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TEXAS TECH RESEARCH

Spring 1993



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VISTAS

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Spring 1993

Vol. 3 No. 1

Each issue of *Vistas: Texas Tech Research* (Library of Congress ISSN 1055-9159) reflects the goals, techniques, results and drama of research and creativity at Texas Tech. The magazine describes only a few of the many scholarly activities conducted at Texas Tech University and at Texas Tech University Health Sciences Center.

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ABOUT THE COVERS

Front — Universities answer the call for public service, often to find solutions to social problems. Students, staff and faculty at Texas Tech University and Texas Tech University Health Sciences Center offer their capabilities to help to feed the hungry. Some of the hundreds of volunteers who assist the South Plains Food Bank in its endeavors are (left to right): Shalini Bhatti, sophomore; Dewey Dalton, junior; Bhavna Vaswani, freshman; Jason Claborn, junior; Amy Caughran, sophomore; Ceci Lou, activities specialist II; and Stephanie Murdoch, senior. (Photo by Mark Mamawal)

Back — A troupe of native African dancers, who call themselves "Medumo," performed recently during the opening of a permanent exhibit titled "African Art: South of the Sahara" at the Texas Tech Museum. The 100 pieces of carved wood and brass sculpture exemplify art made primarily by agricultural people living in the Western Sudan, African Coastal, West Central and Central regions of Africa. (Photo by Mark Mamawal)

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A Glance at Research and Creativity

Willig's World

The cost of floods or hurricanes is readily seen in the disruption of people's lives and piles of insurance claims. But what happens to little creatures and their habitats when such turmoil strikes?

In the rain forest of Puerto Rico, Hurricane Hugo may have swept a rare fruit bat to the brink of extinction. In the rivers of south Central Texas, unpredictable flash flooding continually disturbs the habitat of aquatic insects.

Enter the world of Pennsylvania native Michael R. Willig, Ph.D., who uses his faculty position in Texas Tech University's department of biological sciences to explore ecological lifeways and the catastrophic disturbances that affect them in Texas streams and in Puerto Rico's Luquillo Experimental Forest.

Willig, whose doctoral dissertation at the University of Pittsburgh focused on the bats of Brazil, first went to Puerto Rico's rain forest 12 years ago under a Department of Energy fellowship he had received as an assistant professor at Loyola University. He since has received two more DOE grants, including one since his arrival in 1983 at Texas Tech.

The energy department, Willig says, is interested in improved energy efficiency and in an assessment of how various energy technologies affect the environment. Before any technological cause-and-effect relationships can be determined, however, scientists must acquire a baseline of data about the rain forest. Willig has studied the ecology of bats, walking sticks, rats and birds in an effort to determine the structure and function of ecosys-

tems and how they persist in the jungle environment.

"To understand the impact of energy policy on the environment, you have to know what the environment is like to begin with, so that you can evaluate the magnitude of effects related to energy technologies. You have to know the 'before' in order to know the 'after,'" he said.

His research has been expanded through a \$2.7 million collaborative National Science Foundation grant that has Texas Tech, the University of Puerto Rico and other institutions involved in a long-term ecological study of the forest, once reserved for the exclusive use of Spanish royalty in the New World. Today, it is the only tropical forest under U.S. Forest Service jurisdiction.

In September 1989, Hurricane Hugo struck the forest, the storm's eye passing just 10 miles away, dropping up to 13.5 inches of rain and buffeting the region with wind gusts exceeding 120 miles an hour. In some places in the forest, 100 percent of the trees lost their leaves and 70 percent of the trees were killed. Researchers got a first-hand look at a storm's impact on fragile ecosystems.

Willig and his doctoral student Gerardo R. Camilo examined Hugo's impact on four species of snail and two species of walking stick. In "Special Issue: Ecosystem, Plant, and Animal Responses to Hurricanes in the Caribbean," a special December 1991 edition of the *Biotropica* series of the Association of Tropical Biology, they reported that two of the snail species and one walking stick species could not be found in a post-storm survey. Populations of all of the species



Creeping water bugs thrive in the South Llano River at Junction.

Photo courtesy of Michael R. Willig

were significantly devastated; only one species of snail was in sufficient numbers to allow a comparison of pre- and post-storm spatial distribution. Because of widespread damage to the populations, Willig noted, recovery will be difficult.

A larger creature may have suffered more extreme damage to its survival. Willig and his former doctoral student Michael R. Gannon, now a professor at Pennsylvania State University, have been tracking the rare red fig-eating bat, indigenous only to the island's rain forest. Their findings: Hugo has pushed the bat, *Stendoderma rufa*, from a "sensitive species" to the brink of extinction. The number of captured juveniles has declined rapidly. Since the 1991 rainy season, no juveniles have been located during any sampling periods. The decrease of juveniles is a statistically real alteration of the bat's demographic structure, Willig says.

Willig has taken Texas Tech graduate and undergraduate students to study in Puerto Rico. In recent years, Puerto Rican graduate students have come to Texas Tech. Many of the students have spent time studying the river ecosystems in and around Texas Tech's

Junction campus in South Texas.

Willig's work in Junction began five years ago in conjunction with an entomology course taught by R.W. Sites. Sites' students were combined with Willig's biology students, mixing their respective knowledge on insects and ecology, to study the insect food web, or predator-prey relationship, of the South Llano River. A paper published in the *Texas Journal of Science* detailed the feeding habits of creeping water bugs and hellgrammites, two of the most common predators of the river. Since then, two other articles, published in *Environmental Entomology* and another in the *Texas Journal of Science*, have detailed the research. Other manuscripts are in progress.

In addition, a variety of data is being analyzed from research conducted under a recently expired \$146,000 grant from the Texas Higher Education Coordinating Board's Advanced Research Program. Under the grant, students surveyed the region's natural stream fauna and its response to flooding. Water levels often change rapidly and frequently, with shifts in depth ranging from 2

feet to 30 feet. Willig also has constructed a laboratory stream environment, in which researchers can control key parameters of stream flow and other factors to study habitat associations.

"We are looking at what happens when flooding disrupts existing structures, and what happens when floodwaters recede and the substrate settles back," Willig said. "New organisms colonize those substrates, and the whole ecological community builds up again. The long-term question is, will the structure and function of the ecological community always go back to the same structure? Or is it random?"

Those questions form the backbone of Willig's world. Ecological relationships are too diverse to make hasty judgments about how one disrupter, such as a paper plant's discharge or the use of fertilizer, may affect overall water quality or stream life.

"One of the things that we have learned is that these systems are very complex and very dynamic, changing dramatically over time intervals. This complexity reinforces the idea that a snapshot approach to ecology, which is the norm of short-term research, is not a good one, because it at best only explains relationships within a very narrow window of time. The effect of a stressor may be no greater than seasonal or annual effects if nothing had happened whatsoever. Without a longer term picture of the fluctuations that go on naturally in the system, you really cannot know that a human practice has disturbed a system beyond the bounds within which it usually fluctuates."

— Jim Barlow

Free to Play

Jonathan giggles while climbing a tree. Sharon recites nursery rhymes as she soars freely in the swing. While these children may look as though they're playing, they also are learning.

Watching children develop through meaningful supported play is the motivation behind a new effort to create an accessible playground for all children at Texas Tech University's Child Development Research Center (CDRC).

Researchers in the College of Human Sciences, the College of Arts and Sciences and the College of Architecture, are undertaking a cooperative venture to design an outdoor play environment for all developmental levels of young children. According to Jackie Driskill, M.S., child life coordinator in the department of human development and family studies, the play environment located at the facility needs to be further developed to include an area for infants and toddlers.

"Outdoor time is an essential part of the daily routine for children," Driskill said. "It offers more opportunities for some children to pretend, to build, to create and to socialize. Outside environments also give a child a chance to use his or her large muscles, and he or she can experience elements of the social world such as cars, buses, students and bicycles."

Driskill said traditional playground equipment basically is limited to normally developed children and omits children who use wheelchairs or children with physical disabilities. An acceptable model would exhibit high play value for a

diverse population of young children.

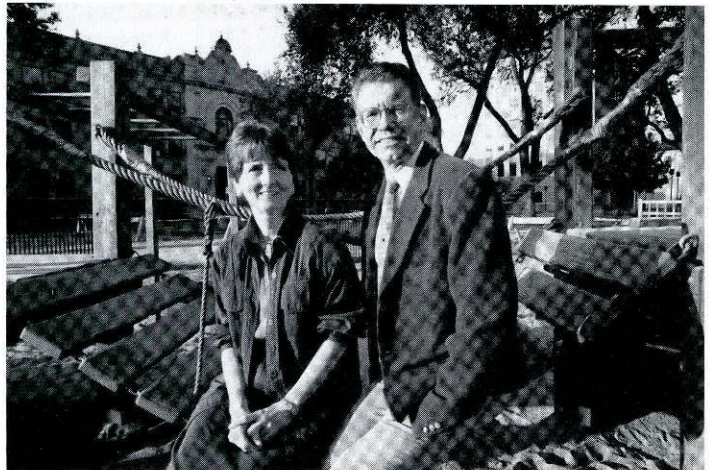
David Driskill, Ph.D., assistant professor of architecture, and Robert Weber, Ed.D., assistant professor and coordinator of the adaptive physical education program, are collaborating with Jackie Driskill on the project.

The new environment would include measures such as replacing metal slides that become too hot or too cold, properly placing equipment at a safe distance from other equipment, installing surfaces under climbing structures that would prevent injuries from falls, and installing a sand and running water area, Jackie Driskill said.

"We're putting together a concept for the long term," David Driskill said. "We want to expand the playground to make it more accessible as well as safe and fun for children to play in."

To employ input from parents, university students, artists, teachers and children, the CDRC recently sponsored a design day with the goal of formalizing concepts and presenting a preliminary drawing for the site, David Driskill said.

Photo by Mark Mamawal



Jackie and David Driskill are working to create an accessible playground at the CDRC.

This new effort marks the second attempt to overhaul the center's play environment, Jackie Driskill said. An earlier program, Project Outdoor Learning Environment, was created in 1981 to establish a climbing structure for the current play environment.

"The earlier project took a while to reach this point. Now we're just picking up where that project ended to build something that's more inclusive for everyone," Jackie Driskill said.

She added that the new play environment also would offer opportunities for children to work with nature by establishing a wildlife preserve for birds and squirrels.

The updating of the playground began with the installation of a new fence in December. With the new fence, the first priority will be redesigning the tricycle path, she said.

"We're still early in the planning stage, but this project does have long-term possibilities and rewards," she said. "Outdoor time should be a fun time for all children, and we want to make that happen here at Texas Tech."

— Myrna Whitehead

Technology to Improve Legal Research

Texas Tech University School of Law students during the spring semester of 1994 will be the first class to benefit from the vast physical changes to the school that, to a large extent, will involve technological improvements for better legal research, according to Law Dean W. Frank Newton.

Currently, the Texas Tech School of Law is involved in one of the largest ongoing construction projects on campus. Although construction began in December, the project is scheduled to be completed within approximately 12 months.

The 12,500 square foot expansion to the school will create spaces for 250 student library carrels that will include computer terminals to be shared between two students. An additional 100 computer terminals will be available for faculty and staff members, and some terminals will be placed in specially designed computer teaching laboratories.

Each two-person student carrel will contain one computer, a lockable door and two book cases, and some carrels will be designed for students with hearing impairments. The entire construction project will include making elevators and restrooms fully accessible for differentially abled Americans, which also will enable the school to satisfy requirements of the Americans With Disabilities Act.

One of the most significant changes will be the technological improvements to the law library. For example, the 250 student computer terminals will be tied into all of

the other computers that the university accesses, and those terminals will be looped, which will allow students to "talk" with other computers within the building.

"That means that our students will be able to read the card catalog of the undergraduate university, of the medical school, or for that matter, of any other library at any university in the nation. Of course, all of those other universities will be able to read what is available at the Texas Tech law library," said Newton.

Newton explains that the new technology is important because the cost of library collections is driving all universities into cooperative arrangements. Each library has its own basic collection and then specializes in areas that complement not only the program at that school, but also act in combination with other libraries to create access for students nationwide.

"Much of what our students look at would be in this library, but some of it we would get through inter-library loans. For example, we would look something up on the computer and see that it was not in our collection but that it was in another library. As a result, students would then actually be able to type on their computer keyboard a request that would then be processed automatically through our library and through inter-library loan," he said.

The new technology will cut the mail time in half by allowing students' request orders to be sent immediately. The only time

involved will be the time it takes for the item to be mailed to the person requesting it.

Additionally, the technological improvements also will allow students to access commercial research services such as Westlaw, Lexus and Nexus, major data banks that are accessed by telephone lines.

Newton says hundreds of thousands of legal volumes are available to students through this mode. Students also will be capable of reading microfiche, microform and CD-ROM, or material that will appear on their screen but cannot be changed because it is read-only material.

"Just like a CD player that allow us to listen to music, we now have volumes that are on CD disks. And instead of having a light source that will play music, you will dial it up on the computer and the disk will be selected that contains information available to the computer and user," Newton said.

In the future, the 350 computer terminals will be able to access even more material more quickly because the system is being designed to use three methods that consist of "twisted pairs" or telephone lines, copper cable and optical fiber that work as an insurance policy against obsolescence, he said.

"We will really be the school with the greatest percentage of access for our students in the nation. We certainly are convinced that there's been dramatic growth in the last decade in the use of terminal access through systems," Newton said.

Photo by Mark Marmawel



Beth Schneider (left) and Frank Newton examine architectural renderings.

Newton says he does not want to suggest that traditional library collection and access are not important. In fact, the law library will be increased from 37,500 square feet to 50,000 square feet.

Additionally, the construction project also will include replacing lighting and providing new floor covering and carpeting to the library.

A primary basis of the building project also includes providing research services to practicing lawyers and judges by helping them to be fully trained in the latest technology.

Because of this goal, the school offered a pilot project last summer through the Texas Constitutional County Judges Association that brought judges to the school to train them on computer equipment and in legal research methods. The first session involved a grant from the Judges Association to pay for training as judicial writers and in judicial administration. In the future the school will continue to provide continuing education courses for judges and lawyers throughout West Texas and the rest of the state.

— Jennifer LeNoir

A Fishy Tale?

If while scanning through the swimsuit edition of a magazine and a dazzling bikini featuring a unique scale-patterned material should catch your eye, you might be surprised to discover the swimsuit is made of fishskin leather. The innovative new product is vying for acceptance among cowhide leather aficionados.

When graduate student Phyllis Ingram came to the department of merchandising, environmental design and consumer economics at Texas Tech University, she wanted to promote this interesting new material and to study its acceptance among consumers. With direction from Jinger Eberspacher, Ph.D., assistant professor and director of the Leather Research Institute, Ingram began reviewing the status of the leather products industry and assessing opportunities to help the industry expand.

"Clearly, the biggest challenge is that fishskin represents a niche market or specialty market," Eberspacher said. "The main obstacle it would face in Texas is marketing."

She noted that the problems of higher production costs, the availability of raw products and the loss of domestic markets have forced closures at many levels of the production chain.

Ingram began her quest by surveying several major leather products retail buyers in Lubbock and examining their perception of quality leather products. She concluded that the perceived quality of the product was attributed to the country where the final assembly

occurred. For example, if a shoe was assembled in Mexico through a company housed in the United States, the product was rated higher in terms of quality and customer satisfaction than a shoe produced by a company outside the United States.

Further, Ingram sought to determine retailers' ratings of other leather products that utilized oceanic stock, such as eel skin or shark skin. The result was quite negative even though these products had a limited success in the market a few years ago.

"The first thing people want to know about is the smell," Ingram said. "Unlike some of the fishskin products coming out of Mexico, the products made by a manufacturer in Canada smells and feels just like cowhide leather."

Fishskin, made by tanner Lionel Cann in Calgary, Canada, has been tanned into a variety of finishes. Armed with its unique scale patterns, fishskin has proven to be water, oil and scratch resistant. And the product accepts dyes in more than 750 colors. Cann and his team of scientists have perfected a method that removes the odor from fishskin leather products.

To date, fishskin has been tanned to produce merchandise such as miniskirts, shoes, boots, jackets, luggage and small accessories including belts and watchbands. Designers, including Maude Frizon, Pierre Cardin and Bill Blass, have cast their fashions in the new fishskin material.

Fish such as sturgeon, grouper, butterfly, shark, catfish, salmon and carp all have been tanned into fish leather. Ingram said the success of the fish leather can be attrib-

uted to the fact that none of these species are facing extinction. In addition, carp, which is the most abundant of the fish species, produces the most popular leather.

"For fishskin to really get off the ground, it's going to take a strong commitment from someone who's willing to put in the time and money to market this product," Eberspacher said.

At one time, the United States dominated over much of the leather tanning and finishing industry, Eberspacher said, but for the past 30 years, the U.S. leather and leather products industry has declined sharply.

She points to an article published recently in *The Cattleman* magazine, which shows that about 99 percent of Texas hides are exported to foreign and domestic markets for tanning, finishing and manufacturing of leather goods. The result has meant losses of millions of dollars

for the state's ranchers and industry workers.

Texas has a large output of quality raw products and produces in excess of 5 million fed cattle hides annually, Eberspacher said. However, less than 1 percent of the hides are processed locally. A tanning industry in West Texas could improve efficiency throughout the production chain and dramatically contribute to the demands of the retail industry. The processing of fishskin also could be integrated in this development plan, Eberspacher said.

Armed with a hemispheric free trade zone among the United States, Canada and Mexico, Ingram said, initiatives toward economic efficiencies and new market opportunities could stimulate the waning U.S. leather industry — and provide an outlet for fishskin leather production.

— Myrna Whitehead



Photo by Mark Mannen

Phyllis Ingram displays fishskin leather.

(Editor's Note: The following opinion piece was written by Gwendolyn T. Sorell, Ph.D., who is an associate professor of human development and family studies and is the coordinator of the Women's Studies Program.)

Standing Ground for the Status of Women

By Gwendolyn T. Sorell, Ph.D.



Photo by Mark Mamawal

One of the defining characteristics of women's studies scholars is their skepticism — their unwillingness to accept facts at face value — their insistence on looking beyond the facts to that which has not been said and to those things that the facts do not reflect. A critical analysis of changes in women's status since World War II suggests that although women are more visible in public life today than in the past, much remains to be accomplished; and the '90s hold considerable potential for ground once gained to be lost.

We have just passed through the so-called "Year of the Woman" in politics. More women than ever before ran for public office. This "Year of the Woman" in politics represents the outcome of at least two decades of women cutting their teeth in city, county and state politics and in a variety of public administration positions. The gains were 24 new women to the U.S. House of Representatives, for a total of 28, and four new women to the U.S. Senate, for a total of six. Most people would agree this trend indicates advancement for women.

Headway also can be seen in the work place where women are far more

prominent than at the end of World War II, or even as recently as 1970. Unprecedented numbers of women are pursuing careers, at least for some period of their adult lives. The percentage of women in the membership of professional associations has risen steadily for more than a decade. Women have made dramatic inroads in the world of business. The proportion of women in middle management positions exceeds 50 percent and continues to rise.

For non-career women also, employment options have broadened considerably from those available following World War II. Many of these jobs have become available in fields such as the computer industry that have grown rapidly and have looked to new segments of the labor force to fill positions.

Educationally, women have made significant advances. As many women as men graduate from college, and the percentage of women receiving graduate and professional degrees is considerably higher today than in 1970. There are only a few educational institutions that are closed to women.

This is an impressive, although incomplete, list of advances and accomplishments. Indeed, looking over the list is enough to convince most people that women are no longer

second-class citizens, as was the case in this country as recently as 1920, when women were granted the right to vote. However, a more complex analysis reveals that the vision of advancement is partially an illusion and, further, that the climate of the past decade may pose significant dangers to those gains that are "real."

Analysts of the labor force caution us not to conclude that women have achieved equality with men in career positions. The '30s, '40s, and '50s saw a drop in the number of women in careers, especially in the professions. For example, the proportions of women to men in medicine, law and university teaching did not regain their 1930 levels until 1970. Thus, some of the changes in the distribution of women in the labor force have been the regaining of lost ground, rather than advances. In some areas, it is difficult to see any change at all. Despite the notable increases in numbers of Ph.D.s awarded to women, at many universities the percentage of women faculty is the same today as it was in 1970. Women are over-represented at the instructor and lecturer levels, and those women who are hired as assistant professors often leave without receiving tenure.

Other indicators also suggest that the

time may not have come as yet to pin on our "equality has been achieved" buttons. Many career women are all-too-familiar with the glass ceiling effect, which is most apparent in the clustering of women in middle management positions and the scarcity of women in executive positions.

The glass ceiling effect also takes other forms. Where women's representation has increased significantly in professions that have in the past been male-dominated, much of the change is due to the creation of new specializations. Women are well-represented in family law, family medicine and residential real estate, where both status and pay are lower than in surgery or orthopaedics, corporate or labor law, or commercial real estate.

The occupations in which women have increased their representation the most and in which women are the most visible are those that are declining in status and prestige — fields in which the work has become highly routinized and where the pay is relatively low, as, for example, in journalism. Employment as a bank teller once was an entry level position for men preparing to move up the ladder of success. As this type of employment has become female-dominated, these jobs also have become dead ends. Women also remain segregated in traditionally female-dominated careers, such as nursing and education.

In addition, there is the gruesome specter that lingers from those hearings of October 1991 when a panel of white male senators questioned the credibility and sanity of Anita Hill, whose testimony regarding her sexual harassment by Clarence Thomas was compelling and verified by other witnesses; and a black man invoked images of slavery and lynching in his defense against the accusations of a black woman. The message to career women and non-career women alike is painfully clear: If you do not want to be sexually harassed, you must be willing to quit your job, regardless of what the price might be in terms of advancement and future opportunities. If you want to advance your career, as Anita Hill presumably did when she accepted the EEOC appointment, you must be willing to be a silent victim of sexual harassment.

Women continue to earn less than

men, regardless of type of employment. The differential varies across occupations and is slightly less in the professions than in other areas of work. Overall, women earn approximately 70 cents for every \$1 earned by men. This inequity has not changed substantially since World War II.

Many qualifiers must be placed on women's success in attaining educational equity. We have known for years that throughout their elementary and secondary educations, girls and boys receive unequal treatment in classrooms. The study reported last year by the American Association of University Women made this unquestionably clear. Dozens of studies can be cited regarding practices in university classrooms, and elsewhere on campuses, that favor men over women. Perhaps most telling is the continuing clustering of women students in certain colleges and majors and the absence of women in traditionally male disciplines such as engineering and science.

A skeptic's analysis of the "Year of the Woman" in politics brings to light some depressingly stereotyped images. Prior to the election, an article in the **Chronicle of Higher Education** noted women were seen by voters as more caring, moral, honest and responsive than the men of the Washington establishment. What this view overlooks is that women running for office are politicians. Some female politicians may promote an agenda including a concern with family leave, child care, reproductive freedom, affirmative action, family violence, women's health, etc. However, politicians, both male and female, must understand, care about and vote on issues having to do with economics, international relations, trade balances and all those other factors on which the well-being of this country rests. A significant change in the legislative mandate in this country will occur only if women and men agree on the necessity for and viability of change. This is not a matter of gender. It is a matter of politics.

When we view advances in the status of women in historical context, we recognize that ground has been gained during periods of vigorous feminist activism.

The first era of advancement began in the late 19th century when the woman suffrage movement advocated

for and eventually succeeded in obtaining voting privileges for women. After 1920 the energy that had driven that movement waned. By 1930, the status of women and women's individual and social achievements began to decline. This trend reversed itself in the late 1960s, when feminism experienced a renewed vitality. The '70s and early '80s were marked by unprecedented advances for women on almost every social front — and by an outspoken feminist movement.

In 1993 we mark almost a decade of anti-feminist sentiment. During this decade, affirmative action has been distorted into a synonym for reverse discrimination. Women's opportunities at work have become contingent on their willingness to forego promotion beyond the glass ceiling, to accept inequitable pay, and to endure sexual harassment silently as the price for their jobs. For the past 10 years women have been barraged with propaganda about the destruction to their families that results from their ambitions for equality. Women have been frightened into believing that work and family are antithetical to one another and that the battle of the employed mommy vs. the stay-at-home mommy is legitimate and real. Today Rush Limbaugh is praised for his commentary on "femi-nazis" and for peddling the notion that only radical feminists see other women as their sisters.

Placing the "Year of the Woman" in historical context reminds those who are seriously concerned about the status of women that the time has run out on being afraid of the "F" word. People who believe in equality, at work and at home, can no longer afford their fear of the label "feminist." The bottom line is no more than this: Feminism is the notion that women are people and that they are entitled to the same opportunities that are available to men.

If feminism is allowed to ebb as this decade of its persecution continues, women's advancement also will slow and eventually decline. We will repeat the cycle of the '30s, '40s and '50s again. Our daughters, our granddaughters and our great granddaughters — and our sons, grandsons and great grandsons — will be called on to regain ground that we once held but yielded at a point when we had a choice to do otherwise. □

A Lifeline to the World's Hungry

By Jim Barlow
and
Kippra D. Hopper

When former President Jimmy Carter visited Lubbock in October, he issued a call for public service and applauded consortiums created to deal with social problems. Universities, he said, should “provide knowledge to those who need to know.” Faculty and students at Texas Tech University are assisting in community endeavors to solve a very fundamental problem: human hunger.

Worldwide, no other disaster compares to the devastation of hunger. More than 1 billion people are chronically hungry, and every year 13 million to 18 million of them die as a result. Even in the United States — “the land of plenty” — people are hungry and malnourished.

Carter’s scenario of university resources paying dividends to local communities can be seen in the Texas Tech connection with the South Plains Food Bank, where students and faculty have provided sweeping assistance since the facility opened in 1983.

From Texas Tech University and the Texas Tech University Health Sciences Center, the food bank has received substantial volunteer service from students, staff and faculty, including publicity help from mass communications, personnel guidance from business administration, fund-raising assistance from student organizations, farming labor from volunteers with the university’s Community Action Network, grocery store savings from human sciences, and health screening from nursing.

Community Action Network volunteers gather sweet potatoes at the food bank’s farm.



Photo by Mark Mamawal

Most recently, industrial engineering students and faculty have been helping the food bank plan for a more comprehensive project, a unique dehydration plant that the food bank's executive director, Carolyn Lanier, sees as a potential lifeline to the world's hungry.

The food bank kicked off a \$4.8 million fund-raising effort for the project on, appropriately, World Hunger Day, Oct. 16. Under the food bank's plan, 40,000 pounds of surplus and rejected food products from farms and commercial facilities will be processed daily in the soon-to-be constructed Breedlove Food Dehydration Plant. The food then will be distributed to the needy in this region and to other food banks to reach the hungry around the world.

"Thirty-six thousand people die daily from malnutrition and hunger worldwide," Lanier said. "Now we know we won't immediately get our product into the mouth of a dying Hindu baby, but we will be able to ship this plant's products worldwide. We really are on the brink. The only thing that's keeping us from it is \$4.8 million, and we're working on that. The problem is that children are going to bed hungry every night, and they're crying. People are making decisions: Do they buy food or do they pay for their house? They're becoming homeless. Then they lose their jobs, and then they are without food, too. And all the while that's going on, we have this glut of unused food, but no way to preserve it, no shelf life, no way to get it to people that need it. So this is the way."

Industrial engineering's linkup to the food bank began with a casual conversation between John Trelford, a retired businessman and member of the food bank's board of directors, and former industrial engineering chairperson Tom Lehman, Ph.D., as they flew above the farms and ranches of West Texas on a Southwest Airlines flight from Dallas to Lubbock.

Lehman told Charles Burford, Ph.D., a professor of industrial engineering who oversees the department's senior projects, about the in-flight conversation and about the food bank's needs. Burford called Trelford, the 1992 internal vice president of the food bank's board of directors, and toured the facility. "I recognized a number of other things that they needed as well," Burford recalled. "I also felt like anything

we did out there would be a significant service to the community and benefit an awful lot of people."

In the spring of 1991, industrial engineering students took on projects involving the improved utilization of warehouse space and the salvage and distribution of donated products as their required senior projects. Since then, senior projects have helped the food bank with its rural delivery system of refrigerated products to 26 neighboring counties and the implementation and use of limited kitchen space for an agreement to prepare and package 280 meals a day for meals for senior citizens.

In the fall of 1991 and spring of 1992, the students began helping in feasibility studies and facility planning for a dehydration plant. During the Fall 1992 semester, three students, Leslie Lloyd, Luis Garcia and Robbie Walls, began looking at other needs for the dehydration plant: the layout of a warehouse; equipment needs and cost estimates; kitchen and laboratory design; and special purchase and design considerations that incorporate new regulations by the Environmental Protection Agency for refrigeration and freezer units.

A conceptual plan for a dehydration plant, to be built on 29 acres of East Lubbock land, located near 56th Street and Quirt Avenue, donated by Mary

Louise Breedlove Kingsbery, was completed in December 1991 by Matt Junoh, who has since graduated with an industrial engineering degree and returned to his native Malaysia. Junoh's report focused on what components a plant would require for receiving, processing, storing and distributing donated crops.

As part of one of the projects, three students, Mazin Jadallah, Michael Koeller and Jesse Parker, accompanied by their faculty advisers, Burford, Lee Kitchens, Ph.D., and William Kolarik, Ph.D., made a trip to San Francisco to visit Innovative Foods Inc., which has been a leader in food processing since it was founded in 1963, to discuss the available technology in a relatively new industry. The expertise of the company's founder, Ed Hirschberg, has been used in the development of food products for astronauts and for allied troops in Operation Desert Storm.

The current projects are being supervised by Parker, now a graduate research assistant, who has turned down two job offers to remain in school to help on the project. "The best-case scenario of all this is that we get a food dehydration facility that totally works, one that will be a model institution for the rest of the world," Parker said.

As part of his graduate work, Parker



Photo by Mark Marnawal

Engineering faculty and students are helping the food bank in its endeavor to build a dehydration plant. At the construction site are: (left to right) William Kolarik, Carolyn Lanier, Jesse Parker, Lee Kitchens and Charles Burford.



Photo by Mark Mamawal

has been developing a \$100,000 prototype for the dehydration facility at the food bank's southside 5.5 acre farm, where in 1991 more than 100,000 pounds of vegetables were harvested by volunteers. "We have gotten through the definition stage on what is a food dehydration facility," he said. "Now we are in the planning stage where we are trying to nail down all the bolts and nails of where everything has to go and make sure we have everything that we need in the facility."

The food bank has distributed in excess of 50 million pounds of food through 16,000 meals a day at a cost of 11 cents per meal since it opened in December 1983, according to Lanier. The facility also provides literacy and job training for persons who are underprivileged and retarded. The agency serves 61 counties with an operation that is primarily driven by an 89-percent volunteer workforce.

Sellie Shine, R.N., M.S.W., C.S.W., social worker and director of external relations at the food bank, emphasizes that food is as basic a need as we can

have. "I think what people don't realize is if you have the need for food, then you have many other needs. Hunger and homelessness in Lubbock are almost like a bottomless pit. I keep thinking that surely we've fed all the hungry people, and then I see more new ones. I keep a figure here because it flabbergasts me: Every night 1 million Texas children go hungry. Often the food bank is the final net that catches people who are hungry."

Every month the food bank can count on Texas Tech volunteers. The Community Action Network, a project of the Texas Tech University Center, creates consortiums of individuals and campus organizations to work at the agency, according to Cheryl Shubert, coordinator of student activities.

"With consortiums, goals are easier to accomplish. The network serves an educational role in getting people to take action and to understand the problems and issues involved. We are promoting that people do service and practice what they preach," Shubert said. "The food bank is a wonderful place to



Photo by Mark Mamawal

Top: Volunteers pick okra at the food bank's farm.

Above: The food bank's farm allows the agency to distribute fresh vegetables, such as cauliflower, to the area's hungry.

work because hunger is an area that is a real need. We have a partnership arrangement with the food bank. Neither of us can do it alone.”

Along with its mission of providing food to the hungry, the food bank attempts to serve people’s other needs. For example, faculty and students from the Texas Tech University Health Sciences Center School of Nursing conduct a screening clinic for hypertension and diabetes at the food bank.

“It gives the students the opportunity to practice their skills and to interact with the public. People who use the food bank are typically short on health care, and they may not have access to early intervention anywhere else. The screenings can identify undetected problems, and then individuals can be referred to other resources. Hospitalization may thereby be avoided. Early detection, early referral and early treatment can save money for taxpayers,” explained Virginia G. Miller, R.N., Ph.D., assistant professor and associate dean for the School of Nursing practice program in Lubbock.

Recently restaurant, hotel and institutional management students in the College of Human Sciences spent more than 500 hours collecting and categorizing 50,000 grocery store coupons. The coupons were taped to products at the Lubbock Farmers Market grocery store, and as customers shopped, the coupons were taken off the products and the values were tallied. The money generated was presented to the food bank with every dollar resulting in \$25 worth of food available to needy individuals and families.

“I couldn’t live without Texas Tech,” Lanier said, praising all of the assistance she has received over the years. “This connection with the university is wonderful because we get very bright, innovative minds in these students, who can come in and look at things with a fresh approach. Then, we also have professors who oversee the projects. This is what people pay fortunes for to get consulting services. What I’ve got is a free consulting service. We have learned a lot, and we have saved money. I think this connection with Texas Tech is one of the reasons that we are a premier food bank in the nation.”

In addition to the assistance given to the food bank, the senior design pro-



Photo by Mark Mamawal

jects of Texas Tech’s industrial engineering department have helped solve numerous challenges for other companies, including Texas Instruments, University Medical Center, Grinnell Manufacturing, Texas Precision Products and Stone Containers. Agencies such as the Lubbock State School, Lubbock County Mental Health-Mental Retardation and Levelland Independent School District also have utilized the student program.

Texas Tech sorority and fraternity members spend a Saturday sorting through sweet potatoes grown at the food bank farm.



Photo by Mark Mamawal

A Texas Tech student hauls in buckets of sweet potatoes from the food bank farm.

Similar scenarios have occurred every semester since 1978: Texas Tech students testing their academic training with real industrial problems. Senior projects are required of all industrial engineering students in their final semester before graduation. "For the student, the Senior Design Project is an early opportunity to address a live, real world problem, one that's non-academic and non-textbook," Burford said. "This is the reality of the engineering profession. It can be a rude awakening. Students have to apply their problem-solving ability, learn how to work with other people and learn how to communicate."

For Burford, the food bank-Texas Tech relationship is more than a professional one. When he is not supervising students, he serves as a volunteer at the food bank. "I find it a very rewarding relationship. I would like to see more of the university involved in projects of this nature or community service. Projects like this can be tremendously beneficial in a lot of ways."

The concept for a food dehydration plant evolved from a concern about how the food bank could better utilize donations from regional farmers, who each year see some 15 million pounds of vegetables rot in their fields, and from Lubbock's restaurants and food producers such as Frito Lay, which for years has offered truckloads of useable but rejected potatoes.

"The food bank would accept as much of these leftover products as possible, but fresh produce is difficult to distribute due to its perishability and due to its weight," Burford said. "It's something that other food banks can't distribute because they are not set up for that reason. The food bank people realized there has been a tremendous amount of fresh produce going to waste here in the South Plains area. A lot of it has been put back into the ground or plowed into the fields. At the same time, there is an untold number of people who are going hungry. We just need a solution putting the problems together."

The food bank had considered purchasing a surplus cannery for processing the products and/or building a facility for freezing them, but there were too many problems involving cost, processing and storage, Burford said.

Dehydrated food has a shelf life of several years, requires no refrigeration and loses a lot of its weight and volume during the drying process, leading to greatly reduced storage and transportation costs, Lanier said. During the dehydration process, an average of 70 percent of a product's water content is removed. The dehydrated items then can be packaged in several ways, and, because dehydration makes the food safer to handle, there is less opportunity for bacteria to grow during processing, she added. The food can be reconstituted by simply adding warm water; stoves or ovens are not required.

In addition to Texas Tech's assistance, the food bank's dehydration project has the endorsement of Chicago-based Second Harvest, a network of 182 food banks that serve 46,000 agencies in the United States. For the engineering students' feasibility study, Second Harvest surveyed its members and found a resounding interest in receiving dehydrated products. The Vegetable Growers Association also got involved in the feasibility study, surveying members for the availability of products and members' interest in donating their surplus or rejected material.

"The hungry aren't fed in our corporate offices. The hungry are fed here in your local communities," Christine Vladimiroff, Second Harvest's president and chief executive officer, told the crowd during the land dedication ceremony. "The Breedlove project is exciting because it's the first commercial-scale food dehydration project that is totally dedicated to feeding the hungry. Because of the low transportation and storage costs involved, it could have national as well as international ramifications. If it's effective here, it could be modeled in other countries."

The October dedication ceremony, despite a windy cold front, drew a large audience of Lubbock-area residents, Texas Tech students, faculty and administrators, a variety of elected officials and dignitaries of local, state and national organizations to the property where the facility will be built. Approximately 16 acres of the donated property will be used for ecologically balanced water treatment lagoons. Hirschberg of Innovative Foods Inc., who has offered his services as an adviser, said that the dehydration facility will be a demon-

stration plant for the world.

"We look at this dehydration project as a 3H grant project for health, hunger and humanity," said Jim Cook of Austin, former District 573 governor of Rotary International, which has representatives in 184 countries. "We look at it as a regional project, one that can be duplicated throughout the United States and the world, in places where there are surpluses in season that can be reproduced and stored for a time of drought. We see it as the best humane approach to handling the problems of people in crises."

Echoing that sentiment was U.S. Rep. Larry Combest, R-Lubbock. "This is a great example of what can happen when we have a lot of very dedicated people who get paid nothing but spend their time doing great rewards. This is a great day for Lubbock. This is one of the finest food banks in the entire country, and I think that we in Lubbock sometimes forget some of the things that we have here because we become so accustomed to them. This is an example for the rest of the country."

The fund-raising chairperson for the dehydration project is state Sen. John Montford, D-Lubbock. Setting aside political campaigning for re-election, Montford, an attorney, spelled out the challenge for supporters of the food bank. "We in the private sector, particularly, are going to have to start shouldering more of the responsibility of service. If we don't do it ourselves, nobody is going to come along and do it for us. I believe that we have a significant opportunity, not just for Lubbock and the South Plains. I believe that we are on the verge of a great opportunity for the United States and the entire world. I don't know about you, but I don't sleep very well at night when I know that kids are hungry."

"We've got to quit raising political money right after the election and start raising money for hungry children. That's something that I can get excited about. We've got to raise a lot of money. We've got a tough challenge. We've got an important challenge, but it's one that has the most sincere and noble purpose of anything that I've been associated with."

For Lanier, a successful fund-raising campaign would be one more miraculous deed to add to nine years of daily miracles at the food bank. □



Photo by Mark Mamawal

Members of Texas Tech fraternity and sorority groups fill boxes of food items to be distributed to hungry families during the holidays.



Photo courtesy of the Archive of Turkish Oral Narrative

Three Turkish villagers during the 1960s pass on their oral traditions, or folk narratives, to researchers with the Archive of Turkish Oral Narrative.

A Gathering of Turkish Yarns

By Jennifer LeNoir

Reaching young audiences before they are encumbered by the biases that so often affect their elders is important for future multicultural understanding, according to Barbara Walker, M.A., curator and co-founder of the Archive of Turkish Oral Narrative at Texas Tech University.

Since 1965, Walker has written more than 20 children's books based on traditional materials that she and her husband, Warren, have collected in Turkey. She has made numerous presentations in schools and public libraries across the United States, and scores of her retellings of Turkish tales have been published in such prominent children's periodicals as *Cricket*, *Children's Digest*, *Humpty Dumpty's Magazine* and *Scholastic News Time*.

"Many of the tales help people to celebrate cultural diversity within the human family rather than serving to show exotic cultural differences in ways that exaggerate and distort distances between peoples," said Walker.

She says the tales in her books are

stripped of their capacity to reinforce ancient prejudices, despite illustrations filled with turbans and swords.

Walker explains that the essence or "heart" of a people can be known by their folk narrative, which is passed on from one family to another, from one generation to another, and sometimes from one geographical location to another, solely by word-of-mouth. The narrative, she said, is what cultures consider to be representative of their values, idiosyncrasies, strengths, weaknesses and traditions. The term "folk literature or narrative" includes legends, heroic accounts, fragments of epics, anecdotes, jokes and tales of many types and lengths.

Folk literature, whether written or not, exists among all peoples, she said. And recording the tales on permanent, archival quality tape is exactly what the Walkers have done with 3,000 Turkish folk narratives. About 2,000 of them have been translated from Turkish into English so far. The Walkers expect the translation of the other 1,000 folktales into English, indexing and cataloging



Photo by Mark Mamawal

Warren Walker completes the tedious processing of Turkish folk narratives.

will require at least another 20 years to complete.

While the archive was established in 1971 to further an understanding of Turkish history, folklore and culture, its origins began in Turkey more than 31 years ago. Some of the hardest work that has made the sharing of the tales possible has involved collecting and preserving the Turkish tales and narratives.

To get to inaccessible villages, Warren Walker, Ph.D., and his co-researcher, Ahmet E. Uysal, Ph.D., often have traveled by horseback, jeep, bus or on foot to collect the tales. Barbara Walker did not collect material in the remote villages because it is not customary for Western or Turkish women to mix with strangers, she said.

Warren Walker, director and co-founder of the archive, is a Texas Tech Horn professor emeritus of English. Another co-founder, Uysal, a visiting professor at Texas Tech from 1966-68, assisted the Walkers in the gathering and translating of numerous folk tales.

In 1989, the Walkers received honorary doctorates in folk literature from Selcuk University in Konya, Turkey. Additionally, they are the first non-Turkish members of the Ataturk Culture, Language and History High

Academy.

Focusing on Turkish oral narrative has been an evolutionary process, but the idea began when Warren Walker received a Fulbright Lectureship to Turkey. Between 1961-62 Warren taught American literature at the University of Ankara, where his office mate was Uysal.

The material in the collection primarily consists of Turkish folktales, many of which had never been recorded verbally or in writing. The primary reason for the lack of written record of the tales, explained Warren Walker, was that 70 to 80 percent of the people living in Turkey during the 1960s were illiterate or semi-literate.

"Knowing this automatically meant that if people couldn't read or write they must have had a rich cultural heritage that goes back for centuries, and it must have all been transmitted by word-of-mouth," said Warren Walker.

"We chose to go to Turkey because we knew that if most people were illiterate, then they had to have a strong oral tradition. And if you have this, then certain forms will be recurring such as folk songs, folktales, proverbs, riddles and so on," he said. "Because of its geographical location, Turkey had served for centuries as a cultural bridge



Photo by Mark Mamawal

In traditional Turkish clothing, Barbara Walker retells Turkish tales in public schools and libraries across the United States.



between East and West. We knew that there must be a treasury of folktales there, but surprisingly no one had done scholarly studies in English on the Turkish folktale.”

An additional reason for the lack of written folk narratives involved the attitudes among educated Turks, he said.

“Turks living in the larger cities often are urban intellectuals, and many of them disliked the idea that we were attempting to preserve their culture for them. We believe that although they may want to forget their past now, there’s going to be a time when they’ll want to know about their roots,” Warren Walker said.

“Ahmet Uysal was one of the few educated Turks who would admit that he came from the villages and that he regularly visited them,” he said.

According to Warren Walker, a huge split often exists in developing countries between the urban, intellectual elite and the village peasants. However, Uysal “loved” the villages, and he traveled back to them even though he himself originally knew little about Turkish folklore.

“But Ahmet spoke Turkish well and he knew the village temperament, and he knew what to say and how important body language was. I couldn’t have made it without him — going into remote, rural villages to collect folktales

— especially with my lack of knowledge of Turkish culture,” he said.

“Once in a village, getting the local inhabitants to relax enough to share a folktale wasn’t always easy,” explained Barbara Walker, stressing the importance that collectors understand local customs and protocol.

Barbara Walker said, “You can’t just sit down and ask someone to tell a story. First the ice has to be broken with all the proper greetings, handshakes, cups of tea, followed by some more polite questions. Ahmet under-

stood how to win the villagers’ respect and confidence. Then my husband could begin recording the folktale. They were ideal partners for the work they were doing.”

“Dr. Uysal was a superb field worker who understood the village psychology

Above: The Archive of Turkish Oral Narrative holds collections of recordings, photographs, maps, flags, field notes and books gathered during the past 31 years.

Below: Barbara Walker’s retellings of Turkish tales have been published in numerous children’s periodicals.



Photo by Mark Mamawal

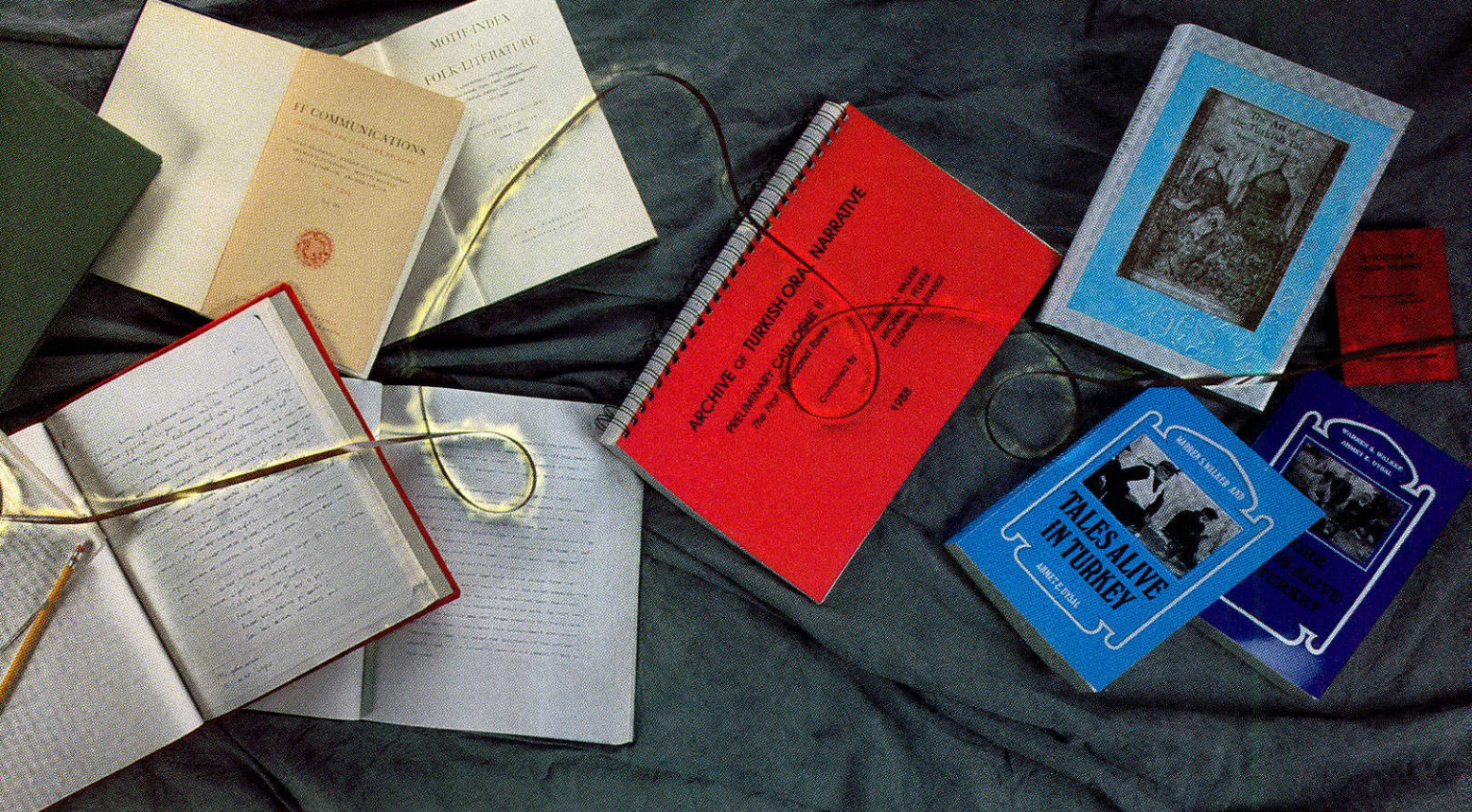


Photo by Mark Mamawal

well. Because of this, he has thousands of friends in the villages and today is Turkey's leading folklorist," said Warren Walker.

Today, the archive primarily functions as a research facility about Turkish folk literature for Texas Tech faculty and students and for scholars from around the world. The information contained in the Texas Tech archive is particularly precious because it was gathered before transistor radios and television reached Turkey, which made storytelling the primary means of entertainment and social instruction. The archive has grown in importance from a regional depository to become the only one of its kind in the United States and Turkey, according to Barbara Walker.

Harvard University, the University of Texas at Austin, the University of Pennsylvania, the Indiana University at Bloomington and the University of London also appreciate its historical and cultural value, and at one time or another have each made offers to the Walkers for their private collection.

Instead, the Walkers in 1982 donated the entire collection to Texas Tech, where it currently is housed on the third floor of the University Library.

Although they have been working on the translating task for several decades, only about 2,000 of the original narratives have been translated word-for-

word into English. After translating the works into English, a process that is sometimes quite complex because of the many dialects involved, the narratives are typed, annotated, catalogued, indexed and placed into bound English volumes of approximately 150 pages. The archive keeps an original and three copies of all folk narratives.

Additionally, the folk tales are recorded according to their type or theme. For example, if a researcher is looking for a tale with a Cinderella or Snow White story line, they may look in one of two scholarly indexes. The first, Aarne-Thompson's "The Types of the Folktale," categorizes almost all Finnish and some European tales. A second, by Eberhard-Boratav, titled "Typen Türkischer Volksmärchen," and published only in German, contains only Turkish tales.

What is important, according to Warren Walker, is that these indexes allow researchers at the archive to find parallels to the Turkish tales.

Also significant is Warren Walker's own indexing system of the tales within the archive. For example, each tale is numbered and titled. The name of the village, county and Turkish province or state is listed. The first and last names of the narrator are provided for taped versions, along with the year of the recording and the performance time in

minutes.

Besides the tale type variations, each tale is classified into one or more of eight divisions. These include themes involving the supernatural, ingenious deductions, humor, moralistic or preachy qualities, romantic or heroic characteristics, anticlerical or anti-religious sentiments, anecdotes and miscellaneous narratives.

Today, the archive fulfills its secondary purpose of creating a better understanding of Turkish culture by disseminating numerous materials about Turkey in the United States. This primarily is accomplished by the Walkers' responding in writing, by telephone and by face-to-face communication to inquiries about Turkish people and their country.

"The narratives are important because a lot of people cannot get detailed information on Turkey. As a result they come here. Both the consul general for Turkey in Houston and the Turkish Embassy in Washington, D.C., refer numerous inquiries about the culture and customs of Turkey to the archive at Texas Tech in Lubbock," Barbara Walker said.

"Turkish people are the most friendly people we've experienced. We've lived in several foreign countries, but we never met people as hospitable as Turks," said Warren Walker. □

Teaching the Teachers of the Visually Impaired

By Myrna Whitehead

“The future teachers we work with will usually teach a special curriculum for children from birth through age 21.”

For sighted individuals, crossing a busy intersection is, at best, a minimal achievement. For persons with visual impairments, the act is viewed as a milestone. Teaching life skills to people with visual or other sensory impairments has motivated a group of educators at Texas Tech University to develop a program to prepare specialists to teach such special skills.

Through the Program in Visual Impairment at Texas Tech, College of Education personnel are trained to teach persons with visual impairment and persons with dual sensory impairments, (for example, blindness and deafness) and to serve as orientation and mobility specialists.

Texas Tech has the only program in the nation to provide training in all three of these areas. Stephen F. Austin State University and the University of Texas at Austin are the only other universities in the state with some components of the Texas Tech programs.

Four faculty members in the Texas Tech program share common interests in providing teacher training for instructors who work with people with visual impairments. Virginia Sowell, Ph.D., associate vice president for academic affairs and professor of special education, is the founder of the program and is internationally known as an active supporter and leader in many organizations for individuals who are blind and visually impaired.

The other faculty members are Alan Koenig, Ed.D., assistant professor of special education and coordinator of the program in deficient vision; Pat Kelley, Ed.D., assistant professor of special education and coordinator of the program in orientation and mobility; and Roseanna Davidson, Ed.D., assistant professor of special education and coordinator of the program in deaf-blind.

Individuals who complete the visual impairment sequence receive the “Endorsement in Visual Handicaps” to a teaching certificate, Sowell said. Those who complete the orientation and mobility sequence can obtain

national accreditation. The College of Education is working toward obtaining state approval for its deaf-blind sequence.

“When I came to Texas Tech in 1976 in special education, we did not have a program for training persons with visual impairments in all of West Texas,” Sowell said. “I realized that there was a need because children with visual impairments were not being reached.

“The point of our program that’s different from all of the others is that we have an outreach component,” she noted.

Sowell received a bachelor’s degree in English in 1951 at Sam Houston State University, a master’s degree in education in 1957 at Trinity University and a doctorate in education with a specialization in special education in 1975 from the University of Texas.

“We teach a full complement of classes on our campus, but our program is one in which our faculty at Texas Tech go into the rural areas usually under the auspices of the Education Service Center,” she said. Students commute to where the classes are taught at the service centers, such as Houston, El Paso and Victoria.

“We’ve found that once they get the training, the teachers usually will stay in that area where they’re needed the most,” she said.

In 1991, Sowell was recognized for her outstanding performance from 1986 to 1990 as chairperson of the Texas School for the Blind and Visually Impaired Board of Directors. In 1987, she received the Sammie K. Rankin Memorial Award for outstanding contributions to the visually handicapped in Texas from the Texas Association for Education and Rehabilitation (AER) of the Blind and Visually Impaired. She received the Distinguished Service Award from the South Central Region of AER in 1989.

Currently, the program has produced more than 350 graduates. Approximately 300 have graduated from the visual impairment sequence, 37 have completed the orientation and mobility sequence, and 20 have finished the deaf-blind sequence.

Sowell credits the success of Texas Tech’s program to its faculty members. As the coordinator in visual impairment, Koenig uses computers and tech-



Photo by Mark Mamawal

U.S. Rep. Larry Combest (foreground) experiences mobilization with a cane, a special life skill taught to visually impaired individuals. Pat Kelley (right) helps while educators Janet Fusco (left) and Linda Goetz observe.

nology to give future teachers the necessary background to teach such skills to their students. Technology skills allow students with visual impairments to have an equal opportunity in the classroom. He normally works with classroom teachers or itinerant teachers who travel to provide services for children who are blind or who have low vision in public school programs.

"The future teachers we work with will usually teach a special curriculum for children from birth through age 21," Koenig said. "This is a curriculum that children with visual impairments learn that children with normal vision do not learn. For example, we teach reading and writing in braille and the use of an abacus for computation purposes for children who are blind."

Public school teachers in this sequence develop skills in other areas such as daily living skills, technology, and basic orientation and mobility. Koenig said the purpose of this sequence is to teach children with visual impairments special skills that allow them to participate in regular classrooms and, ultimately, in competitive employment along with their sighted peers.

"These professionals are not in any way tutors," Koenig said. "These are teachers in our specialty areas."

Koenig has a strong interest in the use of current technology for persons with visual impairment. With special technology, students can use Braille Edit Express (BEX) to translate regular ink print versions of computer files into braille and then print out a braille copy on a special embosser. Also, BEX can be used to create large print documents.

Other equipment includes a slate and stylus, a portable braille writing device. The BrailleMate is a portable accessory that can be used to take notes using a braille keyboard and can later be connected to a portable computer to allow more advanced work.

Koenig hopes the program someday will have a laboratory complete with four work stations featuring all the latest adapted equipment for students with visual impairments. This would provide hands-on training which many teachers would find beneficial.

One of the major components of the orientation and mobility sequence involves being able to travel while blindfolded with the use of a cane.

Field exercises are essential to orientation and mobility training.

The orientation and mobility sequence uses the blindfolds to teach students how to travel along sidewalks and in public buildings, to cross streets and to use public transportation. The training is closely supervised by an instructor or classroom partner.

"An integral part of learning to teach persons who are blind to move around safely in their own environment is to understand their problems," Kelley said.

Mobility is the use of such tools as the long cane, sighted guide or dog guide for traveling. Orientation refers to the wide range of skills which must be required for safe travel.

Students are required to follow a core curriculum which teaches strategies and methods for teaching persons with visual impairments and persons who are deaf-blind. Cane travel is taught in intermediate and advanced classes.

Students are taught cane techniques for crossing residential streets and intersections, and for traveling up and down escalators and through revolving doors. After completing all classroom requirements, students must complete a practicum which leads to their certification. The certification is accepted nationwide.

"This training is basically meant to practice teaching of those skills," Kelley said.

Orientation and mobility experts often work in public schools or residential schools for the blind, adult rehabilitation centers and veteran's hospitals. Currently, only 13 orientation and mobility programs are recognized throughout the United States.

The deaf-blind sequence represents the newest addition to the personnel preparation program training at Texas Tech. The program is entering its fourth year.

The program is supported through a federal grant and a grant from the Hilton/Perkins Foundation, a worldwide supporter of deaf-blind education.

"That foundation has a special interest in persons who are deaf-blind and multi-handicapped blind in a variety of areas, including finding teachers to work with this special population," Davidson said.

The major focus of the training is to prepare teachers to work with students

with dual sensory impairments. When Texas Tech began its deaf-blind training, four other programs in the nation specialized in this area. Several have since closed. Currently, six to eight programs are operating with a special emphasis in deaf-blindness. Texas Tech has the second longest-running program behind Boston College which began its training in the 1960s.

"Because deaf-blindness is somewhat a re-emerging field, there has never been a real standard of competencies developed for teachers," Davidson said. "At this time, we're in the process of working with other university programs to develop teacher competencies.

"We have proposed an endorsement which would follow the Texas model for granting specific special education teaching areas at the graduate level," she said.

Davidson said that although the process to gain national stature will continue to take time, she is still encouraged about the progress being made in teaching persons who are deaf-blind. Davidson currently is involved with the project "Innovative Approach to Identifying and Reporting Deaf/Blind Youth in Texas."

"Currently Texas has been using a medical definition of deaf-blindness, while the federal requirement for reporting uses an educational definition. Consequently, we've been severely under-reporting children with deaf-blindness in Texas," Davidson said.

Texas has been reporting approximately 230 children with deaf-blindness annually for the past few years, Davidson said. However, the national projection for Texas is 600 to 800 children with deaf-blindness.

"We need to develop a system and some training materials to use around the state to help redefine deaf-blindness in Texas and incorporate the educational definition," Davidson said.

"There is a whole range of children with deaf-blindness we've been missing using one definition instead of the other," she said. "And that means these children's educational planning has not been appropriate for their needs."

As a result of Texas Tech's program, currently nearly 400 teachers in the profession are providing children with visual handicaps an education that previously was unavailable. □

Finding Sense to a Lingering War

By Jim Barlow



Photo by Mark Mamawal

Based on paper proposals submitted in the fall, scholars will look at the Central Intelligence Agency's secret role in Laos; the secret bombings of Cambodia; literature of the Vietnam era; Gerald Ford's proposal for victory using World War II strategy; American foreign policy toward Vietnam during World War II; aspects of Army and Navy experiences in South Vietnam; and biographical background on Gen. Tran Van Tra, commander of communist forces in South Vietnam, and Gen. Vo Nguyen Giap, commander of North Vietnam's military forces. The scholars will come from places such as the universities of Georgia, Kentucky, Southern Illinois, Illinois State, Richmond and Western Carolina, as well as the U.S. Naval Academy, Navy Historical Center and the Australian Defense Force Academy.

The Navy's river warfare, or Operation Sealords, will be the topic of R. Blake Dunnavent, a graduate student whose research led to the first master's thesis to come to fruition under the auspices of Texas Tech's Vietnam center.

"The scope of the papers says that a wide range of the aspects of Vietnam will be dealt with," said James R. Reckner, Ph.D., director of the center and a retired Navy lieutenant commander who served two tours of duty as a senior adviser to South Vietnamese naval forces. "Many of the presenters are senior academicians, which shows there will be a lot of attention to the issues. Plus, there are a number of graduate students who are coming, and they are what the center is all about: to encourage research on the scope of the Vietnam experience. This conference will make a significant contribution to the field of study."

Retired Adm. Elmo Zumwalt, who once commanded U.S. Navy forces in Vietnam, will be the keynote speaker at the conference, which will be at the Lubbock Plaza Hotel and Conference Center. Zumwalt has served as chairperson of the center's advisory board since the center's inception in November 1989. While many of the conference's sessions will be academic in nature, the general public will be invited to attend special general sessions designed to

stimulate discussion about the war.

Texas Tech's Vietnam center is the nation's only academic unit devoted entirely to the war. With its complementary Vietnam Archive, the center strives to encourage scholarly research about the war. "There is no similar organization aggressively acquiring materials, setting them aside and encouraging the study of the Vietnam War," Reckner said. "There is no political agenda. This is a straight deal of acquiring and preserving material for the future. We are all volunteers. None of the center's funds are allocated to wages or related expenses."

The archive, based within the Special Collections section of the Texas Tech Library, houses a variety of material related to U.S. involvement in Vietnam, which began in a military advisory capacity in 1954 and ended after the loss of 58,000 lives and domestic discontent with a final airborne evacuation of U.S. personnel from Saigon in April 1975.

All microform collections acquired by the archive are available through interlibrary loan to the more than 11,000 libraries throughout the United States and overseas that are members of the On-Line Computer Library Center network. "In this way, it is expected that the Vietnam Archive at Texas Tech will become a clearinghouse for Vietnam-related research materials," Reckner said. The archive and center are provided space and a "longer-than-lifetime" commitment from the university, but neither entity receives funding. Both are driven completely by donations.

The archive accepts personal memorabilia such as diaries, letters, journals, literature, music, poetry, pamphlets, leaflets and other written material that involved civilian, military, economic, domestic and social topics. Also being collected are audio and video materials, oral histories, photographs, newspaper clippings, maps, scrapbooks — anything that can shed information on the Vietnam experience.

"We want researchers to be able to use the archive to produce accurate histories of what happened in Vietnam," said John Lowey, advisory board president and a Marine Corps veteran who

What happened in Vietnam? It's a question without simple answers and a topic that sparks a virtual firestorm of controversy. Perhaps tomorrow's history books will offer some perspective to a war we did not win and a war that tore us apart at our domestic seams.

Researchers of today may give us a glimpse of how the war will be viewed in the future when they gather April 22-24 in Lubbock for "Vietnam: Paris +20," a unique academic conference sponsored by Texas Tech University's three-year-old Center for the Study of the Vietnam Conflict. America's only lost war will be dissected by scholars and discussed by visiting dignitaries during the conference, which recognizes the 20th anniversary of the signing of the Paris peace accords that led to the withdrawal of U.S. fighting forces and, ultimately, the fall of South Vietnam.

Graduate students R. Blake Dunnavent (left) and Benjamin C. Dubberly (right) examine artifacts included in the Vietnam Archive with James R. Reckner.

served as a rifle platoon commander in 1969-70 in Vietnam. "They can analyze individual battles, or place the roles of individual soldiers into a larger context."

The archive currently contains a variety of items, including personal letters and Saigon telephone books from 1957-59 that list every U.S. officer in the city. A major donation includes numerous documents that provide the viewpoint of attorneys defending the members of C Company, 1st Battalion, 20th Infantry, US Americal Division who faced court martial in the tragic My Lai massacre of 347 women, children and elderly men on March 16, 1968.

Following is a list of official documents that can be found on microform in the archive:

- War in Vietnam: Classified Histories by the National Security Council; microfilm (8 reels)

1. Gulf of Tonkin attack
2. Deployment of major U.S. forces
3. Honolulu Conference, February 1966
4. Manila Conference, October/November 1968
5. President Lyndon B. Johnson's speech, March 31, 1968

- U.S. Armed Forces in Vietnam, 1954-1975; microfilm (21 reels)

1. Indochina studies
2. Vietnam: Lessons learned
3. Vietnam: Reports of U.S. Army operations
4. Vietnam: U.S. Army senior officers debriefing reports

- Records of the Military Assistance Command: Vietnam; microfilm (48 reels)

1. The War in Vietnam, 1954-1973: MACV Historical Office Collection
2. Classified Studies from the Combined Intelligence Center, Vietnam, 1965-1973

- Vietnam: John F. Kennedy National Security Files, 1961-63; microfilm (7 reels)

- Vietnam Special Subjects: Lyndon B. Johnson National Security Files, 1963-69; microfilm (36 reels)

- Vietnam: LBJ's National Security Files, 1963-65; microfilm (17 reels)

- Vietnam, the Media, and Public Support for the War (Presidential Documents Series); microfilm (11 reels)

- U.S. Naval Forces, Vietnam Monthly Historical Summaries, January 1966 to March 1973 and Seal Team Command Histories; microfiche (167 fiche). □

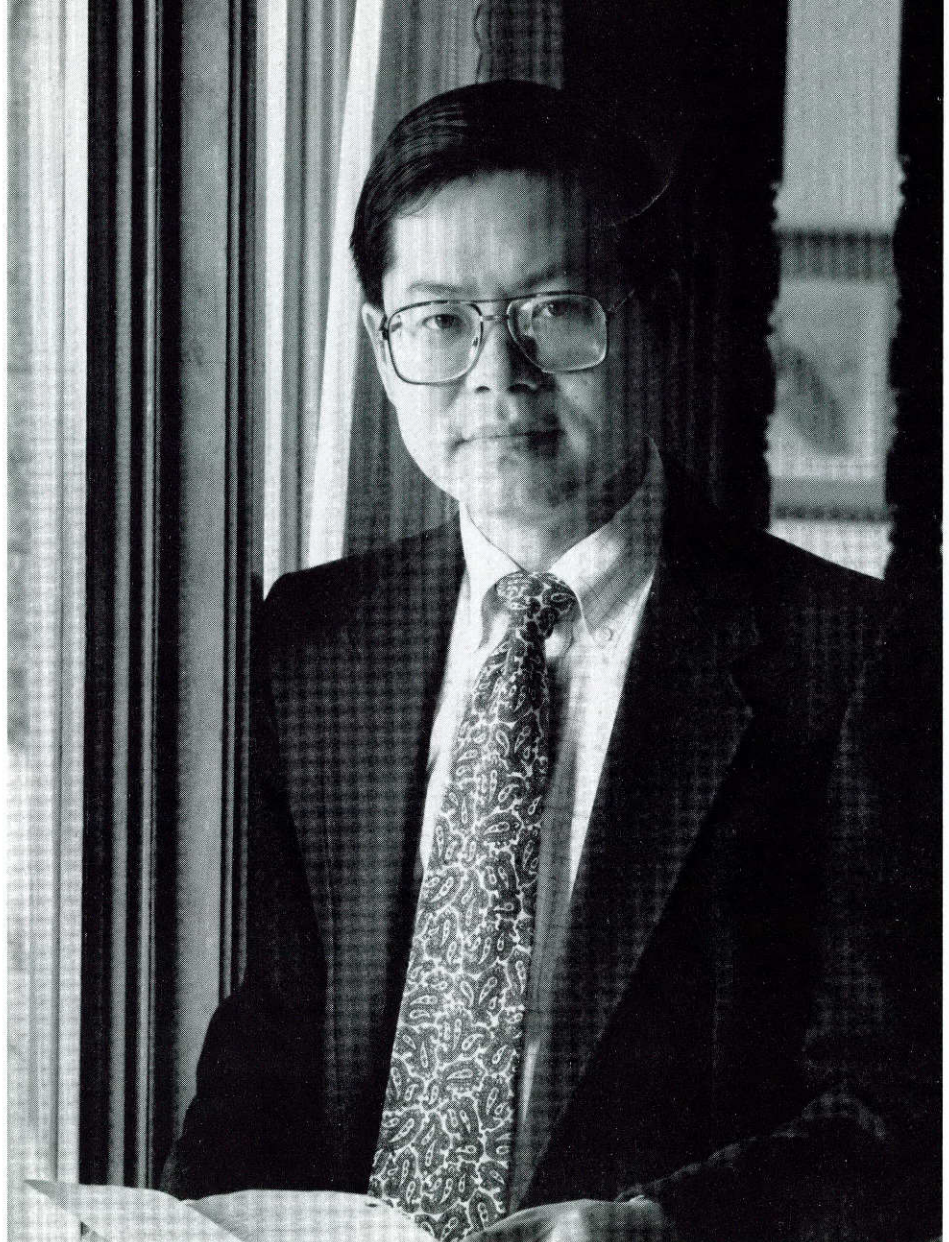


Photo by Mark Mamawal

An Escape from Chaos

By Jim Barlow

He was among the lucky; thousands of refugees died of exposure or drowning or were killed by pirates in the South China Sea.

In late August, the tears of reunion were inescapable. For the first time in more than 17 years, for the first time since he had jumped on an overcrowded and unseaworthy riverboat to escape the chaos of a long, bloody war and a communist takeover, Henry T. Nguyen, Ph.D., went home to Vietnam.

Most people who visit Nguyen, director of Texas Tech University's Institute for Biotechnology and an associate professor of plant genetics, in his Food Science Building office talk about his world-renowned research on wheat and other cereal crops, about how the crops could thrive in arid and semiarid cli-

Researcher Henry T. Nguyen fled to safety 17 years ago during the Vietnam War.

mates. But to really know Nguyen, a person must step back in time. To the Cold War. To America's Southeast Asian hell. To Nguyen's nightmarish moment of decision on April 30, 1975.

Nguyen had just completed his third year of studying rice genetics as an undergraduate student at the University of Cantho, deep in the war-ravaged Mekong Delta and near his tiny hometown in Vinh Long, where his parents ran a small bus company.

It was two years after the Paris Peace agreements had been signed, beginning the withdrawal of all foreign troops, except for the enemy, which had escalated its attacks. By January 1975, South Vietnamese provinces began falling like dominoes in the North's all-out drive to take Saigon, the South's capital. The University of Cantho had accelerated the academic year, fearing an eventual end of the South's faltering democracy. The fear was not misplaced.

At 10 a.m. the radio blared the dreaded news from Saigon, some 100 miles to the north. The South Vietnamese government was surrendering. On American television, war-weary but stunned citizens watched in horror as Vietnamese people grabbed onto the skids of U.S. Marine helicopters as they left the U.S. Embassy in Saigon, as others thrust their babies into the arms of escaping friends or just wept at the embassy's gates. Shock, disbelief and chaos also had taken over in Cantho, Nguyen recalled.

"From 10 a.m. to 12, people were basically just caught up in a mess out in the streets, people running their own directions in all kinds of activities," Nguyen said. "The U.S. embassy personnel who were still there were scrambling to get out, along with military people and others, in any means of transportation they could find. Travel to Saigon was not possible. Air service had been cut off the night before. The most available escape was by boat, down the river, to the sea."

The regional South Vietnamese military commander in Cantho gathered all of the ranking officers. Before taking his own life with a gunshot to the head, the commander told the officers to disband and take care of themselves.

At 12:15 p.m., unknown then to Nguyen and others in Cantho, the North Vietnamese flag was hoisted up the government flagpole in Saigon. In Cantho, meanwhile, Nguyen was nestled

amid the throng of people surging toward the approximately 200 boats that had been gathered along the riverfront. He was helping a cousin, a high-ranking officer in the South Vietnamese government, his cousin's wife and their son escape. At 1 p.m., Nguyen found himself "among a bunch of people who were trying to get out."

"I got caught standing in the line. I was just trying to help people carry some of their belongings, and I thought I'd just send them off and that's it. I wasn't planning on trying to escape. I thought, being a student, there was no big concern. But, at the same time, I had mixed feelings. I wasn't really concerned about going to a re-education camp, but there was a lot of tension over just what the heck the future would be when the communists came. So, even though I wasn't desperately looking to escape like so many of the other people, I, like a lot of other guys, were thinking that if there was an opportunity, maybe I should try to go. I just reached a point where I decided to go with the mass of people."

He boarded a riverboat with a 200-passenger capacity. He was one of more than 300 on board as the boat made its five-hour journey to the South China Sea, where the boat, not built for sea travel, stalled and began to drift.

At about 1 a.m., some seven hours later, a South Vietnamese Navy patrol boat came alongside. About 30 refugees, including Nguyen, jumped on board. The patrol boat took the refugees to a larger fishing boat, which carried them to Singapore, where they were not permitted to go ashore. They were placed on a cargo ship with other refugees and taken to the Philippines. Nguyen was at sea for 19 days. By late August, about four months after his decision to leave, Nguyen arrived on board a C-130 Transport at a refugee camp in Pennsylvania.

Nguyen had made it to America. He had left Vietnam with \$10 in his pocket, no extra clothes and no proof of his college work. Like hundreds of other refugees, he took any work he could get: flipping burgers at a fast-food restaurant and sweeping floors at a Millersburg, Pa., towel factory. But Nguyen had a dream, and in America, he said, dreams can be pursued and realized.

The factory manager befriended Nguyen and encouraged him to resume his agricultural studies at nearby Pennsylvania State University. Nguyen passed

exams for advanced credit. With the help of an English-Vietnamese dictionary, he went on to earn a bachelor's degree in agronomy and a master's degree in plant breeding a year later. In 1982, he received a doctorate in plant genetics and breeding from the University of Missouri at Columbia. He served as an assistant professor of wheat genetics at Oklahoma State University before he joined the Texas Tech faculty in 1984.

"The road leading to my doctoral degree and a faculty position at Texas Tech was not easy. But I was very fortunate to have a good adviser and a wonderful and caring wife, who has worked hard to support my education and much more," Nguyen said. He met his wife, Jenny, also a boat refugee from the southern tip of Vietnam, while the two were studying at Penn State. She was a high school teacher in South Vietnam; today, she owns and operates a fashion design store in Lubbock. The Nguyens have two sons, ages 12 and 11.

In 1986, Nguyen's personal dream continued to bloom. He became the first U.S. crop scientist to win the Presidential Young Investigator Award from the National Science Foundation. In 1989, he became director of Texas Tech's newly formed Institute for Biotechnology, which utilizes the work of more

Nguyen and his wife, Jenny, (left) both were boat refugees.



Photo by Mark Mamawal

than 30 Texas Tech faculty members to promote research and graduate student education in cell biology, molecular biology, biochemistry, physics, microbiology, genetics and agricultural plant biotechnology. In 1990, he won the Young Crop Scientist Award from the Crop Science Society of America. In November 1992, Nguyen co-hosted an international conference of 130 scientists who met to discuss the "Applications and Prospects of Biotechnology for Arid and Semiarid Land."

Earlier in 1992, as tensions between the United States and the Republic of Vietnam continued a slow loosening in diplomatic relations, allowing for better communication links, Nguyen talked by telephone with his parents for the first time since his escape. During the summer, as he prepared for scientific meetings in Taiwan and Thailand, Nguyen inquired through the U.S. State Department about travel to Vietnam. He was told to be cautious, but that safe passage was possible.

On Aug. 20, visa and passport in hand, Nguyen was greeted by his parents and younger sister at the airport in Ho Chi Minh City, as Saigon was renamed after the communists' tanks rumbled in and their flag was raised in 1975. "There was a lot of crying," Nguyen said. "It was very, very emotional."

With his family, he traveled to Vinh Long. "I was saddened by the physical condition of the buildings where I had gone to elementary school and junior high. The overall educational structure, particularly the classroom facilities and the shortage of well-trained teachers, was really sad."

He stayed for nine days. "There still is communist control and presence every place you go. But the people in the streets are talking openly about what has happened in the Soviet Union and Eastern Europe. In the last two years or so, there has been a little more openness, and people are allowed to have a little bit of private ownership if they can produce something. And there is trade with neighboring countries. You can see imports from China and Thailand in the country. But by far the country is still extremely poor."

Among the people he visited with, Nguyen said, he saw hope. "The people in general were upbeat and hoping for change, that things will get better.

Based on the little I saw, I think the people want to re-establish normal relations between Vietnam and the United States. That would open up a lot of opportunity for them to rebuild the country."

Today, Nguyen says he has no regrets about his spur-of-the-moment decision to leave his homeland as one of his nation's more than 1 million "boat people." He was among the lucky; thousands of refugees died of exposure or drowning or were killed by pirates in the South China Sea.

His younger days had only known war. The Mekong Delta had endured some of the war's most gruesome fighting. Vinh Long, where Nguyen had attended high school, and Cantho were among six delta-area provincial capitals captured during North Vietnam's brutal 1968 Tet Offensive. Government workers, foreign doctors, school teachers and missionaries were slain by the North Vietnamese troops. Closer to the demilitarized zone separating the two Vietnams, communist troops held the city of Hue for 25 days, committing atrocities worse than those that occurred in the Mekong Delta.

But American media, Nguyen said, did not focus on the North Vietnamese atrocities of Tet. Instead, Americans, almost a year later, were fed the story of My Lai, where on March 16, 1968, American soldiers, under the command of Lt. William L. Calley Jr., massacred 347 women, children and elderly men.

"There were a number of mass killings the North Vietnamese were committing during this time. The press made very little noise about it," Nguyen said. "These killings, compared to My Lai, I'm telling you, there was no comparison. My Lai was a tragedy that just happened. When it comes to a conflict of this scale, you can't blame a lieutenant who had poor judgment at that time. It was sad. But that was just poor judgment by one officer as compared to the centrally organized North Vietnamese plan, carried out by the whole system to commit a mass killing of people who were involved with the South Vietnamese government."

To Nguyen, the South Vietnamese and U.S. governments may have lost the war because of action that didn't follow Tet. The North Vietnamese were turned back despite the total surprise of their New Year attack. But the retreating

enemy was not pursued and beaten, Nguyen said.

"The North Vietnamese and Viet Cong troops were really in bad shape. We took a backstep in stopping them but not going after them," he said. "Looking back, Tet showed that both the United States and South Vietnamese were fighting very, very effectively. We were caught in a very surprised situation. We were able to counter, very effectively, in just a short period of time. If we hadn't backed off, we may not have the situation that we have today. It reflected U.S. policy at the time. The U.S. wasn't willing to attack the north. The communists had time to regroup and reorganize."

Nguyen said his country had been caught in a struggle between super powers, with both the United States and Soviet Union, which armed North Vietnam, afraid of a potential world war. And the United States was in inner turmoil, he noted, with a media that appeared frustrated with the war, a vocal anti-war movement and rebellion against then-President Richard Nixon.

"The South Vietnamese appreciated the West's support, but in the end, we had very little say about the conflict and about what we could and could not do," Nguyen said. "The South Vietnamese government was forced into that peace agreement in 1973. The government was against it, but the handwriting was on the wall. The agreement was signed, and the communists came in. Nixon had to save his neck, especially with the Watergate situation, and Henry Kissinger had to forge that agreement to cool off the American public. A lot of unfortunate things happened. I wish they hadn't happened."

As Texas Tech's Center for the Study of the Vietnam Conflict prepares for an unprecedented academic conference in April dedicated to an examination of the war, Nguyen said, people can learn a lot by looking back on America's experience in Vietnam. The United States, he said, has learned a lesson; the government will never fight another war unless it plans to win it.

The only war Nguyen plans to fight from now on will be in his laboratory, where he is working on a detailed genetic analysis of cereal plants and the genome mapping of wheat plants in an effort to produce drought-resistant plants. □



Photo by Mark Mamawal

MASKS OVER MIND: *Unveiling the Personae*

By Steve Kauffman

At the close of the 45-minute interview, rising from his desk chair, theater Professor George W. Sorensen, Ph.D., gave a caution: "When you go back and write this up, it may not translate well or make any sense. In acting, we don't always know why or how something works. It's just truthful and honest, and it happens."

The postscript concerns Sorensen's mask class.

The principles of the mask class remain somewhat of an enigma even to the participating acting students. And, Sorensen said, that is how this unique approach to characterization works best.

"The mask technique is just something that the students respond to more than necessarily understand," the 35-year acting coach said. "It is not an intellectual exercise. They know something happened, and they don't even understand why and how it may have happened."

Methodically twisting his hands above the desk top as he talked,

Sorensen tried to find precise terms to describe the process that he himself could not — or more likely, should not — convey with words.

The mask class is an elective advanced acting class that to outside spectators may look like a macabre exercise with students moving around speechless in multicolored masks. Mouth and eye openings form into an array of distorted expressions from a menacing grimace, to an open-mouthed laugh, to a vacant stare.

According to Sorensen, the acting technique has the ability to bring out a variety of elements from an actor's persona that the actor then can use to form a complete, full-dimensional character.

This technique of complete characterization is tied to script and to text, he explained. But it more realistically starts from self exploration within the actor to find elements of a character without regard to the play or even to the written role.

Through the initial mask selection process, students engrossingly explore their reflections and later interact with other masked beings through movement only.

The mask selection involves a great deal of research, according to Sorensen. The actors painstakingly contemplate themselves with the varied expressions to see why and how certain physical actions or emotions are brought to the surface when an individual puts on a certain mask or confronts another masked student.

"It immediately becomes a very personal kind of thing. I continue to have actor's report, 'That mask is me. That mask is me,'" Sorensen said, noting that a distinctive type of connection can be made with each of the 18 paper mache expressions.

For that reason, the deliberative process of students silently studying themselves wearing each of the masks in front of full-length mirrors consumes the first several sessions of the class.

The students' methods of self-research are as distinct as the masks that line the mirrored walls of a large aerobics room in the Student Recreation Center where the selection process takes place.

Some students sit motionless for minutes at a time as their eyes dart

through the misshapen eyeholes to contemplate their reflections. Other masked students systematically move around the rubber topped floors constantly keeping their eyes on the mirror. Still, other students only hold the masks to their face, choosing not to commit the elastic band around their head until later in the selection process when their personal list of mask candidates is narrowed.

At times, a student may pick up a mask and drop it to the floor at first glance, choosing not to try that mask at all.

"It often becomes a fairly painful kind of experience," Sorensen said, "because many times actors discover things about themselves that they didn't know existed or that they had forgotten or had tried to block out.

"It is just a set of masks that is placed before them, but they put the mask on and psychological and physiological things start happening."

Grunts and other simple vocalizations do not enter the mask training until well into the semester. Throughout the early training period, Sorensen watches intently as the students act and react with other students. He also observes the students' evolutions into and through their selected masks.

"What I'm watching is those changes that seem to occur that are indefinable except in terms of a kind of energy, electricity that seems to come because they've put a certain mask on that relates directly to that sort of objective world around them," Sorensen said of the practice that largely is limited mostly to professional acting schools such as Julliard and California Institute of the Arts.

Sorensen discovered the technique in professional workshops 10 years ago and integrated it into his curriculum that, because of his innovative approaches to auditioning and vocal technique, already held a great deal of student and professional peer interest.

The critical time in the mask training, Sorensen said, is when the actor enters into vocalization and performs an original monologue communicating with the mask and then communicating the same monologue without the prop.

"When the mask is on the face, the monologue has truth as far as the mask is concerned," Sorensen said,

"but then the mask is put aside and the actor has to become the mask.

"That is the turning point. That is where the field begins to blur because the actor, in order to have something to communicate, is bringing some of his or her own views and concerns and needs into the presentation."

That turning point also is the "scariest part of the entire class," according to junior acting student Tiffany Ochiltree who completed the course last spring.

"You are definitely on your own right then," she said about her first time unmasking. "It really is different when you get up and present the piece without the mask as a guard."

Ochiltree admitted to wanting the mask back during the monologue because, she said, "It's easier to bring out emotions and expose yourself when you are not yourself."

Even off, Sorensen said, that mask is still there in terms of how the actor is working: what the body is doing, what the energy is doing, what the focus is about.

Photo by Mark Mamawal



George W. Sorensen brings a unique approach to characterization through the use of masks.

Ochiltree is a testament to that statement, as well as a witness. She had been introduced to the mask technique for a few days at an arts magnet school in her hometown of Dallas, but the in-depth training in Sorensen's class positioned a new element in her acting and further focused past acting techniques — especially vocal training — she had learned at Texas Tech.

"Everything came together in that class. And it wasn't just me. There were four or five people in my class that really had a big, lasting change in their acting," said Ochiltree who landed a featured role in Texas Tech's fall musical production, "Barnum." That role also earned her a university nomination to participate in the American College Theater Festival's Irene Ryan regional acting competition in February.

Ochiltree plans to use one of the masks in preparing what she described as very difficult scene and monologue material for the competition.

By design, Sorensen expects the use of the mask technique to extend beyond the classroom environment. When he is in a play rehearsal situation and sees an actor having emotional or physical trouble with a character, Sorensen uses the mask technique to get the actor back on track.

"I may not even have to put the mask on their face or check a mask out to them for individual rehearsal. I may just say, 'Deal with your mask.' And that becomes an important directorial tool."

Sorensen said that kind of follow-through is very important to the actors because they realize how quickly and specifically they can become what they need to be as performers. Each time they confront the mask beyond the classroom situation, it becomes a part of them and their work.

Senior acting student Matt Riemer has used the mask for four or five characters he has portrayed since taking the class last spring. The roles have ranged from the extremes of a manipulative Hollywood agent trying desperately to get another big break in "Speed the Plow" to a Vietnam veteran in "Lone Star" who is returning to his small Texas birthplace only to find that he does not belong there anymore.

Riemer said, "The mask really helps me bring the character to life, from a written description into a living, breathing person.

"I really relied on the mask a lot to help me break down barriers that I had in my acting," Riemer said. "I knew I had the barriers. I was frustrated; I couldn't bring certain things out in my acting. I couldn't open up and fully develop a character until I started working with the mask."

Aside from performance preparation, Riemer continues to use masks in building his monologue repertoire to pave a path to a professional acting career. Monologues, he said, are a large part of auditioning, something the Dallas native knows he will have to do extensively after graduation in May.

Former acting student Lea Barron readily admitted that the mask has remained a part of her professional career that included a brief stint in August and September on the CBS daytime drama "As the World Turns."

After earning her bachelor's degree in 1987 and taking graduate theater courses, the Lubbock-raised actress headed to New York. She has used the mask extensively in school and on the East Coast.

"I've used the mask for every single role I've played since taking the mask class. I always use it when I get stuck in a role and say 'Why am I an actor? Why do I think I can do this?' and it gets me to the breakthrough," said Barron.

Sorensen said, "It really is interesting that so many actors who have gone on to professional work have called me or written me to send them a mask. They find that as they are working on roles in their professional experiences, the mask is an important rehearsal technique for them to bring a clarity to their work."

He added that many of those former students report that, after using the mask for individual rehearsal, they get a very positive response from directors as well as from fellow actors for something being unique and very different about what they are doing. Many times, the directors and other actors have no knowledge of the mask students' personal rehearsal technique.

Still, the mask does not work for every actor, Sorensen conceded.

He sees the technique as a way of working that is tangible and physically verifiable for some actors. Other actors may work better using analysis and emotional memory as well as strong

style and technique classes to bring a character together.

In his continuous effort to explore new acting techniques, Sorensen has future plans to integrate the mask class technique with an advanced section of his established "Voice for the Actor" course.

Because there is a long period in the mask training before the voice is used, he said it would be interesting to use the mask as an influence on vocalization.

Through the years, Sorensen's class itself has evolved and expanded the self discovery of mask training to ultimately include the communication level of characterization.

"I've taken it beyond the level of in-class personal exploration I taught as I was being introduced to mask work," Sorensen said.

"I think it becomes very important to directly relate the technique finally beyond the exploration level to its communication with an audience so that response levels are indeed verifiable. Rather than saying 'Oh, it would be nice if I could get this response,' you verify you can get that response."

Drawing the mask technique out of the classroom appears to have worked for many of the 30 students who participate in one of the two class sections offered each spring.

Sorensen said he continually is amazed at how some actors find a depth and a range not evident in any past acting classes or performances. Everything that the students are as actors or human beings are at the front and in a performance that often is overwhelming.

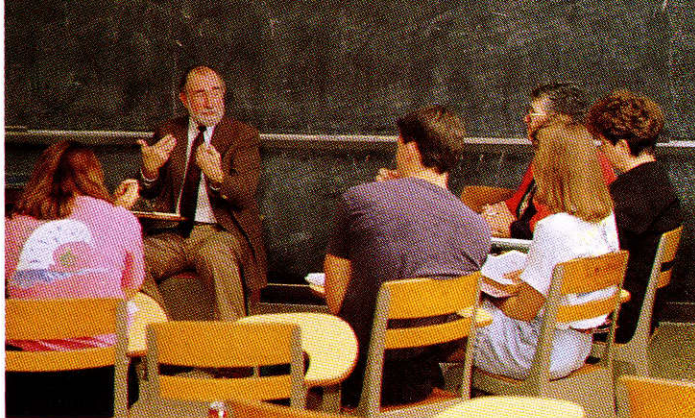
One particular example Sorensen vividly recalled was during final examinations for one of the sections last spring.

"It was person after person after person doing performance work that was beyond anything I ever would have expected from a group of undergraduate students. It was powerful, strong, dynamic work that young people are not supposed to have to do until they are seasoned performers, maybe. And I knew that they were totally in control," said Sorensen, eyes glowing with the excitement of a moment any teacher would proudly remember.

The mask had brought the students to that point, he said, and their actor craft was holding them to it. □

A Poet Among Us

By Kippra D. Hopper



Walt McDonald gathers his students in a circle to share language.

Photo by Mark Mamawal

He is a tall, bearded, burly and gentle man whose writings began as comfort for his grief over losing friends in an unpopular war. More than 1,200 poems later, he welcomes readers into the regions of his world: the native integrity of West Texas, the momentary pulsation of flight, the interval grace of the

Colorado mountains, the tender depths of a family, and the repulsive encounters of Vietnam.

Walter McDonald, Ph.D., lives among us, but he transports us elsewhere with crisp, insightful, bold language. A Paul Whitfield Horn Professor of English and Poet in Residence at Texas Tech University, McDonald blesses his readers and students with an urging to stretch within, to unearth imagination.

In his creative writing classroom, McDonald gathers the students in a circle. "We can lend you our eyes, you can borrow our ears. We'll find something that really turns us on. In our workshop, we will be a circle of coaches, and we'll love each other to death," he says.

That devotion to his students has earned him a national education award. After 32 years of teaching, McDonald has been honored by the Council for Advancement and Support of Education (CASE) in Washington, D.C., as the 1992 Texas Professor of the Year.

CASE is an international association of colleges, universities and independent secondary and elementary schools. The association recognizes faculty members for their commitment to undergraduate teaching, contribution to the lives and careers of students and service to their institution and the teaching profession.

"I came into this work of teaching

I'm sure because of teachers that lit the fire under me. I'm a teacher who gets to write. The classroom is where I get turned on by students' writing. It delights me. I love to see the eyes light up when they catch something," McDonald remarks.

"All students I've ever seen have fantastic imaginations. They'll never be able to exhaust their potential," he says. "That's why I love this work, because everything that they write, assuming they're spilling themselves into the work, comes out of themselves. It means something to them. I tell them every once in a while that the creative writing class is a class in which their life matters. So teaching takes no great talent; you just have to open yourselves to the students that you care about."

In this particular class session, students are meeting for the last time before their first deadline for manuscripts — either one short story or six poems. "Don't show anyone your first drafts; those are yours. Play with the clay, the language. Trade in sounds for others at the barter table. Words have an aura of connotations. If you like writing, you'll love rewriting. It's a thrill," McDonald says. "Rewriting is where you get to make words jump through hoops. You drag the words back kicking and screaming into captivity on the first draft, and then you try to train them. Mark Twain said it: Find the right word, not the second cousin."

Breaking the students into smaller groups, McDonald sits back, grinning, listening to the students discuss various writing examples. He encourages them: "Language should be sensuous. Fiction sometimes gives us what we want, sometimes what we want least. In poetry, when you write details, you're taking a risk. Poetry is implosive. The emotions are shared by language; make your language more muscular."

McDonald teaches what he knows best, writing: He recently completed

Hawks in a Bitter Blizzard

*Hard work alone can't drive blue northers off.
Nine blizzards out of ten blow out
by Amarillo, nothing this far south*

*but flakes and a breeze to make a man
in shirt sleeves shiver. Every few years,
Canada roars down, fast-freezing cattle*

*in the fields, dogs caught between barns,
hawks baffled on fence posts. Stubborn,
hawks refuse to bunker down in burrows*

*with drowsy rattlesnakes and rabbits.
They drown in their own breath-bubbles,
crystal as the sheen on barbed wires*

*freezing in the rain. Wood carvers driving by,
grinding on chains down icy roads,
see them at dawn and envy, tempted*

*to haul the fence posts home and burn them,
nothing in oak or juniper they carve
ever as wild and staring as those eyes.*

By Walter McDonald

— from "All That Matters"
(Texas Tech University Press, 1992)

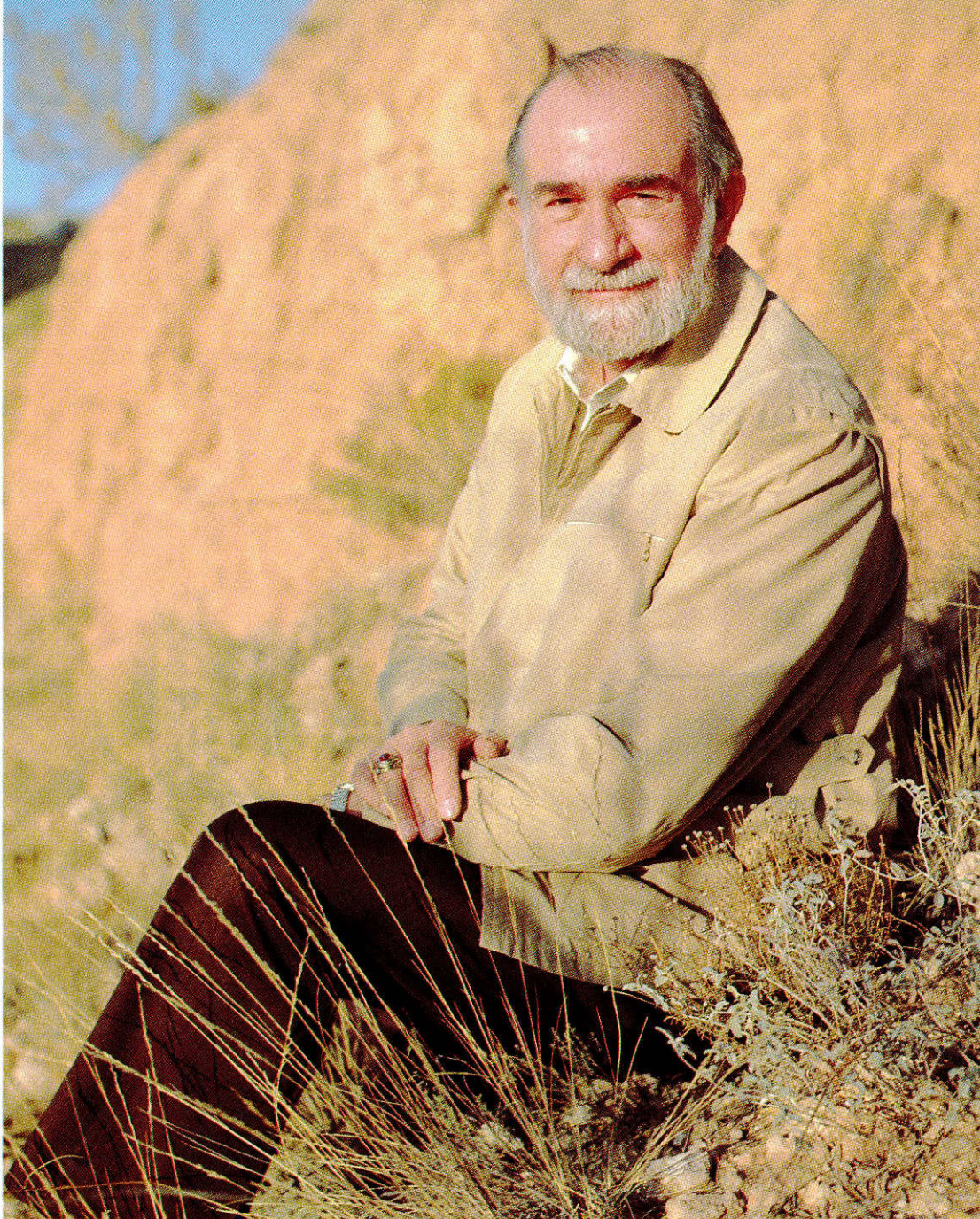


Photo by Mark Mamawal

The hardscrabble West Texas landscape permeates the images created by Walt McDonald.

his 13th book, "All That Matters," published by the Texas Tech University Press. The selection of 75 poems is accompanied by photographs of the Texas Plains from the university's Southwest Collection that were chosen by Janet M. Neugebauer, associate archivist. The book is the most recent example of one territory well-known to McDonald, West Texas, where he grew up.

Author Elmer Kelton says of the work: "Walter McDonald's vivid poetry recreates the visual imagery of the high plains' flat land and wide-open sky and their emotional impact upon the people who live there. The reader feels the

hot sun and the dry wind, the grit that seems to penetrate the very soul."

John Graves, a Texas non-fiction writer, comments: "Ever since discovering Walter McDonald's work, I've been moved by its evocation of the spirit of his native West Texas plains — their climate and topography and natural life, their spaciousness and sometimes starkness, and the way all these things interweave with people and history and lore. Intelligent, sensitive, perceptive, and uncomplaining, this man knows not only **who** but **where** he is, and in a quietly masculine way, with clean, strong, unsentimental words and images, he celebrates that whereness."

McDonald began writing poetry as a middle-aged pilot in the U.S. Air Force where he flew from 1957 to 1971. "I wrote the first poems just before I went to Vietnam when a couple of buddies of mine were shot down. One was blown up mid-air, and one was shot down and taken prisoner of war for six and a half years as it turned out. And I wanted to say something to those guys. I had another good friend who crashed into a mountain over in Vietnam. This was before I went, and I wanted to say something to him or about him. I tried short stories; I tried letters. I turned to poems when nothing else worked," he recalls.

After the Noise of Saigon

*If where we hunt defines us,
then stalking this steep hillside
dark with spruce makes sense,*

*more than the dreams I've
floundered in
for years, trying to fathom signs
all night and wading ashore*

*disgusted. Switches dripping sap
keep flipping me when I glance
over my shoulder for spoor*

*I might have missed. Evergreen
needles sting when I swing my head
face-forward for clues. Isn't this*

*the strangest nightmare of all,
knowing my aim with a bow
is no better at twenty yards*

*than forty? But here I am, alone
with a cougar I've stalked for hours,
climbing until I'm dizzy.*

*These blue trees have nothing
and all to do with what I'm here for
after the noise of Saigon,*

*the simple bitter sap that rises in me
like bad blood I need to spill
out here alone in the silence*

*of deep woods, far from people I know
who see me as a friend, not some
damned
madman stumbling for his life.*

By **Walter McDonald**

— from "After the Noise of Saigon"
(The University of Massachusetts Press,
1988)

After retiring from the Air Force, McDonald came to the Texas Tech English department as an associate professor and eventually wrote enough poems for a first book, "Caliban in Blue," published in 1976. For his efforts, he won the Texas Institute of Letters Poetry Award. McDonald was stunned.

He previously had written six novels — none had ever been published. "It took me a long time to catch on that I'm not a long-distance runner. Some people are better at lyric poems, some are better at the long, sprawling novel. Practically every writer I know started off in one genre and ended up in another. I put in a pretty good apprenticeship on novels. Maybe that's why I've tried so many poems."

"Caliban in Blue" was mostly about Vietnam, and McDonald was convinced that he had exorcised the demon of the war from his system, but the impressions persisted. Without intent, McDonald says the theme of the war reoccurred in his writing, particularly in his 1988 work "After the Noise of Saigon," which received the University of Massachusetts Press Juniper Prize, and "Night Landings," published the following year. In fact, McDonald's one published book of fiction, a 1989 work, "A Band of Brothers," consists of "a cycle of short stories or of a very loose episodic novel" about the Vietnam War.

About the fiction, Texas novelist Clay Reynolds writes: "This is a view of hell from an intelligent, sensitive eye, a tour of unimaginable horror conducted by one who has not only seen it, but who has also felt it. The characters here are drawn with depth and insight, and their reality jumps off the page and grabs the heart with a cold, passionate fist. 'A Band of Brothers' is a major addition to the literature of Vietnam, something that recalls the best of men in the worst of times and tries to explain how very nearly war can come to destroying us all."

McDonald's preferred poet, James Dickey, notes about "Night Landings:" "Walter McDonald is a truly human voice speaking from the air. These are remarkable poems, written from the vision of a man sustained by machinery in terror and exhilaration above the planet. The experience of McDonald's words is as unique as flight itself."

Soon after his first book of poems

was published, a professor-poet at the University of Iowa, where McDonald earned his Ph.D. in 1966, asked him where Texas was in his work. "I had never thought of it. I didn't know that a poet could write about what he wanted to write about. I thought you wrote about things that tormented you. So I began looking around, and I found that I knew West Texas better than anywhere else on Earth."

"So I began to dip my bucket down into this suddenly fabulous semiarid desert, and I found more images, more possible poems, than I could write out if I write for 40 more years. So I've made my truce, my peace, and even learned to affirm and celebrate West Texas and what's here, skies as well as the rattlesnakes, the wind," he emphasizes.

One of McDonald's frequent images is "hardscrabble," a tough, scrubby, rocky land where eking out a living is harsh. In an interview several years ago, McDonald said he uses the impression as a metaphor for the feelings of returning home from Vietnam. "If you've got that terrible experience that whole nations suffered through, the Vietnam War, that you can't escape from, then in a sense that becomes the watershed. My persona, my speaker came back from Vietnam a little bit shattered, trying to go on. When his eyes look out over the landscape, it's going to seem like hardscrabble. Sometimes life feels like living on hardscrabble where hawks and buzzards are often in our skies and sometimes rattlesnakes are in our fields no matter how many times we water and harvest. I hope my poems, therefore, have a celebration of ordinary courage, or hardscrabble."

That double image is strong in "After the Noise of Saigon." Robert B. Shaw, English professor at Mount Holyoke College notes: "Walter McDonald's poems are records of human endurance in hard times and harsh places. Without bitterness, but with a wondering sorrow, he writes of the hardscrabble part of Texas where he grew up, and he writes also of Southeast Asia, where he served during the ill-fated American involvement in Vietnam. The disturbing juxtaposition of these two frontiers — distant, and in such different ways inhospitable — is one of the most striking features of this book. McDonald understands the survivor's

A Woman Acquainted with the Night

*My wife is not afraid of dark.
She uses lights like handholds,
climbing down caverns she accepts
as found.
She is as comfortable as blossoms*

*when the sun goes down.
Forests we've camped in at night
are forests, to her, clear-eyed,
seeing no visions she can't*

*blink away. In sudden dark,
she goes on mending clothes by feel
while I sweat and rage
to make the spare fuse fit.*

*When she was six a fat man
digging a storm cellar
shut her and a friend inside,
stood on the black steel door*

*and stomped like thunder.
Frozen, too frightened to reach
for Becky screaming in her ears,
she felt nothing could ever*

*be that dark again. In time
the door clanged open and light
baptized her with perhaps
too deep a trust in saviors.*

*She lies down now in darkness
with no human hand but mine
to cling to, nothing but faith
in the moment to let her sleep.*

*When storms short out
the relay stations, she knows
how to touch me, how to make
romance of failure,*

*knows like blind friends
how many steps to the candles
so if our children wake and cry
for light, there will be light.*

By Walter McDonald

— from "All That Matters"
(Texas Tech University Press, 1992)

sense of guilt and continuing jeopardy; his war veterans and cowboys, his pilots and his rodeo fool haunt us with the ironic ordinariness of their heroism. The style of these poems is one of eloquent plainness. The tone, level and compassionate, is capable of rising to climaxes of high intensity. McDonald displays so firm a mastery of experience that he might borrow Whitman's line without strain or apology: 'I am the man, I suffered, I was there.'"

Discovering his voice over the years, the 58-year-old McDonald has found his personal regions that have yielded endless visions. He explains that he begins with a piece of language, and within a few lines, he knows the kind of poem he is writing. The process is one of discovery as he prowls those places. "They may be homely like an ugly horse, but it's the only horse I've got, and I'll ride it as long as it will carry me."

In a review of "The Flying Dutchman," David Citino, poetry editor at Ohio State University Press, comments: "Walter McDonald finds poetry in the eyes of vultures and carrion, in the breath of steers and riders of the range, the bleat and growl of sheep and wolves; in the sky above Lubbock and the sky above Da Nang; but most impressively, he finds it in the land. These are poems rooted in the earth, wrested from the stubborn soil. He is gifted and persistent enough to discover the magic in the mundane, the fantastic in the daily grind of labor and habitude, and love in isolation. These poems help us live our lives."

McDonald remains humble though he has received manifold kudos for his accomplishments. The National Cowboy Hall of Fame twice has awarded its Western Heritage Award to McDonald: in 1992 for "The Digs in Escondido Canyon" and in 1990 for "Rafting the Brazos." He was given the George Elliston Poetry Prize for "The Flying Dutchman" in 1987. Recognized for his first work, McDonald also garnered the Texas Institute of Letters Poetry Award for his 1985 "Witching on Hardscrabble" and again for "The Flying Dutchman." He has been rewarded for his work with National Endowment for the Arts Creative Writing Fellowships, received in 1984 and 1989.

At Texas Tech, where he earned both his bachelor's and master's degrees in

1956 and 1957, respectively, McDonald also has been recognized for his teaching and writing. He won the Distinguished Alumnus Award from the Texas Tech Ex-Students Association in 1988. Among other university honors, in 1992 he was given the President's Excellence in Teaching Award, and in 1989 he earned the President's Academic Achievement Award.

McDonald's poems have been in distinguished journals including **The Atlantic**, **The New York Review of Books**, **Poetry** and **TriQuarterly**.

He has delivered more than 70 poetry and fiction readings throughout the United States, including presentations at the International Poetry Forum at the Hirshorne Gallery of the Smithsonian in Washington, D.C., and at the Carnegie Museum in Pittsburgh.

Writing and teaching share a symbiotic relationship, McDonald says, because he can discover in his students' work things that never have existed before. Something he repeats year after year to new batches of students is: "You are the thumbprint that's never existed before. You imprint all your forces and experiences on the old plots, the old character types, the old themes. It's like a thumbprint going into a fresh, flat piece of clay. The combination of that particular matrix of experiences and that particular writer has never existed before."

He believes that everyone can learn the craft of writing. "I'm an old pilot, and I can teach anybody to fly a plane, although I can't teach anybody the **desire** to fly. Everybody's got imagination, and if you've got the desire to write, then you've got the important ingredient, the willingness to give up some pleasurable moments in your life in order to sit down in the seat of the chair and wrestle with words. Writing is such a lonely craft, why do it unless you really enjoy it? Teaching is not a lonely craft. You've always got some people that you love, that you're trying to help learn.

"The hardest thing about teaching is the end of the semester because you have to let them go. Teaching is sort of a microcosm of what life is. It's joyful for a while, and," he snaps his fingers, "then it's gone. But the wonderful thing is, until you're too old and have to be turned out to pasture, you get to turn around and do it again." □

Staking the Future of Libraries

By E. Dale Cluff, Ph.D.

(Editor's Note: The following analysis was written by E. Dale Cluff, Ph.D., director of libraries for Texas Tech University.)



Photo by Mark Matarwal

A primary mission of academic libraries is to serve as an integral part of the scholarly communication process. Libraries are becoming brokers of information as well as gatherers. They are acquiring fewer "things" to place on shelves and are providing more "gateways" to information regardless of its location. Such information access can be provided electronically to the faculty office and other out-of-library locations.

A recent publication of the Association of College and Research Libraries gives a clear statement of the role of university libraries: "Ensuring and expanding access to the rapidly growing base of information is the task of the academic library. It is a daunting, multifaceted task that includes building research collections, teaching information literacy skills, preserving unique resources, serving local business and industry communities, developing scholarly databases, maintaining national bibliographic utilities, and sharing resources by electronic networking and cooperative interlibrary lending among all types of libraries."

Librarians select information to support the curriculum and research of the university. The types of degrees granted and research conducted dictate the information needed. For example, it is important to make access-

ible in-depth and primary resources for a doctoral program, while a broad sampling is acceptable and necessary to support an undergraduate curriculum. Other specific resources must be provided to serve highly specialized researchers. The strength of the local collection and the information the library can access, as well as the quality

of service the library provides, often are considered by a student, faculty member or researcher considering attending or working at a given university.

There are three broad areas of monetary need in a library: information, operation and personnel. The portion of a budget that is allocated for each of these areas varies significantly from one library to another. Variables that produce these differences include the number of hours the library is open, the mix of journal subscriptions and book purchases, the mix of foreign and domestic purchases, the degree of automation and telecommunications used, the type of expertise necessary to perform the primary services, and the number of specialty positions needed to support the clientele. Texas Tech's University Library typically allocates about 43 percent of its budget to information, 11 percent to operations and 46 percent to personnel.

The part of the budget that addresses the patrons' information needs is frequently called the "acquisitions" budget. Because "acquisitions" connotes acquiring tangible objects, some library administrators are beginning to refer to this portion of the budget as the "information" budget. This is because the portion of this money used to electronically access information that cannot physically be placed on a shelf is growing steadily.

The largest portion of the information budget in Texas Tech's Library is expended for journals. The total information budget for FY 1992 is \$2,093,063. More than half of this amount, \$1,216,643, is used to subscribe to approximately 8,000 journal titles (approximately 5 percent of the number of titles published worldwide). Over the past few years, the average price increase for these titles has been approximately 12 percent per year. Unfortunately, the budget has remained fairly constant over the same time and we have been forced to cancel 2,000

titles in the past four years in order to live within our budget.

Another cost associated with journal subscriptions, which is not well known, is replacing issues and pages. Single issues are regularly lost, misplaced, stolen or mutilated (articles torn or cut out). When these come to our attention a decision must be made as to whether to replace with paper copy or some other format, usually microform. Sometimes a replacement issue cannot be located. More than \$10,000 a year is spent addressing this problem. The hidden cost associated with theft and mutilation, which cannot be measured, is the lost time of staff and faculty and perhaps, more importantly, the lost information that may have been critical in someone's research.

As with journals, the Texas Tech University Library budget has not kept up with the annual rise in book costs. In 1979-80, the average price for a North American published academic book was \$21.98, while by 1990-91 it had increased to \$46.53. From that base index year to 1990-91 the average book price increased 211.7 percent. During this same period, the amount of money available to the libraries to purchase books has not increased proportionately. As a result, the number of books purchased for the library per year has declined. As with journals, thousands of dollars are spent repairing and replacing mutilated and lost books. In addition, \$50,000 to \$75,000 is spent annually to bind books and journals.

The challenge for academic libraries, including Texas Tech's, is trying to keep up with the information needs of the curriculum and research despite rising costs and declining budgets. As witnessed by the increase in journal and book publishing, information is expanding rather than decreasing. New knowledge must be shared. While library budgets have remained in a no-or small-growth state for some time, knowledge continues to explode, causing new journals to be born and more books to be written. While the costs of traditional forms of information expand at rates beyond most university library budgets, alternative forms have allowed us access to a broader spectrum of information than ever before.

Information in an electronic format is a relatively recent development for academic libraries. Available, as you read

this, are hundreds of newsletters, journals and reference works in full-text to be accessed by computer terminal. For example, the **Academic American Encyclopedia** is available to those who have purchased the "license" to access it. Many libraries with on-line capabilities offer these full-text services to their patrons. Texas Tech is moving in this direction. The obvious advantage of this service is that the patron can read the article from their office or home without traveling to a library. Those preferring the printed page may (possibly for a price) print the article on their printer. You will see this trend from paper to electronic access of information continue to develop at an increasing rate.

Electronic networks and telecommunication services combine around the world as vehicles that drive electronic access to information. For example, OCLC, the world's largest bibliographic utility, links more than 11,000 libraries electronically. This utility contains the records for more than 23 million books and other materials. It also provides many other services available over its 297,000 miles of telephone lines, its multiplexed circuits, and its satellite links. Texas Tech has been part of OCLC since 1974 and uses this network daily to move thousands of inter-library loan requests annually to and from participating libraries. This service has saved millions of dollars over the years and is a bargain at approximately \$100,000 per year.

There are other costs experienced by libraries in addition to acquisitions and information access. Because of the various formats in which information is available, a heavy investment in equipment is necessary in order to read, view, hear and transport it. Thousands of dollars per year are expended to buy new, maintain current, and replace old equipment such as computers, printers, microform readers and printers, video, audio, fax, telephones and photocopiers.

Another important cost to any library is its staff. The staff of an academic library is made up of four types: librarians, specialty, classified and student assistant employees. Librarians and archivists typically have at least one master's degree, several have earned two, and a few have earned a Ph.D. These individuals are the professionals

who select, acquire, organize, access and interpret information for the curricular and research needs of the students, faculty and staff of the university. They work along side faculty, graduate students and undergraduate students to fulfill the mission of the university. The specialty, classified and student assistant employees act as valuable support staff to the librarians and archivists. Together, the staff work all the hours the libraries are open, typically around 100 hours per week. The total amount budgeted for salaries and wages for the current year is \$1,680,683.

These individuals provide the critical support services essential to the scholarly communication process. Unencumbered availability of information is the key to research. We must have the information when it is needed. It may sound like a high-minded platitude to say that access to information is the cornerstone of a free society, yet, we would probably agree that a learning and inquiring mind is a prime attribute of an informed citizen. Individuals in the library and archival profession take their job seriously. They lead the fight against censorship and for the right to read. They lead the fight for adequate funding for libraries. They are service-oriented professionals who will go the extra mile to assure that the student and the faculty member have access to the necessary information to accomplish their work.

Peter Graham observes: "The research library includes within its holdings all that can reasonably be gathered of the intellectual history of the world. Within our walls and accessible through our staff and computers are opinions of every kind on every topic: religious, philosophical, literary, scientific, political. It is the nature of a research library to serve up the human record for current intellectual inquiry."

We must place the need for information at the forefront of our society. By doing so, progress will be accelerated on many fronts. The overwhelming challenges of society, such as illiteracy, health care, poverty, safety, crime and defense, will all be met sooner. This acceleration of information-sharing will have a spiraling benefit on all areas of our economy and on the general well-being of society.

Libraries are our finest investment for the future. □



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