RED: GENDER HIERARCHY IN INDIA

Ancient Hindu medical texts reveal not only how diseases were treated 2,000 years ago, but also how gender hierarchy began in India. Martha Ann Selby, assistant professor of religious studies in Sedmack College, is examining ancient Sanskrit medical texts to learn about the beginnings of gender hierarchy and gender discrimination in India today.

“I want to know how current gender hierarchy is connected to a gendered Hindu past,” Selby says.

Hinduism, the dominant religion in a nation of 900 million, has played a major role in the treatment of illnesses, according to the texts. Reviewing the texts is a step toward understanding gender and sexuality in the ancient classical South Asia, Selby says. However, because everything written about women of that time has been filtered through a high-caste male perspective, she has encountered difficulties in uncovering information on women.

“It is apparent that the ideas medical men had about women’s bodies could be formulated only in terms of what they could reasonably understand about their own bodies,” Selby says.

Many early observations men made about women were laced in analogies. Often the texts present men as a metaphor for woman in relation to medical issues, extending to the female domains of gynecology and obstetrics. The sexes are also defined by color symbolism: red for woman and white for men.

Originally practiced in Indian royal courts, classical medicine, as Selby refers to the body of knowledge found within these texts, includes practical information about health care as well as elaborate discussions about the temperamental and physical differences between men and women and theories on sex determination. There are detailed descriptions of how to conceive a male child, down to what the room in which the child is conceived should look like to what a woman should eat, wear, see, and hear.

“The texts are interesting because this is where religion and medicine meet,” Selby says. “Many medical treatments are combined with Hindu ritual. In some cases recommended treatment is based on the patient’s position ( caste) in society.” They also reinforce religious theory by explaining Hindu concepts such as karma, reincarnation, and the existence of a “soul” in medical terms.

Classical medicine continues to play an important role in India today. Even though “high-tech” western medicine is available in many urban areas, patients often choose to consult with practitioners of traditional medicine, blending both approaches to meet their health care needs.

Selby, who joined SMU in 1993, earned her Ph.D. from the University of Chicago in 1994. She is the author of the forthcoming Love Poems from Classical India (Oxford University Press) and is co-editor of the forthcoming Tamil Geographies: Cultural Constructions of Space and Place in Tamil South India (SUNY Press). She is contributing editor for the new Merriam-Webster Encyclopedia of Religions.
Although mobility management is key to the future of telecommunications, SMU’s Electrical Engineering faces the challenge of upward mobility management of a department rapidly expanding to meet those needs in the industry. Since Jerry D. Gibson arrived in August 1997, the department’s faculty has grown by 25 percent – almost doubling the number of faculty members specializing in telecommunications and signal processing in the School of Engineering and Applied Science. In addition, four new teaching and research laboratories are operational this year, with a fifth to be added this summer. And research awards have more than doubled – from $589,000 in the 1996-97 fiscal year to $1.46 million for 1997-98, with the same amount or more expected this fiscal year. Nine of the department’s 19 faculty members conduct research in communications and signal processing. “We are emphasizing that area in our strategic plan,” says Gibson (M.S.E.E. ’71, Ph.D. ’73), who came to SMU from Texas A&M University.

The department’s expansion also provides SMU researchers and students more opportunities to interact with industry, Gibson says. “We are working with companies that are defining the new technologies to solve problems in areas such as multimedia communications over copper, cable, and wireless links. Collaboration is a key word, and by collaborating with corporations and with other universities, we can function like a department at a major research university, even though we are relatively small.”

SMU electrical engineers also are involved with standards-setting bodies, which establish guidelines internationally for telecommunications equipment and networks. “When we send a fax, we don’t ask who made the fax machine, because international standards exist for that,” Gibson says. Although a set of standards for only one device, such as a digital cellular phone, can be thicker and more complicated than a doctoral dissertation, “people use telecommunications tools daily without giving the standards a thought, because the standards work so well.”

The standards are highly technical and change quickly, Gibson says. In addition to helping create the standards, SMU researchers investigate proposed upgrades to equipment that will lead to new standards.

The effort to put the department on the cutting edge of telecommunications in the 21st century began before Gibson arrived. SMU was the only university among the 300-member Asymmetrical Digital
The department's five new teaching/research laboratories include:

**Digital Signal Processor (DSP) Laboratory.** DSPs, the technology driving Texas Instruments' growth, are central to wireless communications and multimedia as well as audio and video on the Internet. This lab, directed by Associate Professor Carlos Davila, contains 10 new DSP multimedia computers in a lab created by SMU and Texas Instruments, which provided 10 DSP evaluation kits. The lab enables researchers to test models of DSP applications.

**Communications Systems Simulation Laboratory.** Under the direction of Associate Professor Geoffrey C. Orsak, the lab is funded by SMU and the National Science Foundation (NSF). The lab is equipped with 12 high-speed Silicon Graphics Inc. multimedia workstations and a large screen projection system. The workstations run a wide array of communications system design and analysis software, as well as signal processing, multimedia, and Web-based software tools that can manipulate video and audio signals as well as data. The lab is used by graduate students conducting research in those areas and by undergraduates in communications and signal processing courses.

**Multimedia Communications and Networking Laboratory.** Directed by Gibson with funding from NSF, SMU, and TI, this lab has seven multimedia computers that are being used by graduate students conducting research on the challenges of multimedia communications over a vast array of heterogeneous networks.

**Networks Laboratory.** Associate Professor Thomas M. Chen oversees this lab, which is being developed with $25,000 in funding from Nortel Networks. In the lab students can simulate and evaluate different network configurations from local area networks such as the ones that SMU runs on campus – to the Internet and other telecommunications networks with an emphasis on data transmission.

**Adaptive Systems Laboratory (to be completed summer 1999).** Under the direction of Associate Professor Scott C. Douglas, this lab gives students and researchers the opportunity to investigate problems related to adaptive signal processing technology, including speech separation, noise control, and real-time implementation issues.

These labs will enable SMU researchers and students to work on major problems in communications and signal processing into the 21st century, Gibson says, including mobility management. All the activities accomplished over wired communications networks today have the potential to go wireless, making mobility one of the hottest research areas in telecommunications. But increased mobility also presents several challenges.

“Say you're on a train going 100 mph through France and you're accessing your server through a laptop, through a wireless connection. How do you make sure that the connection is reliable?” Gibson asks.

Imagine never having to tap into a server to check your e-mail, he says. “My laptop has an IP address. It would be really convenient if I could take this machine on a trip and my e-mail would find me without my dialing into a server.”

Gibson envisions a future where he could turn on his laptop in Sydney, Australia, and have all his e-mail pop up. Perhaps he would then arrange a video conference – all wireless, all mobile, no phones to dial or servers to access.

Until then, he will focus on leading SMU’s upward mobility. The plan is to increase the department’s research funding to $2 million by 2000 and to stay at that manageable level.

In addition to updating the department’s facilities and laboratories, with Gibson’s encouragement the faculty is revising the electrical engineering curriculum for a Bachelor of Science degree. “We think that the undergraduate program should be our flagship,” he says. “It should be technologically solid and exciting to the very best students.”

For Gibson, the bottom line is the value of an SMU degree. The dual emphasis on local ties and international distinction should keep that value high, he says. “We want to create a reputation that we’re among the nation’s best departments. When people think about an area of research or instruction or about forming a national committee or organizing a conference, I want them to think of SMU.”
Fathering
A New Archaeology

By Gary Shultz

To understand what the reindeer bones in France revealed about Neanderthals, Binford needed to experience life in an arctic climate. "I realized that I had to study the strategies that mobile people had developed for staying alive and satisfying their needs in below-freezing temperatures. Only then could I begin to understand the challenges the Neanderthals faced," Binford says. The Nunamiat Eskimos of pre-oil boom Alaska were hunters and gatherers coping with conditions similar to those that Neanderthals faced.

In the 30 years since that decision, Binford has studied groups of Eskimos, Australian Aborigines, and Kung Bushmen in Namibia. His ethnarchaeological research has provided inspiration for many archaeologists who, since the advent of the "New Archaeology" in the early 1960s, have attempted to expand their understanding of hunter-gatherers.

"Lewis Binford's contributions to archaeological method and theory are enormous," says William A. Longacre II, the Fred A. Reicker Distinguished Professor of Anthropology and director of undergraduate studies at the University of Arizona. "His work on hunting, foraging, collecting societies, both prehistoric and living, has added greatly to our understanding of the behavior and organization of such peoples.

D. Gentry Steel, professor of anthropology at Texas A&M University, says he can't even imagine where archaeology would be today without the foundation that Binford has built. "Lewis Binford's work on the use of biological data to address significant behavioral questions about past human populations has been so central to this field. His contribution is even more impressive when you consider the countless scholars he has influenced during their formative years, and the advances they have made based upon his work."

Next year, Binford will increase the already impressive body of knowledge he has developed. In spring 2000, Princeton University Press will publish Binford's Frames of Reference: An Analytical Method for the Archaeological Use of Data Sets, into which he pours more than 25 years of research and reflection.

"The book develops a demonstrated procedure that shows how to organize what is known about hunters and gatherers in ways that expose what is not known and — more importantly — what is needed to be known," Binford says. "It also will help focus what is known to better address the concerns of scientists who debate the reliability of this knowledge."

The impetus for Frames of Reference dates to 1962, when Binford planted the seed for the "New Archaeology" in an article in American Antiquities magazine. In the article, "Archaeology as Anthropology," he called on archaeologists to make a "necessary transition to a systemic view of culture."
Binford wrote that “until we as archaeologists begin to think of our data in terms of total culturesystem, many prehistoric ‘enigmas’ will remain unexplained. … Such a change could go a long way in advancing the field of archaeology specifically, as it would certainly advance the general field of anthropology.”

By the time Binford found himself aboard ship on the Atlantic six years later, he was in the middle of a professional storm where his views on the practice of archaeology were meeting heated resistance from the old guard. The archaeologist had studied as a student at the University of North Carolina and at the University of Michigan, and he compared the findings at one site with those of another. Two conventions were used for comparison: If there was continuity over time in the kind of cultural remains found in an archaeological deposit, then it was thought that things “their” way for many generations. If, on the other hand, different items were found in layers at a site, archaeologists concluded at a change in ethnic identity had occurred as a result of invasion or migration.

“These conclusions were ambiguous at best and more probably not true,” Binford says. “It was classic situation in which prior knowledge was applied to observed material to create the past terms what was believed true. In a funny sense, it was just a foil for an individual’s personal knowledge. It was the way I described the interpretation of archaeology, and it didn’t take a lot of people happy.”

Binford’s struggle to explain the French site—and hunter-gatherer sites in general—relates to his first lesson in anthropology. A professor who had studied the people of British Guinea brought an alarm clock to class and asked students to identify it. They immediately said it was an alarm clock. What does it do, he asked, and they answered that it told time.

“Wrong answers! In British Guinea, the alarm clock was worn around the neck like a pendant as evidence of contact with outsiders,” Binford says. “Using your prior knowledge to identify it as a time piece did not accurately explain its function in the context of their culture, and how they used it to address and solve certain problems.”

To counteract such presumptions about Neanderthals, Binford lived with the Eskimos for four years, excavating old sites and studying their cultural system as it had existed in the 1890s, in the 1940s, and in the 1960s. Although the tools changed over that time span, their reliance on caribou did not. How they hunted and butchered, what they kept and discarded, and what happened to bones were engrained in their way of life. He was able to study the Eskimos in terms of what happened to caribou bones.

“Before this, archaeologists used bones to say what the environment was,” Binford says. “They did not view bones as carrying information because they were not manufactured by humans.” Through his studies, he came to understand the dynamics of the breakage and discarding of bones. “Once we had this information, we could look at a site in a different way, with a different reference. It was a Rosetta Stone.”

Building on the observations of other anthropologists, Binford has focused on the size and mobility of hunter-gatherer groups because these characteristics have important consequences in the patterns that archaeologists observe. Groups generally were no larger than 23 people because a larger group required more food, and the ability to move became more difficult. Many groups confined their subsistence efforts to an area of 225 square kilometers surrounding their camp. How much of this area was exploited was limited to how far group members could walk from camp and still return in a day. When the supply of readily available food in the area around the camp was exhausted, the group moved to a new area, usually about seven times a year.

As it happens, Binford’s research disclosed that the way modern hunter-gatherers interact with their environment and its resources produces a dramatically different archaeological record from that left by Neanderthals in France.

“Neanderthals approached the task of tool making and tool use with much less sophistication than modern man,” Binford says, “and the animal bones that they left behind indicate how they were eating much lower on the proverbial hog.”

Binford hopes that his research will enable archaeologists to anticipate what they will find in the archaeological record under certain conditions, one of the central points of Frames of Reference.

“We must develop techniques for using our prior knowledge in a way that exposes our ignorance in a genuine fashion,” Binford says. Frames of Reference “is the first attempt to put in place a methodology for organizing our prior knowledge so we can learn what we need to know to deal with the realities we face.”

Lewis Binford

Pioneers a New Understanding of Hunter-Gatherers.
One of the greatest challenges of teaching literature to undergraduate English majors—potential professors of literature—is helping them understand the numerous schools of thought about literary criticism. The job is daunting, but not impossible, particularly when the students are aided by texts that divulge the often arcane world of literary theory in language they understand.

That’s the appeal of the Bedford Case Studies in Contemporary Criticism, says Ross C. Murfin—SMU’s provost and vice president of academic affairs, professor of English literature, and Case series editor. By merging his roles as teacher, researcher, and administrator, Murfin also is closing the language gap between literary studies professors and their students.

“How can you be sure your work is comprehensible to the average undergraduate if you don’t have a sense of what an average undergraduate is and knows?” asks Murfin, who joined SMU in 1996. “All professors are students as well as teachers. Teaching, even a little bit, makes me a better series editor, because I learn to produce books that I know will speak to their audience.”

That audience overwhelmingly comprises undergraduate English majors, who are learning the language and lore of critical theory.

Murfin’s concept for the series remains unique among critical editions, because classic texts are accompanied not only by scholarly interpretations, but also by discussions of the theories those essays advance. Editing the series also helps Murfin stay abreast of the latest discussions in his field, a crucial benefit for a chief administrator who catches his research time on the fly. Murfin has reacquainted himself with each work in the series, reading as much as he can on what has been written about it in the past 10 years. If he and his volume editors can’t find five outstanding articles on a given work, he commissions scholars to write them, adding even more to the available body of knowledge. And he writes the essays exploring the theories behind the articles himself, always bearing his original purpose in mind: The readings must be comprehensible to undergraduates.

Balancing administrative duties with teaching and research...
Given the power of literature to shape our views of others, it is important to ask how authors have helped to create those views, and how critical theory differs from that of, say, Sigmund Freud. The first book to use Murfin's concept — explaining literary theory as well as presenting it — was his own critical edition of Joseph Conrad's Heart of Darkness, published by Bedford Books/St. Martin's Press in 1989. With the success of that release and of Murfin's subsequent treatment of Nathaniel Hawthorne's The Scarlet Letter, the publisher expanded the project to a proposed 20 books and asked Murfin to serve as series editor.

Bedford Case Studies are part of the curriculum at more than 1,000 universities and have been used by thousands of students, says Steve Supryia, executive editor at Bedford Books/St. Martin's Press. "These Case Studies are in second editions, for which Murfin has solicited new essays, introductions, and critical perspectives. The 20th-volume, the Austen's Emma or Bram Stoker's Dracula, will be published next year, and the entire series may be expanded to 30 books."

Early in the series, Murfin realized that he would need other scholars' input. "If I don't know anything about an author, I'm obviously not the best editor for a volume — but who is?" he says. Finding the answer to that question becomes his research. Among the experts Murfin has consulted is Beth Newman, associate professor of 19th-century British literature in Dedman College and volume editor for the Bedford edition of Jane Eyre. "It's a very good, useful book, and some of the individual volumes are fabulous," Newman says. "Students really like them, and more advanced students find them especially helpful. I even enjoy the nuts-and-bolts editing work on Charlotte Brontë's text," she adds. "And most of the authors were willing to make whatever changes were necessary to ensure that their essays were understandable to undergraduates."

Is the work scholarship, or is it teaching? "It's research and writing, but the goal is to teach," Murfin says. He has sought student feedback on volumes in the series, and he has tried out on his students articles under consideration for future editions. The students' responses let Murfin know if the articles are accessible to undergraduates.

Much of that accessibility depends upon Murfin's ability to cut through the "isms." To a certain extent, he says, many of the latest critical theories "simply take old wine and put it in new wineskins. I harbor a little cynicism about all these approaches that develop their own kind of incomprehensible jargon, which then requires someone like me to explain it to students. But if we're to get to what's good or new about those approaches, we have to understand their language."

A reader also needs to understand how philosophies differ even within a single approach. "Within each of these movements there's a lot of difference of opinion," he says. "Let's say the volume editor of Death in Venice wants to include a new historicist interpretation. New historicism, like psychoanalytic criticism or feminism, is an umbrella term. I want students to see why we classify this essay as new historicist. And in doing this, I have to update myself on that branch of critical theory."

The ability to comprehend critical theory is becoming more important within literary studies, Murfin says. "An English major can study Chaucer and Shakespeare, take seminars on the Romantic poets and contemporary women writers, but still may not be well-grounded in the literature about literature," he says. "Yet increasingly, to get into this profession, students must be able to say at least a few sentences about major literary theories. They may not be theorists, but if they hear their colleagues or students refer to Jacques Derrida or Julia Kristeva, they should know who these people are."

The need for a unified standard reference to such information led Murfin to yet another book project. By 1993 the Case series had grown to a dozen books, and Murfin's publisher urged him to compile a dictionary of literary and critical terms. The individual editions included brief glossaries, but Bedford wanted a standard reference as a companion to the series. The result was the Bedford Glossary of Critical and Literary Terms, published in 1997. Murfin wrote the book with Supryia M. Ray, who began the collaboration as Murfin's undergraduate assistant at the University of Miami. "Supryia challenged me to develop a more student-friendly style. Her influence had a positive effect on my writing," he said in the spring/summer 1998 issue of SMU Magazine.

Murfin emphasizes that he is not "one of those people who has gotten more interested in literature about literature than in literature itself. Thomas Hardy is infinitely more important than any critic who has ever written about him."

Given the power of literature to shape our views of others, it is important to ask how authors have helped to create those views, Murfin says. In doing so, students and scholars can better understand how popular culture affects and is affected by society today. The movie "Titanic," for example, "already has had the kind of influence on our popular culture as great as that of a work by Charles Dickens had on Victorian culture," Murfin contends. "A novel by Dickens was to his day what 'Titanic' is to our day — a pop-cultural phenomenon. The fact that an actor like Leonardo DiCaprio plays the male lead and the way in which the love relationship was defined has changed the culture. Cultural analysts have already asserted that 'Titanic' has changed, and in a way feminized, the masculine ideal, because so many people have seen it and found this love story attractive."

Just as culture often determines what kind of art is created, Murfin says, "what gets produced sometimes turns around and reshapes the culture. I think we need theory to understand that dynamic."

All professors are students as well as teachers."
Lying in a hospital bed in 1983, her body nearly crushed by a truck that ran over her in a bicycle accident, Ellen Smith Pryor thought about only one thing — full recovery.

“I was lucky, because I never had to think about who was at fault,” Pryor says. “With family and financial resources to help me, all I had to do was concentrate on getting better.”

During her long rehabilitation, which included placement of a steel rod in her back, the young attorney realized that for many other accident victims, “getting better” isn’t so simple. Their recovery, which can be filled with pain, mental anguish, or loss, often is hampered by concerns about liability (who is at fault?), insurance coverage (who will pay and will it be enough?), or disability (what will I do for a living now?).

Today, a fully recovered Pryor conducts research on compensation issues as a law professor in SMU’s School of Law, focusing on the legal areas of torts, disability, insurance, and workers’ compensation. “I’m interested in laws that touch people where they really live,” Pryor says. “To write about real problems — ensuring that the scholarly effort is there — that motivates me.”

Before joining SMU in 1983, Pryor had spent several years practicing law for a Dallas firm that allowed her the flexibility to do pro bono work with indigent clients. She counseled them on such issues as Social Security disability, federal civil service disability, federal and state workers’ compensation, state and federal discrimination claims, as well as traditional tort cases.

Although Pryor found that her pro bono work did make a difference in her clients’ lives, she believed that non-tort programs such as Social Security disability and workers’ compensation were not attracting the legal scholarship she thought they deserved.

“Non-tort programs affect more people than many other areas of the law, and yet there are few academic articles written on them,” Pryor says. “My goal is to suggest how disabilities should be measured and compensated in non-tort settings.”

As a legal researcher, Pryor not only has addressed a variety of issues on compensation, but also has effected changes to the system. In one area, Pryor found significant
laws, including subjectivity and gender bias, in the implementation guidelines contained in the American Medical Association’s (AMA) 1983 publication, *Guides to the Evaluation of Permanent Impairment*. In the *Harvard Law Review* article published in February 1990, she wrote a review that outlined how the AMA guidelines were being misused by Texas legislators seeking a “quick solution” to determine the amount of money awarded to workers’ compensation and liability claims. “The guidelines were used to determine the compensation ‘fate’ of a tenth of hundreds of people,” she says.

The guidelines treated men and women differently, an in Pryor’s opinion, unequally. Examples of gender bias could be found in *Activities of Daily Living,* which discusses compensation for impairments. For a woman, compensation was calculated upon the degree to which her impairment reduced her ability to scrub floors; whereas, a man was compensated according to how his impairment affected his ability to play golf.

After publication of Pryor’s *Harvard Law Review* article, the AMA Guides were revised to limit passages of acute gender bias, and Texas passed legislation in 1993 stating that the AMA Guides cannot be used in a gender-biased fashion when determining workers’ compensation entitlements.

Pryor is one of the authors on the third edition of a legal casebook used by first-year law students, *The Law of Torts,* published in 1997 by West Publishing. Tort, from the Latin root word that is defined as "a wrongful act, injury or damage (not involving a breach of contract), or a civil action can be brought."

“The purpose of the tort system,” Pryor says, “is to provide a forum for people to resolve and get relief for injuries that are not criminal.”

In her research, Pryor also investigates the connection between liability insurance and the tort system. The issue strikes near home because her husband is a mediator who resolves often-complex civil tort and insurance cases.

“Insurance has languished for some years as a subject of interest to legal scholars,” Pryor says. But recently a new wave of legal scholars has written extensively about it. Insurance is an enormously important social engine that affects the entire liability system. To determine how the presence of insurance affects that system, I’m asking: Does liability insurance have an influence on tort lawsuits? Does it affect the way lawyers handle their claims? And does it affect the way cases settle?”

Some lawsuits are “underlitrated” – the plaintiff chooses to plead a charge of negligence instead of intentional harm because most insurance liability policies do not cover harm caused intentionally by the insured. Pryor cites a case in which a man is indicted for the murder of his wife and son, but while he is awaiting trial, a personal representative of the deceased sues him on a theory of negligence in causing their deaths. “A victim of an intentional harm will not pursue intentional tort because there is less money to gain,” she says. “I look at why the problem exists and what we can do about it. There is always an incentive to structure lawsuits around insurance.”

How the presence of insurance affects whether a case goes to trial or settles is the subject of another article that Pryor is writing with Vanderbilt University School of Law Dean Kent Syverud. Pryor has published several articles and has participated in a symposium on the issue of insurance companies and “bad faith” claims.

In addition, Pryor is evaluating the professional responsibility of lawyers hired by insurance companies to defend their insureds. “Often the situation creates various conflicts of interest,” she says. Pryor cites as an example a man with auto insurance who is sued after an accident. He wants to fight the suit in court, but the insurance company wants to settle. A lawyer who is paid by the insurance company faces the dilemma of whether to look out for the interests of the defendant or the interests of the insurance company, which is paying him his legal fees. Pryor and University of Texas Law Professor Charles Silver have received a grant to write a series of articles explaining this long-standing problem.

In other research, Pryor has criticized and rejected a tort reform theory known as the insurance theory of compensation. “A system of compensation should do whatever is necessary to bring about rehabilitation and allow injured parties to still be productive people,” she says. “We hear in the media only about the offensive tort claims, like the woman awarded an astronomical sum after she sued a large restaurant chain because coffee spilled on her. But in reality, many times in accident claims the defendant is insolvent or can’t be found. Some people get the compensation they need, but most don’t get anything.”

Although Pryor is not on the bandwagon with traditional tort reformers who seek to set limits of liability, she is devising a different type of tort reform. “Putting a cap on pain and suffering is the wrong type of fix,” she says. “A better tort reform would be a no-fault system in which a defendant could make an immediate offer to pay. That way, the injured party gets immediate help, and the family has a way to get by with schedules for payments.”

For example, she suggests that more laws be modeled after the childhood vaccine compensation laws. These laws provide that if a child contracts a disease, such as polio, after receiving the vaccine, the pharmaceutical company should be able to pay a selective no-fault liability and make an early offer to pay the family for medical expenses as they arise, rather than face a costly lawsuit.

Even before her accident, Pryor showed an interest in compensation issues. As a student at the University of Texas School of Law, she earned the highest grades in torts, contracts, property, civil procedure, and First Amendment. A member of academic honor societies, she received the Outstanding First-Year Student Award and was named Senior Student Most Likely To Contribute to Legal Scholarship. In addition, Pryor served as editor in chief of *Texas Law Review* and earned an award for the outstanding student law review publication. The experience exposed her to research conducted by some of the nation’s brightest legal minds.

Before graduating, Pryor worked as an associate with the Washington, D.C., law firm of Covington & Burling in summer 1980. She also served as a clerk for a federal appeals judge, drafting opinions for high-profile cases such as the Watergate/Nixon litigation.

But instead of associating with a prominent Washington law firm, Pryor returned to her hometown of Dallas after earning her J.D. in 1982. After she joined the firm in Dallas, her record for public service became so impressive that Pryor received the Dallas Bar Association’s Pro Bono Award of the Year in 1985 and the State Bar of Texas’ Frank Seurlock Award for outstanding pro bono service.

“I wanted to be an individual counselor for a person with a problem, not one of a team of 30,” Pryor says. “I wanted to matter.”

Accident victims who have benefited from Pryor’s legal scholarship on compensation issues might agree that she has mattered indeed.


WILEZIA KHOTANZAD, ELECTRICAL ENGINEERING,
was elected the 1998 Engineer of the Year by the Dallas Section of the Institute of Electrical and Electronics Engineers (IEEE).

MAHA KIRMANI, MARKETING,
on the Best Article Award for 1997 in the Journal of Advertising for “Advertising Repetition as a Signal of Quality: If It’s Advertised So Often, Something Must Be Wrong.”

JOSE L. LAGE, MECHANICAL ENGINEERING,
received the 1998 SAE Ralph R. Teetor Education Award from the Society of Automotive Engineers International.

DAVID MELTZER, ANTHROPOLOGY,
was named Fellow of the American Association for the Advancement of Science.

ELIZABETH MILLS, SOUTHWEST REVIEW,
as elected to the board of directors of the National Book Critics Circle.

LEON SARGON, MUSIC,
was named a recipient of the 1998-99 ASCAP Award from the American Society of Composers, Authors, and Publishers.

W. SMITH, ENGLISH,
the Vestal Virgin Room, has been optioned for a film by Lipper Associates.

WILLIAM TAYLOR, HISTORY,
has received multiple awards for his Magistrates of the Sacred: Priests and Parishioners in Eighteenth-Century Mexico, Stanford University Press, 1996, including the Albert J. Beveridge Award for best English-language book on American History from the American Historical Association, the Herbert Eugene Bolton Memorial Prize for best book in English on a significant aspect of Latin American history from the Conference on Latin American History, and the Bryce Wood Book Award for the outstanding book on Latin America in the social sciences and humanities from the Latin American Studies Association.

MARSHALL TERRY, ENGLISH,
Ringer has been optioned by HBO writer-director Christopher Canaan, who plans to make a feature film from the novel.

JOSEPH B. TYSAN, THEOLOGY,
was honored upon his retirement from the University last spring with a collection of essays written by leading scholars in the field of New Testament studies titled, “Literary Studies in Luke-Acts: Essays in Honor of Joseph B. Tyson.” This 350-page Festschrift has been published by Mercer University Press, Macon, Georgia.

DAVID WEBER, HISTORY, AND JANE LENZ ELDER, CLEMENTS CENTER FOR SOUTHWEST STUDIES,
received the Fray Francisco Atanasio Dominguez Award for Historical Surveys and Research from the Historical Society of New Mexico for their book, Trading in Santa Fe: John M. Kingsbury’s Correspondence with James Josiah Webb, 1853-1861.

MARK WITHERSPOON, COMMUNICATION ARTS,
was elected president of College Media Advisers for 1997-99.
In 1997-98 sponsors awarded $9,662,788 to SMU for direct and indirect costs of research and sponsored projects, a significant increase over the $7,431,766 received in 1996-97 and a modest increase over the $9,523,121 received in 1995-96. One-year cycles in federal contract funding and grants from the Texas Higher Education Coordinating Board's Advanced Technology Program helped support the increase.

Funding sources were federal agencies, 64 awards, $7,376,304 (76.3%); corporations, 29 awards, $986,727 (10.2%); foundations, 11 awards, $241,086 (3.4%); state and local government agencies, 9 awards, $958,161 (10.9%); and miscellaneous, 2 awards, $27,500 (0.3%).

Dedman College was awarded $5,753,447 in 54 awards: Division III, Natural Sciences, received $5,023,691 in 38 awards; Division II, Social Sciences, $402,762 in 14 awards; and Division I, Humanities, $326,974 in 2 awards.

The School of Engineering and Applied Science received $3,779,459 in 57 awards. There were 4 awards directed to Others (nonacademic departments) totaling $129,866.

Of the 64 project directors/investigators, the following on-campus projects of $50,000 or more in aggregate award fractional funding (the amount of the award divided by the number of co-investigators):


- **Eugene Herrin and Brian Stump, Geological Sciences:** $1,474,613, $452,127, and $312,000, "Collection and Analysis of Seismo-Acoustic Data from IMS Seismic Site in Mina, Nevada," Defense Special Weapons Agency (DSWA).

- **Radovan Kovacevic, Mechanical Engineering:** $219,484, "Controlled Heat and Metal Transfer in Gas Metal Arc Welding-Base for New Rapid Prototyping Technique," Texas Higher Education Coordinating Board; $210,000, "Controlled Heat and Metal Transfer in Gas Metal Arc Welding-Base for New Rapid Prototyping Technique," National Science Foundation; $500,000, "Fellowship Program in Rapid Prototyping and Manufacturing," Department of Education; $50,000, "Research in the Areas of Manufacturing Technology and Rapid Prototyping," Raytheon Systems Company - Waco; and with co-investigators Guta Nwokah, David Johnson, and José Lage, Mechanical Engineering: $108,666, "Acquisition of Instrumentation for Thermal Manufacturing Processes Laboratory," National Science Foundation.


- **Ryszard Stroynowski, Physics:** $270,000, $70,000, and $12,000, "Research in Experimental and Theoretical High Energy Physics," Department of Energy; and with Gary McCarter, Physics, $15,000, "Research in Experimental and Theoretical High Energy Physics," Department of Energy.

- **Jerry Gibson, Electrical Engineering:** $200,000, "Quality of Service in Multimedia Communications: Infrastructure and Research," Texas Instruments Inc.; $192,665 and $15,000, "Reduced Complexity Tree Coding of Speech in the Presence of Background Impairments," National Science Foundation.

**Distribution of Awards 1998 Total $9,662,788**

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**Funding Sources in 1998**

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- **Thomas Edwards, Teacher Preparation:** $287,674, "Upward Bound," Department of Education.
- **William Orr, Biological Sciences:** $155,885, "Regulation of Antioxidative Genes and Aging," National Institutes of Health; and with Raj Sohal, Biological Sciences: $208,137, "Glutathione, Oxidative Stress, and Aging," National Institutes of Health.


**Mark Schell, Chemistry:** $170,000, "Global Perturbation Theory Applied to Nonlinear Behavior in the Electrochemical Oxidation of Alcohols: Theory and Experiment," National Science Foundation.

**Weidong Chen, Computer Science and Engineering:** $113,957, "Location Database Management in PCS Network," Texas Higher Education Coordinating Board; and with Changhwa (Eric) Lim, $102,068, "Routing Support for Wired and Mobile Applications," National Science Foundation.

**Steven Wik, Biological Sciences:** $161,830, "Graduate Students in Studies of E. coli F15 ATPase," National Institutes of Health.

**David P. Anderson, Geological Sciences:** $154,538, "Single and Multiple Cylindrical Source Observations in Modeling for Mine Blast Characterization," The Regents of the University of California.


**David Johnson, Mechanical Engineering:** $6,371, "Dynamics and Control of Injection Molding Machines Leadwell CNC Machines Manufacturing Corporation.


**Fred Wendron, Anthropology:** $108,000, "Excavations at Early Neolithic Village in the Egyptian Sahara," National Science Foundation.

**Chungwa (Eric) Lim, Computer Science and Engineering:** $18,000, "High Performance Voice Packet Relay Server for ATM Networks," Northern Telecom Inc.

**Laura King, Psychology:** $106,465, "Goals, Identity, Meaning in Life and Well-Being," National Institutes of Health.

**Luigi Manzetti, Mechanical Engineering:** $50,000, "The Role of Regulation in Post-Privatization - Conference on Regulation in Public Utilities," Federal Reserve Bank of Dallas; $20,000, "The Role of Regulation in Post-Privatization - Conference on Regulation in Public Utilities," The Tower Center.

A complete list of principal investigators and awards is posted at www.smu.edu/SMU_Rev/mag.html.
Through her painting, artist Cynthia Lin integrates seemingly disparate materials into her work—from tree bark to computer screens, from exotic textile patterns to bubble wrap—to "discover beauty in modern life," she says. "Drips, splatters, and spins are magnified and manipulated so that the random, strange, and dissonant lead to the elegant, familiar, and unified."

An associate professor of art in Meadows School of the Arts, Lin has taught at SMU since 1991. Her work is regularly exhibited in group and one- and two-person shows at galleries in Dallas, Houston, New York, and other cities. Lin received her B.A. degree from the University of California, Berkeley, and her M.A. and M.F.A. degrees from the University of Iowa.